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## HEMATOGENOUS INFECTIONS OF THE KIDNEY\*

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The surgical aspects of nephritis have led to extensive discussion, and but little agreement exists with regard to the types that are not clearly surgical. Wide differences of opinion are also manifest among those who have given the most time and attention to the study of nephritis in general. The accumulated literature on the subject is monumental; much of it, unfortunately, is confusing, and often even the fundamentals are the subject of controversy. Recently, however, articles have been published that help to clear up some of the moot questions.

Historically, the chief point of interest with reference to nephritis is the profound knowledge of the various phases of the disease exhibited by Richard Bright,<sup>1</sup> one of a long line of brilliant workers in Guy's Hospital, London. In 1827 and again in 1836 Bright, in epoch marking papers on edema and on albuminuria, pointed out that fundamentally there are two kinds of nephritis: Type 1, the acute or "wet" nephritis; and Type 2, the chronic or "dry" nephritis.

Type 1, which involves the kidney filter, was to be recognized pathologically in cases in which the large white kidney was found. Clinically, the type was characterized by edema, especially in the acute stage, and by urine containing albumin and casts, and at times blood corpuscles, the urinary findings varying in extent with the acuteness of the process and the amount of involvement of the kidneys. Both kidneys are always involved, and exhibit a wide pathologic architecture. The morphology varies as the toxic agents vary in toxicity and affect different structures of the kidney.

### BRIGHT'S TYPE 1 NEPHRITIS

Since the publication of Bright's work, we have learned that Type 1, or the "wet" type of nephritis, is usually the result of toxins developed in the course of infectious diseases. Diphtheria antitoxin affords the best known example of the effect of bacterial toxins on the kidney; it may produce changes in the kidney

analogous to the nephritis which sometimes develops in cases of diphtheria. The frequency with which Bright's Type 1 and infective nephritis follow lesions of the skin and mucous membrane, especially in children, is worthy of note, as shown by the nephritides following scarlet fever, tonsillitis, etc. In the adult, exposure to cold, especially of the cutaneous surfaces of the body, plays a definite rôle. The value of the skin as an aid to elimination in cases of defective kidney function has long been well known. The effect produced by hot packs and similar therapeutic measures is to cause a flow of perspiration which may eliminate large amounts of chlorids and some urea.

It is true that acute nephritis may be produced by other toxic agents, such as cantharides; but to all intents and purposes an infection lies behind it. The edema is to a large extent due to a failure of elimination of chlorids. Chlorids, usually taken in the form of common salt, are a constant requirement of all animal life. The herbivorous and omnivorous animals obtain the necessary amount in the form of salt, while the carnivorous obtain a sufficient amount from the flesh they consume. The chlorids are largely excreted by the kidneys. In acute nephritis, chlorid is not fully eliminated, and edema results. The physical and chemical reactions involved in the production of edema by chlorid retention are still greatly disputed, however, and it is apparent that there are varying factors to be considered.

### BRIGHT'S TYPE 2 NEPHRITIS

Bright's Type 2, called the dry type because edema is not present, involves the connective tissue and blood vessels, especially the arteries; the patient suffers from headache, nausea, vomiting, hypertension and other symptoms of uremia. The symptoms may be latent for long periods. Urea retention is one of the final consequences of this type. While urea will not of itself, when in excess in the blood, produce uremia, it is closely associated with if not one of the agents which produce the uremic manifestations. Both kidneys are involved, and pathologically in the typical case the kidneys are contracted and granular. The urine is of low specific gravity, pale, and large in amount. The urinary findings may consist only of an occasional cast and a trace of albumin, although at times there may be large amounts of albumin. This type of Bright's disease is closely associated with or is a part of a general vascular disease, and perhaps should not be described as a true primary nephritis. Changes in the heart are so characteristic of chronic Bright's disease that the appellation of cardiorenal disease is at times not inappropriate. The pathologic architecture varies with the situation of the chief con-

\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1918.

1. Bright, Richard: Reports of Medical Cases with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy, London, Longmans, Green & Co., 1837-1831, 2 vols., xvi, 421 pp.; xl, 724 pp.; Cases and Observations Illustrative of Renal Disease Accompanied with Secretion of Albuminous Urine, Guy's Hosp. Rep. 1: 138-379, 1836; Tabular Review of the Morbid Appearances in One Hundred Cases Connected with Albuminous Urine, with Observations, Guy's Hosp. Rep. 1: 380-400, 1836.

recessive tissue deposits and the changes in the renal vascular system. Bissell<sup>2</sup> and other pathologists call attention to the fact that many of the changes in the kidney called nephritis are regressive in character. Neither infections nor the products of infection, so far as is known, play an important part in the etiology of Bright's Type 2. The cause of the condition is as yet unknown, but it is probably due to disorders of metabolism.

Edema may develop in chronic Bright's disease (Type 2), but if it does it is almost invariably the result of cardiac failure and not of salt retention. Widal had divided nephritis functionally into two forms; the chloremic or salt retention type, corresponding to Bright's Type 1, and the azotemic, nitrogen or urea retention type, corresponding to Bright's Type 2. It has been asserted by various authorities that chronic Bright's Type 2 is the late result of Type 1. I am convinced, however, that Bright's Types 1 and 2 are entirely independent diseases.

A discussion of the differentiation is unnecessary here, but the confusion seems to arise from mixed types. In certain varieties of Bright's Type 1, chronicity may be a feature. This is especially true of a form of Type 1, caused by chronic focal infections. I have seen what were believed to be cases of Bright's Type 1, caused by chronic infections of the teeth, tonsils, gallbladder, or by duodenal ulcer, etc. These patients recovered from the nephritic disturbance after operative cure of the focus of infection. Subacute infections, with slowly sterilizing abscesses, will often cause symptoms of a nephritis which disappear as the cause is removed. Excessive connective tissue may develop in the kidneys in some cases of Type 1 so that the resemblance is close to the contracted kidneys of Type 2; but the vascular changes are different. Again, chronic Bright's disease, Type 2, acts as a cause for lowered resistance of the kidneys, and a secondary true nephritis of Type 1 may be added to the condition, especially as a terminal infection leading to the frequent postmortem finding of death from acute nephritis superimposed on chronic nephritis. This confusion is further increased in some cases by pathologic changes in the kidney, the late results of unrecognized hematogenous infection which might well be called Type 3.

#### FUNCTION OF THE KIDNEY

Rowntree<sup>3</sup> calls attention to the fact that medicine of the last decade centers around the question of function, so far as the kidney is concerned. The capacity of the kidney to carry on its work, rather than its appearance, has come to be recognized as the important factor. This is well shown by the value clinically of the phenolsulphonphthalein test and the test of the chemistry of the blood. The percentage of urea in the blood or the phenolsulphonphthalein test will frequently give a clue to the state of the kidneys that cannot be obtained from the urinary findings.

That the kidney in health filters bacteria out of the blood, and by so doing receives no injury, is a fact too well known to require comment. It is the retention of the bacteria in the kidney which produces the

trouble. But we know much less about its ability to filter out toxic materials. In the greater number of cases of nephritis, no bacteria are found, and we must believe that it is some material, the result of infection, rather than the bacteria themselves that cause the trouble, although it is possible that an ultramicroscopic organism exists as the causative factor. The kidney normally filters out urea, which is the ash of protein derivatives, the amino-acids. The patient with a granular, contracted kidney (Bright's Type 2) must of necessity pass a large quantity of urine; the specific gravity is low because the kidney filter is damaged and fails to eliminate normal concentrations of urea and similar bodies. As these products are not threshold bodies, they are always to be found in both the blood and the urine.

On the contrary, sugar in the blood is a threshold body. When it rises beyond the normal, the excess flows off through the urine, and diabetes results. The threshold, however, is not an exact point, and many persons with crops of boils or carbuncles may, by testing the blood for sugar percentages, be shown to have an increased amount of blood sugar without having sugar in the urine, just as in others a low threshold permits the escape of sugar from slight temporary causes, so-called dietetic or alimentary glycosuria, which is without pathologic significance.

Embryologically, the kidney has a double origin: First, the ureter, the pelvis, the calices, and the straight collecting tubules all lined with pavement epithelium, which are derived from the wolffian duct and have no function beyond that of collecting urine as it is formed. The chief response of the part of the kidney thus derived, when diseased, consists in the development of infections, calculi, etc., and if the disease is a malignant one, it is a true carcinoma. Obstructions to the urinary outflow at any point are most potential of mischief through failure of drainage. The medullary part of the kidney is composed of the urinary collecting channels just described and of the venous channels which carry back the purified blood to the general circulation. Second, the filtering portion of the kidney, which arises from the mesothelium and forms in large part the cortical substance which is the arterial side of the kidney, bringing blood from the general circulation for purification. The common, solid tumors of the kidney that we have miscalled hypernephroma are, as pointed out by Wilson,<sup>4</sup> true mesotheliomas; that is, malignant neoplasms arising in the kidney filter. I think we may agree with Cushman<sup>5</sup> that the kidney does not secrete urine, but filters it. The kidney may be aptly compared to a separator. The arterial blood enters the kidney cortex, the urine is filtered out, and the venous blood passes back to the general circulation. Weld,<sup>6</sup> by his experimental injections of mediums, demonstrated the physics of the process outlined. The partial failure of the two halves of the kidneys to unite, so that the urine, when filtered, is not freely admitted into the collecting tubules, produces the so-called congenital polycystic kidneys that are eventually associated with chronic nephritis.

2. Bissell, W. W., and Le Count, E. R.: A Consideration of the Relative Frequency of the Various Forms of Coma with Special Reference to Uremia, *J. A. M. A.* 64: 1541-1545 (March 27) 1915.

3. Rowntree, L. G., and Geraghty, J. T.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonphthalein, *J. Pharmacol. & Exper. Therap.* 1: 579-600 (July) 1909-1910.

4. Wilson, L. B.: Hypernephromata, *Old Dominion J. M. & S.* 10: 238-252, 1910.

5. Cushman, A. R.: The Secretion of Urine, New York, Longmans, Green & Co., 1917, 251 pp.

6. Weld, E. H.: Renal Absorption with Particular Reference to Pyelographic Mediums, Thesis submitted to the Graduate Faculty of the University of Minnesota in partial fulfillment of the requirements for the Degree of Master of Science in Surgery, June, 1919.

## TYPE 3 NEPHRITIS

Nephritis, the result of living organisms, may be called Type 3. True nephritis is concerned with the filter portion of the kidney, and the failure to filter out all the bacteria and their retention is responsible for the occurrence of one form of the disease, which is of great surgical importance. As to just how often such infections may be ascending or lymphogenous rather than hematogenous in origin there is a diversity of opinion. My own opinion is that such infections, other than hematogenous, are extremely rare so far as the kidney filter is concerned, though it is possible they may be more frequent in that part of the kidney devoted to collecting urine.

Accepting the idea that there is a common form of true nephritis which differs from Bright's Types 1 and 2 and is caused by a bacterial infection, we quickly see that the effect on the kidney will depend on the nature of the bacteria, their number and on the condition of the kidney itself, on whether, for example, there is an anomaly present, such as hydronephrosis or calculi, which makes the kidney more vulnerable. The importance of this has been shown by Cabot and Craibtree,<sup>7</sup> who demonstrated that the pus cocci affect the cortex of the kidney and often follow lines of least resistance toward the periphery; and that the coliform bacteria affect the straight collecting tubules of the pyramids, extend from them to the pelvis, and there produce a pyelitis. Pyogenic infections may lead to cortical abscesses and other evidences visible to the eye; but with scanty urinary findings beyond a trace of albumin in the acute stage, and a few microscopic pus and blood cells, the urinary evidences are so slight as to be overlooked unless great care is exercised. In the subacute and chronic forms the kidney may be more or less destroyed, and the common forms of pyonephrosis will follow. The pyogenic cocci are short lived and often are not to be found in the pathologic changes their action initiates. On the contrary, colon bacteria, by the production of copious, purulent sediment in the urine, give abundant evidence of infection without abscess formation in the kidney. Acute nephritis (Bright's Type 1) is the result of toxic products, not of living organisms, as in diphtherial and scarlat nephritis, and the two kidneys are equally involved. When the nephritis is the result of living bacteria (Type 3) the kidneys may be involved unilaterally or bilaterally, the unilateral infection being in the kidney which is more vulnerable because of some physical defect. The pus-producing organisms affect the kidney much as do tubercle bacilli, and those who have studied tuberculosis of the kidney will recognize the resemblance.

Hematogenous nephritis is often caused by cocci found in the skin, especially staphylococci derived from boils, carbuncles, etc., and from focal infections generally. The staphylococcus is short lived and often affects only one kidney. Acute streptococcal infections are most malignant. Subacute and chronic streptococcal infections occur commonly as a result of septic endocarditis, and appear in the kidney as a terminal infection, embolic in character.

In the fulminating type of hematogenous pyogenic infection, unless nephrectomy is performed, death may often result within a few days. The acute condition is often confused with acute intrapapillary infections:

7. Cabot, Hugh, and Craibtree, E. G.: A Classification of Renal Infection with Particular Reference to Treatment, *Boston M. & S. J.* **17**: 789-785 (June 1) 1916.

on the right side, especially, is the differentiation from cholecystitis and appendicitis necessary. This may also be true of the less acute form. In the subacute and chronic forms, natural processes may localize and sterilize the foci of infection, and the patients may fully recover, or partial recovery may later be followed by chronic infection, and the kidney will be converted into a pyonephrosis. The fact should be recalled that septic infarcts rupturing through the capsule of the kidney are the most common cause of perinephritic abscess.

Bright's disease, both Type 1 and Type 2, is of surgical interest only because of complications. But all the nephritides caused by living bacteria (Type 3) are of great surgical interest and have, until recently, been confused with Bright's disease. Hematogenous kidney infection is the one bright picture in a group of maladies that have been discouraging in the extreme. The surgeon of today is as greatly interested in nephritis as is the internist.

In reviewing the large mass of literature on nephritis, rather superficially, it is true, I have been particularly impressed with the clear and logical presentation made by Brewer<sup>8</sup> in a series of published papers beginning in 1911, in which he demonstrates hematogenous pyogenic infections of the cortex of the kidney clinically, experimentally and pathologically. In this connection, I wish to comment on the value of the contributions of the surgeon to such problems. Nephritis has been studied largely from a clinical and a necropsy standpoint. Clinical observations in these cases are notoriously unreliable, while the necropsy shows the terminal conditions that cause death. This exposition of terminal change, determined at necropsy, is exceedingly difficult to interpret in the living, and the final catastrophe leading to the death of the patient produces pathologic changes obscuring those that existed during life. In no other way can I explain the various theories and controversies which have marked the history of the study of nephritis. The clinician attempts, by study of the urine and the symptoms of the patient, to explain the terminal conditions found after death, which may not have existed at the time the clinical examinations were made. The surgeon, not by reason of greater acumen but by opportunity, now furnishes the missing link in the investigation which carries the truth, and makes possible an exact study of the kidney before the terminal infections, which are encountered at necropsy, obscure the picture.

Payne and MacNider,<sup>9</sup> and Buerger<sup>10</sup> have shown the hematogenous origin of certain of the so-called chronic, essential hematurias, demonstrating that infection in and about the straight tubules, resulting in the development of scar tissue, which interferes with the venous circulation, causes congestion and varicosity of papillae and leads to rupture and renal hemorrhage. This gives a pathologic explanation for several cases in which we explored to find the cause of renal hemorrhage, and in which one or more papillae were found to be the seat of varicosities.

8. Brewer, G. E.: The Present State of Our Knowledge of Acute Renal Infections, with a Report of Some Animal Experiments, *J. A. M. A.* **57**: 179-187 (July 15) 1911; A Rare Type of Embolic Hematogenous Infection of the Kidney, *Yale M. J.* **17**: 237-252 (Jan.) 1910-1911; Observations on Acute Hemorrhagic Infections of the Kidneys, *Am. J. Urol.* **5**: 519-520, 1913; Hematogenous Infections of the Kidneys, a Summary of Our Present Knowledge, *New York M. J.* **104**: 356-360 (March 29) 1915.

9. Payne, R. L., and MacNider, W. B.: The Surgical Problem of Unilateral Symptomatic Hematuria, *J. A. M. A.* **67**: 918-923 (Sept. 23) 1916.

10. Buerger, Louis: Concerning Certain Types of Hemorrhagic Nephritis, *M. Rec.* **94**: 1057-1061 (Dec. 1) 1911.

I have been greatly interested in the chronic form of hematogenous nephritis of bacterial origin. In a number of instances, I have explored and found small, cortical, pimple-like collections of fluid in the kidney in various stages of sterilization. I have been able to link up another most interesting sequel to the condition, namely, the occasional deposit of calcium carbonate in such an infected area, usually close to or connected with the capsule, which produces a roentgen-ray shadow resembling that of stone. The diagnosis of stone is often justified by the history of the acute, severe attack which marks the onset of infective nephritis. I have known such deposits of lime to form as soon as two months after the primary symptoms. Why, in some persons, lime is deposited during the process of the cure of the infection, I do not know. The kidneys in such cases are often painful. Our patients were relieved by the excision of the lime masses, and by decapsulation. In several cases, the deposits of lime were deeper in the cortex. There are almost no urinary signs or symptoms in these cases, as the masses are in the cortex with little communication with the collecting parts of the kidney. It is very evident, too, that in some painful kidneys, with dense scars in the capsule, the origin is similar, and the condition may be relieved by decapsulation. I have been slow to admit that capsular compression of the kidney could be the cause of symptoms, but I have seen at least three cases in which hypertrophy of the remaining kidney within its fibrous capsule, after the removal of its fellow for disease, produced pain from the stretching of the capsule. The kidneys were low and movable, and the patients thin, and I was able to follow the compensatory hypertrophic enlargement by palpation, and to satisfy myself that the hypertrophy caused the pain.

In our experience, decapsulation has been valuable in this small group of cases in which there are scars and lime deposits in the capsule of the kidney, and in another group still more rare, that of acute nephritis (Bright's Type 1), in which, as pointed out by Morris,<sup>11</sup> the operation occasionally enables the kidneys to functionate when urinary function has ceased and the patients are apparently in a dying condition. For movable kidney, etc., we have seen no good effect from nephrorrhaphy other than the psychic.

#### ABSTRACT OF DISCUSSION

Dr. HEN H. YOUNG, Baltimore: Dr. Mayo's paper is somewhat parallel to an article I wrote a number of years ago, in which I took up the history of urology. Among other things it was easy to prove that John Hunter was originally a urologist, although the pathologists claimed him as the father of pathology, and the internists claim him as the father of modern medicine. In regard to this society, as one of the original founders of it, I may say that the reason we called it the section on genito-urinary diseases, was just with the idea of grouping here all types of scientific men interested in the urinary tract, not only general surgeons but also internists and physiologists and all others who are interested in the urinary tract. Dr. Mayo's point that the surgeon has played a very important part in clearing up the pathology of many parts of the body is, I think, very well taken. We know how the pathologist and the internist groped for many, many centuries over typhlitis and perityphlitis, and had no conception of the internal pathology of

the real fundamental basis of the condition until the surgeon cleared it up. Real pathology of the kidney made very little progress since the time of Bright, and it is interesting to note that Dr. Mayo goes back to the classification of Bright as the standard classification of renal infections. For a number of years the question as to the possibility of a unilateral nephritis has been a mooted one. Casper claimed that unilateral nephritis was possible. The trouble was that these cases were not seen early, or that the disease was not studied thoroughly. Undoubtedly those cases are apt to be caused by some obstruction below. Undoubtedly the kidneys filter out bacteria constantly, which probably is one of the ways the body has of getting rid of bacteria, and happily the kidneys are able to take care of it, and there is no infection in the large majority of cases. When the bacteria are retained there is probably some condition below which prevents their elimination. I think that obstructive conditions of the urinary tract are present in a far greater number of cases than we realize. Whatever is the cause of these conditions is a question that needs working out in every individual case. Dr. Mayo spoke of focal infections in the kidney, one of the most interesting and puzzling conditions met with in the kidney. His fulminating type is rarely seen. They are not generally seen except by the internist or the general surgeon who is called to operate on a man who is desperately sick, and he may accidentally find the condition present. It has been extremely rare in my experience. The relation of that condition to the more chronic types is not very definite, because those patients very frequently die before the condition becomes chronic.

DR. WILLIAM LINDER, Brooklyn: The subject of hematogenous infection of the kidney is of great interest to the surgeon as well as to the general practitioner. It has been pointed out that this disease early involves only one kidney. The clinical picture is one of an acute upper abdomen. The history is one of acute onset, ushered in with a chill and frequently preceded by some external lesion, such as a carbuncle or a sore throat. Examination will reveal a distended abdomen, tenderness in the upper abdomen but no rigidity. This alone differentiates it on the right side from a perforated gastric or duodenal ulcer. It, however, must also be differentiated from an acute perforative appendicitis in the retrocecal region. But the history of appendicitis will aid us not to be misled, i. e., general abdominal pain, vomiting then localization to the right side and finally rise of temperature will point to appendicitis. The most important sign or symptom is tenderness and a sense of rigidity in the costovertebral angle. The Murphy fist percussion sign is of great aid. The urinary findings in this condition do not help us; one may find a few white and red blood cells. Therefore, it can easily be differentiated from an acute pyelitis where pus is frequently found in the urine. In my service at the Jewish Hospital I have operated in more than 100 cases of this type of kidney infection. Some of these patients were pregnant women and a diagnosis of unilateral kidney infection was made and confirmed at the operating table. The treatment in these cases of the fulminating type is nephrectomy; fortunately these cases are few in number. In the subacute type, decapsulation, if the patient is seen early, will save both the kidney and the patient. Hence, the importance of early diagnosis. These lesions, as has been pointed out by Dr. Mayo, are cortical and a metastatic infection is carried by the blood stream. They are minute military abscesses and decapsulation allows these abscesses to rupture and drain.

DR. GUY L. HUNNER, Baltimore: I would like to ask Dr. Mayo if he thinks it is really safe teaching to recommend nephrectomy in many of these cases? I am familiar with Brewer's recommendations in that line, but for some reason they have not appealed to me. In the first place, we cannot differentiate, within the first few days, in the acute cases, between these acute cortical abscess cases and mere pyelitis cases. Even in the acute pyelitis case the urine contains albumen, blood and casts, that we usually consider characteristic of these acute cortical infections. There is the same high temperature, the chills, the prostration and, as

11. Morris, H.: Notes on the Surgical Treatment of Affections of the Kidney. *Ann. Surg.* 5:209-305, 1882; *Surgical Diseases of the Kidney and Ureter, Including Malformations and Migrations*, New York, Cassell & Co., 1911, 2, 670 pp.

far as I know, it is rather impossible to differentiate which the patient has. If you are going to operate at all it probably ought to be done early, and that is Brewer's teaching. I think Dr. Mayo will agree that some of these patients undoubtedly recover spontaneously if we leave them alone and treat them as we would a pyelitis patient. He has spoken of a series of cases in which he finds evidences of past infection, with the lime deposits, showing that some of those patients have recovered. So altogether it seems to me that if we are going to operate at all in these cases it would be safer teaching for the average surgeon to recommend mere drainage, or, perhaps, decortication. If I operated at all on a case of that sort I should prefer drainage. In such cases a few kidneys will be saved, and a few, of course, will remain infected, and perhaps have to be removed later. But in any of these cases, another point in favor of some form of conservative operation is the fact that we cannot tell whether they are unilateral, or bilateral. The symptoms may all be referred to one side; but I have had cases where later, after the patient had recovered, investigation showed that both kidneys were infected, whereas in the acute attack we considered but one kidney to be infected. I would like to ask Dr. Mayo's opinion about these points.

DR. LEON LOUISA, Brooklyn: I have learned of the type of infection of the kidney to which Dr. Mayo refers only during the last few years. The subject was entirely new to me, and it was only by observing the findings on the operating table that I could clarify in my mind the pathology of this disease. Hematogenous infection of the kidney is distinct from pyelitis, it is due to a general infection, with localization in the kidney. There are fulminating cases, which are not recognized at all—or only too late to save the patient's life. At the Jewish Hospital of Brooklyn, I have seen a number of these cases and referred them to the surgeon. The internist sees them first, and he must make a diagnosis. We deal with a general infection very frequently following a tonsillitis, with metastases in one kidney. Some throat is often followed by chill and fever, but the patient does not localize the pain; still, if you keep in mind this type of kidney infection, and press your finger firmly in the costovertebral angle you easily elicit an acute pain; and if you can exonerate the appendix and gallbladder, the diagnosis is made. After the conclusion has been reached, our attitude in these cases should be identical with that in cases of appendicitis. Nobody can predict the course of an acute appendicitis; so then, in acute hematogenous kidney we cannot be sure, *a priori*, that the infection, left alone, will not destroy the life of the patient, or at least one kidney, while both may be saved by timely surgical intervention. Internists have learned that the appendix belongs to them only until they make the diagnosis, and then it becomes the property of the surgeon. I think the same principle ought to be applied to the acute kidney. A surgeon ought to be consulted; if experience has taught him that this particular kidney can be saved without operation, well and good, we will stand by him; otherwise an operation ought to be performed. No single surgical procedure should be binding, the surgeon ought to proceed without a contract; no promise of saving the kidney can be made to the patient in advance. If on inspection of the kidney the surgeon feels that the organ can be saved, he will not do a nephrectomy, but he will resort to a minor operation, decapsulation, nephrotomy or partial excision. If you are sure that the patient has another kidney, and the partner is functioning properly, the hazard is not great, as we know that man can live with one kidney. A few years ago I said that I felt that nature was provident in giving us two kidneys, in that she assigned one to the surgeon and left one for the patient.

DR. FRANK HINMAN, San Francisco: Two points might be emphasized in this discussion: In the first place, the type of infection. We all know that the colon bacillus does not produce abscesses in the kidney, and it seems to me that this discussion is confused by the fact that many of these acute infections of the kidney, probably the great majority of them, are due to the colon bacillus. And these kidneys can always be left alone. They do not demand operation in

the acute stages. On the other hand, streptococcus or staphylococcus infections of the kidney are the type of acute infections of the kidney that are so frequently hematogenous and surgical and are the kind that sometimes demand immediate operation to save the patient's life. I inferred from Dr. Mayo's paper that this was the type he referred to particularly. The other fact that should be emphasized is that the kidney is not an excretory organ for bacteria by choice; it is only that when the circulation is overwhelmed with bacteria, or when the kidney is injured, or is nonresistant that infections of the kidney occur. This can be shown experimentally in a great many ways. If you inject animals with living cultures of bacteria you will find that the liver and the lungs, the gallbladder, and the other organs of this animal will be loaded with bacteria, and the kidney will show relatively few. The kidney, therefore, is not an excretory organ for bacteria. Marked infection of the kidney occurs much more often with potato cultures than with broth cultures due to the clumping and the resultant capillary emboli in the former instance. The type of infection, whether colon bacillus or coccus, and a knowledge of the particular renal injury present, in view of the fact that the kidney is not, by choice, an excretory organ, can often shed considerable light on questions of surgery, particularly in reference to these acute septic kidneys.

DR. WILLIAM J. MAYO, Rochester, Minn.: I was particularly interested in having Dr. Hugh Young lead this discussion because I believe that in the Brady Institute which is under his charge there is a great opportunity to solve such problems as this by attacking them from every side. Organized effort will clear up moot questions in urology just as has been done in other fields. Dr. Hunner has brought up an important point with regard to nephrectomy. Nephrectomy is only for the exceptional case. In a very high percentage of these acute cases the patients get well or eventually develop a chronic condition of pyonephrosis and come to operation later. Many cases may be in their inception so mild that we do not appreciate the condition as an acute, or even a subacute process presenting so few symptoms. There are cases, however, as pointed out by Brewer, in which nephrectomy is necessary to save life. I have removed a kidney in a few such cases. On two occasions I operated from in front, expecting to find acute suppurative cholecystitis, but on exploration I discovered that the real seat of the trouble was in the kidney. The kidney when removed was found to be riddled with acute abscesses. I could not conceive that such a kidney might be cured by decapsulation or drainage. It should not be assumed for a moment that the kidney should be removed early in all cases; probably nine out of ten such patients in this condition will either enter into a chronic or get well. I wish again to call attention to the fact that these cases may sometimes be seen in the process of sterilization. In some instances little pimple-like masses were shown to be bacteria free, and others contained bacteria, and in the late stages of cure carbonate of lime may be deposited in the sterilized area giving rise to roentgen-ray shadows.

**A Literary Fragment on Syphilis and Tobacco.**—The following quotation from a curious document printed in London in 1604, entitled "A Counterblaste to Tobacco," affords some insight, both into the belief of that day as to the origin of syphilis and as to its treatment: "For Tobacco being a common herbe, which (though under divers names) grows almost every where, was first found out by some of the barbarous Indians, to be a Preservative, or Antidot against the Pockes, a filthy disease, whereunto these barbarous people are (as all men know) very much subject, what through the uncleanly and adust constitution of their bodies, and what through the intemperate heate of their Climat; so that as from them was first brought into Christendome, that most detestable disease, so from them likewise was brought this use of Tobacco, as a stinking and un-avorie Antidot, for so corrupted and execrable a Maladie, the stinking Suffumigation whereof they yet use against that disease, making so one canker or venome to eate out another."

## STUDY IN A FOUNDLING INSTITUTION TO DETERMINE THE INCIDENCE OF CONGENITAL SYPHILIS\*

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NEW ORLEANS

This study consisted in examining all the infants and children in a foundling institution in an effort to determine the incidence of congenital syphilis. Their bloods were examined by means of the Wassermann reaction; luetin skin tests were made on them; and they were subjected to complete physical examinations, careful observations being made with regard to the growth and development and the usual symptoms attributable to congenital syphilis.

The bloods were obtained from the infants with open anterior fontanels from the longitudinal sinus and, in those whose fontanels were closed, from the vein at the bend of the elbow, and in a few instances from the vein over the inner malleolus. The bloods were collected in accordance with the usual method and transmitted to the laboratory for examination. The original Wassermann test was made on each blood, and, in addition, a second test was made by modifying the original test in using one unit of hemolysin instead of two as in the original, and in incubating over a longer period of time. The readings in both the tests corresponded in every case.

The luetin skin tests were made according to the technic outlined by Noguchi, and were carried out minutely. Readings were made every twenty-four hours over a period of nearly two weeks. The duration of the reaction was from two days to nine days, and in some instances the induration remained even longer. The earliest pustular reactions occurred in two days. These reactions were not always the ones to remain the longest time.

### REACTIONS TO LUTIN AND WASSERMANN TESTS

There were, in all, 106 infants and children on whom both luetin and Wassermann reactions were made. The luetin reactions were positive in seventy-nine cases, negative in eighteen, and doubtful in nine. In twelve of the negative and four of the doubtful cases the age of the infants was 3 months or under; in the remaining negative and doubtful cases, six and five, respectively, the children were above that age. Of the positive luetin reactions the age of the infants in six cases was 3 months or under, the youngest 1 month and 2 days, the next 2 months and 5 days, and the remainder ranged up to the oldest child investigated. The doubtful reactions were also more frequent the younger the child.

The Wassermann reactions were negative in all the cases. This seemed to be an extremely unusual occurrence and one entirely unlooked for, so that without any desire to discredit the value of the Wassermann reaction in congenital syphilis, but in order to exclude the possibility of an error's having crept in, the following checks were made:

1. A series of eight bloods, four from children showing positive luetin reactions and four from children showing negative luetin reactions, were obtained by the same investigator and by the technic by which the original bloods were obtained, and were submitted to another serologist, without specifying the origin of the cases. This serologist made the original Wassermann test and, in addition, a Tschurnogubow modification of the original, all with negative results.

2. Another series of bloods was then obtained from the children by the second serologist and examined by him, and these also gave the same negative findings. These two series excluded the possibility of error either in the technic of securing the blood for the serologist, or in the technic of performing the Wassermann tests, with the possibility of improper material.

Further evidence as to the reliability of the results of the original tests is manifested when it is shown that while these bloods were being examined and were giving negative Wassermann reactions, an interesting series of ninety-six positive Wassermann reactions was simultaneously being found in the bloods of 160 persons, not at all connected with this investigation, by the original serologist who reported on the bloods of the inmates of this institution. This clearly showed the reliability of the method and of the technic employed by him in his investigation at the foundling institution.

The question naturally arose as to the reliability of the luetin tests and their readings. The technic consisted in cleansing the inner aspect of the forearm of any visible dirt with soap and water. It was then dried and wiped with ether. The skin was allowed to air-dry, and the luetin was injected intradermally by means of a tuberculin syringe with a fine steel needle. The readings were made by each of us separately and the results compared, the findings being identical. So as to check the technic of the luetin tests, physiologic sodium chlorid intradermal injections were made in the same manner as for the luetin tests, in five cases giving positive luetin reactions and in five cases giving negative luetin reactions, and in every instance the reading was negative. To dispel the idea of a defective luetin being used (which was not believed to be the case), a luetin secured from another manufacturing house was obtained, and a series of injections was made which included four previously positive cases and four previously negative cases. In each instance the reading corresponded with the reading in the original test.

In making the readings of the luetin reactions on the first occasion, an interesting development occurred: Instructions had been given to withhold all medication pending the investigation. These instructions were carried out, with this exception: On reading the luetin reactions in the room of a certain group of bottle feeders, attention was immediately called to the violence of the reactions, which was emphatically stated by one of us to be due to the use of iodids. After an immediate investigation it developed that the dietitian, in making the daily food, had continued to add the usual drops from a container to the usual bottles for each baby, as was customary. This container held a solution of syrup of ferrous iodid.

These luetin readings were not considered as positive in this series, but were carefully watched. On the cessation of the iodids, the reactions promptly subsided, and at the end of eight days, when the reac-

\* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

tions had disappeared, with the exception of only a small indurated area, a second luetin test was made. In seventeen instances, the reactions at the end of twenty-four hours were diffuse, and somewhat resembled the iodid reactions; but in another twenty-four hours they had lost their diffuse appearance and resembled the iodid reactions; but in another twenty-four duration. In the seven remaining instances, the reactions were all positive and pursued the course of the normal positive luetin reaction.

Of the 106 infants and children investigated, fifty-seven were males and forty-nine females. Their ages ranged from 1 month to 5<sup>10</sup>/<sub>12</sub> years, with the exception of one child of 7 years. The ages and the numbers of cases are given in the accompanying table.

NUMBER OF CASES AT THE VARIOUS AGES

Years	Months	No. of Cases	Years	Months	No. of Cases
..	1	5	2	9	1
..	2	13	2	10	2
..	3	4	3	1	3
..	4	1	3	3	1
..	5	2	3	4	1
..	6	1	3	5	1
..	7	1	3	6	2
..	8	6	3	8	2
..	10	2	3	9	1
..	11	4	3	10	1
..	12	5	4	1	1
..	15	3	4	3	1
..	17	1	4	3	1
..	18	4	4	4	1
..	19	3	4	7	1
..	21	2	4	9	1
..	2	1	4	11	2
2	1	3	5	1	3
2	2	3	5	1	1
2	3	2	5	2	1
2	4	1	5	7	1
2	5	5	5	10	1
2	7	1	7	..	1
2	8	2	..	..	..

There were twenty-two cases in children under 3 months, and eighteen in those under 2 months. From 3 months to 6 months inclusive, there were four; from 6 months to 1 year, eighteen; from 1 year to 2 years, fourteen; from 2 years to 3 years, twenty-one; from 3 years to 4 years, twelve; from 4 years to 5 years, ten, and from 5 years to 7 years, five. Forty-one and six tenths per cent. were under 1 year; 33 per cent. in children from 1 to 2 years; 11.3 per cent. in children from 2 to 3 years; 9.4 per cent. in children from 3 to 4 years, and the remaining 4.7 per cent. in children from 4 to 7 years.

LEGITIMACY

Fifty-nine of the infants and children were legitimate, forty-three were illegitimate, and in four the legitimacy was not known. Of the fifty-nine legitimate, forty-six, or 77.97 per cent., returned positive reactions; six, or 10.17 per cent., negative; and seven, or 11.8 per cent., doubtful reactions. Of the forty-three illegitimates, thirty, or 69.76 per cent., returned positive reactions; eleven, or 25.58 per cent., negative reactions; and two, or 4.65 per cent., doubtful reactions. Of the four children whose legitimacy was unknown, three, or 75 per cent., returned positive reactions, and one, or 25 per cent., negative reactions.

There were under 3 months of age, six legitimate, and fifteen illegitimate infants, and one whose legitimacy was unknown. Of the six who were legitimate, two returned positive reactions; two, negative, and two, doubtful reactions. Of the fifteen who were illegitimate, four returned positive reactions; nine, negative reactions, and two, doubtful reactions. The infant

whose legitimacy was unknown returned a negative reaction.

One legitimate and nine illegitimate infants in whom negative reactions were obtained had syphilis skin eruptions. All of these infants were under 3 months of age. Forty-seven, or 79.66 per cent., of the fifty-nine legitimate children and thirty-nine, or 90 per cent., of the forty-three illegitimate children were therefore syphilitic. These, together with the three positive cases of doubtful legitimacy, gave a total of eighty-nine positive cases in the 106 inmates, or an incidence of 83.96 per cent. as revealed by all available methods of diagnosis.

PHYSICAL CONDITION

*Weight.*—Weights were studied in ninety-three cases. In eighty-seven they were below the normal average, in four instances they were normal, and in only two instances were they above the normal average, namely, in one child, aged 5, and in another, aged 2 years and 6 months. In seventy-one cases in which children returned positive reactions the weights were below normal in sixty-six, normal in three, and above normal in two. And in sixteen cases in which the reaction was negative, weights were below normal in fifteen, and normal in one. In six doubtful cases the weights were below the normal. The weights of the legitimate children were below normal in forty-six instances, and normal in one; of the illegitimate children, below in thirty-eight instances and normal in three, and of the three children whose legitimacy was doubtful, below in each instance.

*Height.*—The heights were studied in eighty-four instances, in which there were sixty positive, seventeen negative, and seven doubtful reactions. The heights were normal in two cases in which the reaction was positive; above normal in ten cases in which it was positive, in eight in which it was negative and in three in which it was doubtful; and they were below normal in forty-eight positive, nine negative and four doubtful cases. With the legitimate children, the heights of ten were above normal; that of one, normal, and thirty-two below normal; while the heights of the illegitimate children were above normal in ten, normal in one, and below normal in twenty-eight cases. In the two cases in which the legitimacy was unknown, the heights were above and below in one instance each.

*State of Nourishment and General Appearance.*—The nourishment and general appearance coincided almost exactly in 104 cases. They were fair in twenty-two positive cases, three negative cases, and three doubtful cases; poor in forty-four positive, fourteen negative, and five doubtful cases; and very poor in eleven positive cases, one negative case, and one doubtful case. The nourishment and the general appearance of the legitimate children were fair, poor and very poor in twenty-one, thirty and seven instances, respectively; of the illegitimate children, fair, poor and very poor in seven, twenty-nine and six instances, respectively, and poor in four instances in which the legitimacy was not known.

*Nails.*—The nails were found to be claw shaped or ridged in fifty-five instances, including thirty-nine positive, ten negative and six doubtful cases. In this classification were thirty-two legitimate children, twenty-one who were illegitimate, and two regarding whom legitimacy was not known.

*Glands.*—Glandular enlargements were present in eighty instances. The glands found to be enlarged

were the cervical, the inguinal, the axillary and the epitrochlear. The frequency of their enlargements were in the order named. They were enlarged in fifty-nine positive, thirteen negative, and eight doubtful cases; or in forty-two legitimate children, thirty-five illegitimate children, and three whose legitimacy was not known.

*Costal Beading and Flaring Ribs.*—Costal beading and flaring ribs were found in forty-five instances: twenty-four times in positive cases, fifteen times in negative cases and six times in doubtful cases; or in twenty-five legitimate children, nineteen illegitimate children, and one child whose legitimacy was not known.

*Liver.*—The most constant symptom in the entire study was the enlarged liver. This was present in eighty-three instances: in fifty-eight positive, seventeen negative and eight doubtful cases; or in forty-six legitimate children, thirty-three illegitimate children and in all four of the cases in which the legitimacy was not known.

*Spleen.*—Next in frequency to the enlarged livers and glands were the enlarged spleens, which were found in sixty-seven instances: in forty-five positive, fifteen negative and seven doubtful cases; or in thirty-six legitimate children, twenty-eight illegitimate children, and three of the four cases in which the legitimacy was not known.

*Skin.*—Skin eruptions were present in fifty-five cases, or in 51.89 per cent. of the inmates of the institution. In twenty-two, or 20.75 per cent. of the inmates, the eruption was diagnosed as of syphilitic origin, or, 40 per cent. of the cases of skin eruptions were syphilitic. In this study the younger the individual the more frequently were skin eruptions found. This was more particularly so with regard to the syphilitic skin lesions. The positive syphilitic skin eruptions were found in twelve positive luetin cases, eight negative luetin cases and two doubtful luetin cases. Twelve of the positive skin eruptions were found in infants during the first three months of life, or sixteen infants aged 1 year or less, the remaining six being found in infants aged up to 2 years and 5 months. The eight negative and two doubtful luetin cases with positive syphilitic skin eruptions were in infants aged 3 months or less. The syphilitic skin eruptions were found in five legitimate and seventeen illegitimate children.

The ten positive skin eruptions in the negative and doubtful luetin cases were associated with enlarged livers in nine instances, enlarged spleens in seven instances and enlarged glands in eight instances. Costal beading was present in three cases; flaring ribs in two; ridged or clawed nails in four; anal fissures in two, and wig, snuffles, and discharging ears in one instance each.

The skin readings were made after the other tests and consequently a greater time had elapsed after medications had been withheld. It was stated by the attendant that the skin eruptions had increased when medication had been stopped.

Fissures were present in four positive cases, five negative cases, and one doubtful case. The symptoms of snuffles, wig, scaling soles and palms and disturbances of the ears and eyes, nose, and bones and joints were practically absent. Heart murmurs were found in four positive and in two doubtful cases. Bosses were present in twelve positive cases and in one negative case.

The earliest complete eruption of teeth was in an infant aged 1 year and 5 months, a legitimate child who had shown a positive reaction. The oldest infant with no teeth was 1 year and 3 months, and was an illegitimate child who had shown a positive reaction.

One child, an illegitimate child who had given a positive reaction, at 3 years and 8 months had only eighteen teeth and was 6 inches under size and 12 pounds under weight. Another child, who was illegitimate and had given a negative reaction, at 2 years and 6 months had fourteen teeth and was 9 inches under height and 7½ pounds under weight.

The anterior fontanel was closed in a legitimate child who had shown a positive reaction at 11 months and 8 days, and in another child in the same class the fontanel was still open at 2 years and 8 months.

#### NOURISHMENT

The nourishment in the institution consists of the ordinary foods usually given in such institutions, with a fair amount of milk. The infants and children up to 2 years receive the same mixture of milk, which contains, from analysis: total solids, 11.36 per cent.; ash, 0.49 per cent.; fat, 1.45 per cent.; protein, 1.62 per cent.; lactose, 7.8 per cent.; acidity (as lactic acid) 0.69 per cent. This information was secured because of the number of diaper eruptions (intertrigo), in the very young infants. All the infants are given the same mixture, though the quantity varies. The older children, from 2½ years on, are given whole cow's milk as part of their daily rations.

#### ROUTINE MEDICAL CARE

The routine medical care of the newly born in this institution is of interest, especially in view of our laboratory findings. We were informed that twelve powders of 1 grain each of mercury with chalk are given to each infant, three powders daily for four days, and on the fifth day 2 drams of castor oil. Should the skin show any eruption, this treatment is followed by applying mercurial ointment, 33 per cent., in quantities approximately the size of the adult terminal thumb joint, on a linen belly-band. The baby is permitted to wear the same band for two or three days without changing; then the band is changed or the ointment renewed or discarded according to the response from the child. At the same time that the ointment is applied, or in those cases in which the infants have responded completely to the powders of mercury with chalk, syrup of ferrous iodid in doses of 5 drops three times a day is given in bottle feedings, for infants under 6 months of age. Over this period and, approximately until the age of 1 year the infant receives 10 drops three times a day in bottle feedings. At this age the infant is then transferred to a second nursery, in which he receives 5 drops three times a day in bottle feedings. Those not being bottle fed in this nursery do not receive the syrup of ferrous iodid. The older children, that is, those from 2½ on, receive no routine medication.

The symptoms which determine the mercury ointment treatment—for it must be remembered that the twelve powders of mercury with chalk are indiscriminately given to every child who is admitted into the infant nursery—are peeling of the skin and bleeding from these excoriations of the skin, especially of the heel, blisters on any part of the body, and snuffles. The skin manifestation of the heel seems, according to the attendant, to be the most prevalent symptom.

## CONCLUSIONS

1. The Wassermann reactions and luetin tests were shown to have been performed accurately, as was proved by the controls made.

2. The negative Wassermann reactions in every case investigated may be explained by the intensity of the treatment to which each child had been subjected, or it may be that the bloods had not yet become positive.

3. The luetin test in this series proved of greater value as a diagnostic measure than the Wassermann reaction in detecting cases of congenital syphilis, and the clinical findings were of greatest value at that time when the value of the luetin was at its minimum, namely, in the first few weeks.

4. The effect of the iodids on the luetin reaction was again shown in this study. The lesion is characteristic and cannot be confounded with the normal positive luetin reaction.

5. Because of the ages of those examined and the character of the institution, this investigation afforded an excellent opportunity to study the various available means of detecting the existence of congenital syphilis. Seventy-four and six-tenths per cent were infants up to the age of 2 years, of whom 41.6 per cent. were under 1 year of age.

6. Congenital syphilis was found to be relatively more frequent in the illegitimate than in the legitimate children.

7. Of course, this series does not constitute a fair criterion for a comparison of the Wassermann and luetin reactions. It does, however, afford a good idea of their relative values in connection with congenital syphilis at this time of life.

It must be remembered that the mortality from congenital syphilis is very great, and that those cases in which the earliest ravages of the disease are escaped are those of less severe infection, or are those in which the patient has been partially or thoroughly treated. This study, therefore, we believe to be a fair test of the relative merits of the two reactions under these circumstances.

8. The existence of skin eruptions of syphilitic origin in cases in which both Wassermann and luetin reactions were negative is of decided interest, and further emphasizes the necessity of employing all available means, including complete physical examination and laboratory tests, before deciding a case to be syphilitic or nonsyphilitic.

9. The skin eruptions were more frequent the younger the subject. This was especially true of the syphilitic skin eruptions; twelve of the total of twenty-two instances of it were found within the first three months of life. Ten cases of positive syphilitic skin eruptions were detected at this time in which the luetin reaction had been negative. The syphilitic skin eruptions seemed to be of greatest diagnostic value at that time when the negative laboratory tests are most likely.

10. With very few exceptions, all of the inmates of the institution were below the normal averages in weight, height, development and nutrition. This is of interest in view of the constitutional background of the inmates.

11. Enlarged livers, spleens and glands appeared to be the most constant of the clinical evidences of congenital syphilis.

12. The infrequency of the other clinical manifestations of congenital syphilis in this study, such as

snuffles, fissures, wig, and scaling palms and soles, may have been influenced by the system of routine treatment in vogue in the institution as the cases were not followed by us from birth.

13. The incidence of congenital syphilis in this institution, as revealed by the study, was 83.96 per cent. Seventy-nine cases, or 74.53 per cent., were shown by means of the luetin reaction and ten cases, or 9.43 per cent., were shown by the clinical findings, revealing syphilitic skin eruptions. Many of the other cases classified as doubtful or negative had certain of the clinical symptoms of congenital syphilis, but not sufficient to warrant a positive diagnosis.

## ABSTRACT OF DISCUSSION

DR. WALTER R. RAMSAY, St. Paul: Some interesting comments have been made on a series of cases under the Wassermann test in an article published about a year ago. I have looked into this matter and have found that we have been giving mercury in much larger quantities than is necessary.

Dr. J. McKey, Philadelphia: I am reminded of the practice of the late Alexander Buehler, who sent his patients for a Wassermann test to five different laboratories. He found three of the five absolutely unreliable.

Dr. LAURENCE DEBUYS, New Orleans: No dark field examinations were made in this study. There are many cases in which positive luetin reactions are obtained in which the Wassermanns are negative. When the Wassermann reaction was first employed, I made a study in a series of about 250 instances in which the blood of the mother and child were examined. There were nine irregularities in this study, namely, the mother positive and the child negative, or vice versa. When Noguchi introduced his luetin test, I was anxious to determine the relative value of this test as compared with the Wassermann, and made a comparative study. In this study as many of the old cases were secured as was possible, particularly those previously classed as irregular, and it was shown that where the Wassermann had been positive in either the mother or the child in the previous study, both gave positive luetins. In making the luetin test it must be remembered that the luetin must be injected intradermally and not subcutaneously. It was of interest to note the small size of the children investigated in the study presented today. While this work does not offer a fair comparison of the relative reactions of the Wassermann and luetin, it does afford a fair comparison under the existing conditions. It must be remembered that the mortality in syphilitic infants is very high, and it is possible to have a greater number survive if the most prompt and thorough treatment is instituted. It is possible, therefore, that in this institution where inmates are from that part of society which is least moral that many of these infants may have survived because of the most energetic treatment employed in this institution, and that the inmates were in an inactive state of syphilis, which is the probable explanation of the negative Wassermann. It should be borne in mind that the luetin reaction is an ally, while the Wassermann reaction reveals the existence of an active process. I believe the luetin test made properly is of value.

## Local Health Authorities Can Quarantine Infected Persons.

The supreme court of Nebraska in a recent case (Ex parte Brown, 172 N. W., 522) upholds the right of local health authorities to quarantine a person infected with venereal disease. A woman was arrested and on examination was found to be infected with a venereal disease. The health commissioner of Omaha ordered her to be detained in the detention home of the city for treatment until there was no further danger of communicating the disease. In a habeas corpus proceeding to secure her release from quarantine the court upheld the action of the health commissioner and denied the writ.—*Pub. Health Rep.* 31, 623 (July 25) 1919.

## TRANQUIL TRACHEOTOMY, BY INJECTING COCAIN WITHIN THE WINDPIPE\*

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As a general rule the opening of the trachea is accompanied by so much disturbance that there often ensues a scene which the elder dramatists would have described as one of "wild excursions and alarms." It is thus depicted by Clinton Wagner:<sup>1</sup>

The introduction of the knife, together with the flow of blood, produces violent reflex action. The larynx rises and falls spasmodically and very rapidly, and the use of a knife or scissors is fraught with danger. The operator at this moment has need of all his coolness and presence of mind. Blood will find its way into the trachea and lungs, and death on the table from asphyxia may suddenly take place.

Apart from the risk of such a catastrophe, I remember the days when, before opening the trachea, one had

to advise the audience to "take cover" behind the head of the operating table, as the cough started with the first entry of air into the windpipe frequently resulted in blood being shot out with such force that it bespattered the assistants, the walls and even the ceiling.

All this commotion can easily be avoided by the intratracheal injection of cocain in the way to be described. I acknowledge my indebtedness for the idea to Dr. Crosby Green,<sup>2</sup> who, in an article on "Thyrotomy for Cancer of the Larynx," describes how, before splitting the larynx, he injected a 1 per cent. solution of cocain through the cricothyroid membrane into the cavity of the larynx. He, it appears, is not in the habit of performing a preventive tracheotomy in this operation, and he makes no mention of injecting cocain within the trachea. If not the first to use it in tracheotomy, I think I am the first to employ it in England. This I did in the year 1913.

It is employed in the following way: An ordinary hypodermic syringe is charged with about 20 drops of a 2.5 per cent. solution of cocain. As soon as ever the tracheal rings are laid bare the syringe is grasped, as one does a pen, with the forefinger about 1 inch from the extremity of the needle, and with this the windpipe is sharply stabbed between two rings. The middle, the ring and the little finger of the operator's right hand

are resting on the neck, and they prevent the point from penetrating more than one-fourth to one-half inch within the lumen of the trachea. The cocain solution is injected into the cavity of the windpipe, from 5 to 15 drops, and the needle is sharply withdrawn.

The liquid in the windpipe at once gives rise to a slight, stuffy cough. It causes no spasm or distress; and as it trickles down toward the region which endoscopists know to be the sensitive spot of this area, namely, the carina at the bifurcation of the trachea, this tickling cough soon ceases. If there is no great urgency, ten minutes should be allowed to elapse, the time being occupied by clearing the front of the trachea, checking all bleeding, preparing the tube and so forth. At the end of that time, the incision can be made into the trachea and the cannula introduced, without pain, spasm or even the slightest cough, as quietly and smoothly as the original incision through the skin. The calm with which this proceeding takes place is in striking contrast to the agitated, hurried and often bloody and dangerous operation of former days.

I have used cocain of the strength of 2.5 per cent.

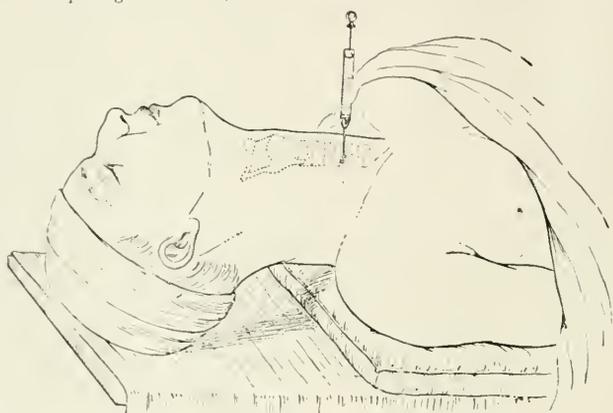
for the simple reason that a 5 per cent. solution is usually at hand, and it has been convenient to dilute it one half. In children, a 1 per cent. solution and 5 drops would be sufficient.

The method is employed with either general or local anesthesia. Local anesthesia is sufficient in adults when opening of the trachea is the only operation to be performed at one sitting. With procain used endermically and the cocain used in this way within the windpipe, there is neither pain, spasm nor coughing in performing a tracheotomy. A patient gets up from the table and walks back to his ward, to eat his usual meal.

I have records of twenty-five cases of laryngofissure in which this method has been used in performing the preliminary tracheotomy, and the numerous visitors to my practice have been able to see the calm which it secures. In these five years it has been used in dozens of cases of tracheotomy by myself, my assistants and the house men in King's College Hospital, with uniformly good results and no drawbacks.

It has not come my way to use it in children younger than 4 years, but, with the precaution I have advised, I think it can be safely employed. Nor have I had occasion to use it in sudden asphyxia—the "opération d'urgence." Most cases of extreme stenosis of the larynx ought to be provided against by a timely tracheotomy, and even when there is dyspnea, the few minutes entailed by this useful detail are more than compensated by the calm and security with which the operation can be completed.

64 Wimpole Street, W. I.



Injection of cocain within the lumen of the trachea.

\* Read before the Section on Laryngology, Otolaryngology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wagner, Clinton: M. Rec. 49:1, 1\*96.

2. Green, Crosby: Tr. Am. Laryng. Assn. 33:163, 1\*913.

## ABSTRACT OF DISCUSSION

DR. FRANK C. ROSE, London, England: This morning I received a letter informing me that I had been elected to honorary membership in this Association. I should like to thank you all very sincerely for that honor. I recognize, of course, that the honor is intended for the society in London of which I happen to be secretary at the present time. I should also like to thank the Fellows of this Association for the great kindness and generous hospitality that has been extended to the visitors from my own country and others. We have heard much of American hospitality, but the reality surpasses my expectations. For a number of years past we have realized that any young man who wishes to become thoroughly efficient in the practice of laryngology and otology must study what is being done on this side of the Atlantic. We have read the papers published, we have had opportunity to meet certain of the American workers in London, and it only added to my own desire to come over here and see for myself what was being done. And now that I have come and have had opportunity to listen to your discussions and hear the various papers read, and seeing some of your operators at work—in addition to the pleasure I have also a feeling of regret—regret that I did not come before; regret that this is my first visit instead of the second or third visit to this side. In this department the American surgeons have a great past; this meeting alone shows how important the present is, and I am convinced that in the future lies the most splendid era for American work in this and other branches of medicine and surgery. And on my return home I shall endeavor to impress as far as I can on my colleagues of my own age and standing, and particularly on the younger ones, how important it is that they, if they mean to perfect themselves in their own branch of work, make a visit to this side and see for themselves what is being done.

It remains for me to open the discussion of a paper which is not here. To hold a postmortem without a corpse is difficult. Only the title, so far as I am concerned, remains to discuss, and I wish to assure Sir St. Clair Thomson that I like his title. It is a very good title: Tranquil Tracheotomy. My feeling is that if the patient will be tranquil, and the surgeon will be tranquil, two of the most important factors for success are already present. In the matter of detail, my own feeling coincides with that of Sir St. Clair Thomson, that in approaching the trachea it is advisable and convenient to divide the isthmus of the thyroid. That has been my own practice for a number of years.

DR. FERNAND LEMAITRE, Paris, France: For eight or nine years I have been accustomed to inject cocaine in cases of tracheotomy exactly as Sir St. Clair has so well demonstrated. I may say that a tracheotomy done in this way is quite different from the ordinary tracheotomy we are accustomed to seeing. After the injection is made I wait a moment before beginning the tracheotomy, and I utilize this time in making the suture, in putting some catgut in, if necessary, and one or two stitches at the upper and lower part of the wound. Before the operation is quite finished, it seems we have forgotten one stage, and that is the opening of the trachea; but when this is done the operation is immediately finished.

DR. OTTO GLOGAU, New York: I first saw this method that Sir St. Clair described, the tracheotomy and the ligating of the isthmus, in the Bellevue Hospital about two months ago, and it is astonishing how easily the patients stand it and how little discharge comes from the trachea. I would also like to mention that in these cases the use of suction apparatus is advisable. It relieves the bleeding of the wound as well as the discharge.

DR. M. F. ARBuckle, St. Louis: I have had the pleasure of seeing several of these laryngeal fissure tracheotomies done, and it is marvelous to me. There is no cough, no excitement or worry.

SIR ST. CLAIR THOMSON, London, England: I am very pleased that this has been described before. I do not claim to be the Messiah of the subject, nor would I say that I am an apostle to the Gentiles, but I am very glad to spread the good news.

PHYSICAL RECONSTRUCTION APPLIED  
IN THE TREATMENT OF PUL-  
MONARY TUBERCULOSIS

FRANK BILLINGS, M.D.

CHICAGO

Physical reconstruction may be defined as continual treatment, carried to the fullest degree of maximum physical and functional restoration consistent with the nature of the disability of the patient, by the employment of all known measures of modern medical and surgical management, including curative, mental and manual work (in wards, workshops, schools, gardens and fields); physiotherapy (thermotherapy, electrotherapy, hydrotherapy and mechanotherapy, massage, calisthenics, gymnastics and the like), and sports, games and amusements indoors and outdoors.

The application of physical reconstruction in the treatment of soldiers disabled by illness and injury during the great war was a new policy of the Medical Department of the Army. The measure had a few advocates, some tolerant but doubtful friends, and many opponents in the medical department, including officers of the permanent military establishment and others holding temporary commissions.

The failure of many to recognize the therapeutic value of the measures enumerated is due chiefly to the fact that with the exception of the curative factors enumerated under physiotherapy (and of these electrotherapy, mechanotherapy and massotherapy have been too often exploited by unqualified people and by quacks), the medical profession as a whole has had little or no experience in the application of these additional forms of treatment of the sick and injured.

The profession has found no use for these curative measures because, as a rule, physicians and surgeons are satisfied with physical cure. The average physician rejoices when the patient with pneumonia has passed the crisis. Unless some unusual symptom attracts attention, he makes no investigation to ascertain whether the lungs and heart have regained normal function. The average surgeon is happy if his patient with a fracture of a long bone gets through without deformity or shortening of the lower limb, and the possible suit for malpractice is escaped. As a rule, he does not see to it that the function of the joints and muscles of the involved extremity are exercised and trained to restore function definitely.

Modern medicine and surgery must take heed of functional as well as physical restoration. The physician and surgeon must continue to have an interest in the convalescent patient and to prescribe the necessary measures in proper doses to insure restoration of function or to establish it as nearly as the nature of the disability permits.

The application of physical reconstruction in the treatment of the patient with pulmonary tuberculosis has been strenuously opposed by many conscientious and honorable physicians. The objections advanced are sound in the sense of the application of the measure embraced under physical reconstruction during the active and febrile stage of the disease. On the other hand, I maintain that, when indicated, physical and mental rest, even to the most absolute degree practicable, is as much a factor in physical and mental rehabilitation as physiotherapy, curative work or play when these agents are rationally called for.

Tuberculosis is an infection which, as a rule, is focal in character. The primary focus usually located in a lymph gland or glands is acquired, usually in childhood. Later in life the pathogenic agents take on added virulence, or the resistance of the tissues of the host to general or to wider local invasion is diminished or both conditions are present. The causes of increased virulence of the pathogenic invaders and the reasons for the lessened immunity of the host need not concern us in this discussion.

With more general invasion and involvement of the lungs, the course of the disease depends also on the degree of virulence of the invaders, including possible mixed infection, and on the degree of general and local tissue resistance of the host.

#### MEASURES THAT SHOULD BE APPLIED

Experience has shown that during the acute or active stage of pulmonary tuberculosis, rest as absolute as practicable is the best method of passive control of the disease. Unfortunately, with some patients the virulence of the invaders is so great that the most painstaking application of rest treatment does not prevent the involvement of new tissue and a final hopeless extension of the disease. We all recognize the advantages of pure night and day air, rational feeding, correct personal hygiene, including adequate nursing, proper sponge bathing, and the use of simple medication when needed during the active stage of the disease. The contention for and against the use of specific and non-specific antisera or antigens administered hypodermically or intravenously to increase the resistance of the host to the invading micro-organisms or to destroy the infectious agents is not germane to this discussion.

If the patient is fortunate, the active stage abates and in an indefinite time the patient reaches the stage of inactivity of the disease. The reward of improvement of the pulmonic disease by adherence to the rest treatment is associated, in the average tuberculous patient, by lessened tone of the tissues, especially of the muscles, and by relatively poor blood circulation. Inadequate blood and lymph circulation means lessened nutrition of the tissues generally, although the weight of the patient may not indicate it. Long physical rest begets mental unrest and discontent. In other words, the patient's physical disease is much improved, but the function of his mind and the circulatory and locomotor organs is far below the normal.

Until the blood and lymph circulatory organs function properly, cellular nutrition will remain low. Rationally we cannot prolong absolute rest beyond the active or febrile stage.

The second stage of treatment embraces alternating rest and *controlled* mental and physical exercise. Individual management is indicated throughout the whole treatment program. But in this second stage, the dosage of mental or physical exercise prescribed, and the frequency of the repetition, must be under watchful medical supervision. If the progress is favorable the bed rest periods become shorter and less frequent, and conversely the active period in chair and walk become longer and more frequent.

Now, it is during this transition period, between absolute rest and the ambulatory stage, or third period, of treatment that the wise physician will apply such physiotherapy as hydrotherapy and massage, and occupational therapy modified in kind and dosage to meet the needs of the individual patient.

The sponging with warm water and alcohol, admissible in the febrile stage, may become a sponge or spray bath in bed or in a chair, sufficiently cool or cold, to arouse physical reaction for the purpose of improvement of the lymph and blood circulation. Short periods of light friction massage of the extremities and, in permissible cases, of the skin of the trunk will also improve the circulation, the tone of the muscles, and the cellular nutrition.

Mental and manual occupational therapy should be applied as early as mental and physical activity is permissible. The problem is to divert the attention of the patient, by simple recreation, through reading, pictures, games, handicraft and the like, with a view to securing a genuine interest in the attainment of a worthy end. The end most certain to hold the attention of the patient and to claim his best efforts is his future vocation. Hence, the reading, the handicrafts, or the academic study chosen to occupy the patient, for the sake of diversion, should be of a character, if that is possible, which will lead by successive steps to the more purposeful training which he may take during the ambulatory stage of the disease. Chair and porch patients will be able to take increased periods of occupational exercise.

In addition to what may be termed purely diversional occupations, such as woodcarving and whittling, toy making, weaving, bead stringing and block stamping, the patient may take academic courses in English and other languages, including arithmetic, penmanship and the like, read textbooks on and practice stenography, typewriting, Morse telegraphy and radiotelegraphy, bookkeeping, banking, and the like.

If the application of these measures is properly controlled by adequate medical supervision, the recovery of the patient will be enhanced. The lowered morale incidental to homesickness, illness and discontent, with all the retarding influence of these factors on the improvement of the patient, will be overcome by rationally applied curative manual and mental work.

When the patient has reached the ambulatory stage, all of the measures embraced under physical reconstruction may be applied with benefit to the tuberculous patient. But medical supervisory control must continue. Hydrotherapy in the form of the simple overhead shower or the hand spray may be applied safely and with great benefit by alternating from hot to cold for short periods. Few physicians realize the benefit and the ease and safety of the applications of the alternating hot and cold shower or spray baths. It is inexpensive and self applicable. The blood is made to flush the whole body, and in consequence aids in washing out toxic waste material and in the improvement of muscular tone and general nutrition. Pulmonary ventilation is improved.

The end-result is equivalent to considerable active exercise, like gymnastics or walking, without the attendant fatigue of the latter. For those physicians who object to hydrotherapy in the treatment of the hospital tuberculous patient, let me advise them to try it out with patients who have reached the afebrile stage and who show no tendency to hemorrhage.

Likewise rationally applied massotherapy will justify the expense of the necessary qualified personnel to apply this form of therapy too often reserved for the wealthy patient.

In the ambulatory period, occupational therapy may be applied in more diversified forms, either prevocational or vocational. Shop and outdoor pursuits, especially the latter, are applicable to the ambulatory tuberculous patient. The academic and commercial courses may be continued, or shop and trade courses in motor mechanics, motor driving, engineering, electrical wiring and the like, or gardening, including greenhouse cultivation, farming and stock raising.

Controlled recreation in the form of graduated walks, gymnastics, calisthenics and games indoors and out has an important place in the treatment of the convalescent tuberculous patient.

When the tuberculous soldier has reached the stage of arrest or inactivity of the pulmonary disease, he may be discharged from the army. No physician possesses sufficient knowledge to judge the degree of virulence of the infectious micro-organisms that remain in the lung tissue or in the bronchial lymph glands, or the status or degree of immunity of the general or local tissues of the host, to renewed activity and further tissue invasion by the infectious agent.

For the patient with arrested tuberculosis in civilian practice, the conservative physician desires to maintain and to improve the resistance of the host to the unfriendly parasites, by attempts to have the patient follow a rational hygienic life and, if the bank account permits, to spend seasons characterized by inclement weather at resorts where favorable climatic conditions permit one to live comfortably in the open air.

These measures are correct and rational enough; but why not adopt measures of physical reconstruction at this period of convalescence which will so completely rehabilitate the patient that he will be practically immune to further active tuberculous disease?

It will be necessary and an economy to hold the dependent tuberculous patient, whose disease has been arrested, in public sanatoriums for a period sufficiently long to permit the application of the needed physiotherapy, curative work and play until the desired physical and functional rehabilitation has been effected. During this period, real vocational training may be utilized profitably as occupational therapy. Dr. Philip King Brown has demonstrated that efficient training in pottery and tile making insures permanent cure and lucrative jobs in industrial life, and that a sanatorium may become practically self supporting if sensible trade training in productive enterprises is adopted as curative work. Dr. S. Adolphus Knopf<sup>1</sup> has recently written and lectured on the important subject of prevention of relapses in cases of arrested tuberculosis among soldiers. I heartily concur in the principles and practice announced by him.

Physical reconstruction is especially applicable to the patient with arrested or clinically inactive tuberculosis, and should have wider application in the final hardening process before the discontinuation of individual medical supervision.

#### RESULTS OBTAINED

The results of the application of these measures in the treatment of disabled tuberculous soldiers in the military sanatoriums have been so beneficial that it is my belief that curative work, massotherapy, hydrotherapy and regulated play will be applied hereafter

practically, when local conditions permit, by all physiotherapists.

The number of tuberculous patients treated in the military sanatoriums from the beginning of the war to Dec. 31, 1918, was approximately 8,500.

The application of curative work was not applied in the treatment of soldiers suffering from tuberculosis as it was to the other types of disabled soldiers. The reason therefor was that two of the present sanatoriums were under course of construction, and were not ready for the reception of patients and for the application of measures of physical reconstruction until late in 1918.

All of the seven military sanatoriums utilized for the treatment of tuberculous patients have excellent facilities for the application of occupational therapy.

During April, 1919, there were approximately 6,000 tuberculous patients in the seven military sanatoriums. Of those who took curative work, 2,941 were occupied with the handicrafts and arts, 339 took ward academic instruction in languages and the like; 1,932 received training in commercial and professional subjects; in technical courses including carpentry, shoe repairing, motor mechanics, agriculture, gardening, stock raising and the like, and 725 utilized recreational play in and out of doors. The sum of these figures gives the total enrollment for the month. The total number of patients who took curative work was less than the last figure because some patients were enrolled in two or more curative work occupations.

Finally, it must be recorded that the almost universal testimony of the commanding officers of the hospitals, the ward surgeons, the educational personnel, and the patients is to the effect that curative work in wards, schools, shops, gardens and fields is of the greatest psychologic and material value in the treatment of pulmonary tuberculosis.

Tribute must be paid to the fine women who as reconstruction aides in occupational therapy made the ward training in the arts and crafts, in academic and commercial study, a success. The occasional misfit among them does not militate against the great value of their presence and service in the wards for the benefit of these disabled soldiers.

The chief of the educational service and the personnel of instructors have given wholehearted qualified service, splendidly cooperating with the ward surgeons in the work. A few ward surgeons have not subscribed to the principles involved. They are a small minority, who would become advocates probably of physical reconstruction under a favorable environment.

122 South Michigan Avenue.

**Prevention of Ill Health.**—An essential factor in any scheme for the improvement of the public health is the need for enlightenment of the people on health subjects. They must be taught how to live healthy lives; how disease in its early stages can be recognized, and how the spread of the infectious diseases can be avoided. Undoubtedly expenditure on education will be amply repaid by a saving in the cost of treatment of persons who have become ill through ignorance of how to keep well. No sanitary problem was ever solved by caring for its victims. Education may be provided either by a health bulletin, filled with trite sayings and striking pictures, issued periodically, containing in pithy language essential points in the prevention of ill health. Popular lectures should be given; and cinema films, dealing with health subjects, should be shown in the schools.—*Medical Officer* 22:52 (Aug. 16) 1919.

<sup>1</sup> Knopf, S. A. Prevention of Relapse in Cases of Arrested Tuberculosis Among Soldiers. *J. A. M. A.* 72:549 (Feb. 27) 1919.

## PROCTOLOGY IN A WAR HOSPITAL \*

LOUIS J. HIRSCHMAN, M.D.

DETROIT

When base hospital units were being organized to accompany the American Expeditionary Forces, I joined Unit No. 17 (Harper Hospital, Detroit) with the hope of being of service to the Army in a general way and, perhaps, having occasional demands made on my special knowledge of enteroproctology.

When our unit arrived in France early in July, 1917, we were stationed in the city of Dijon, the capital of ancient Burgundy. This city was located on the main railroad line over which the bulk of the American troops had to pass from the base ports to the training centers and fighting front. Many thousands of troops were encamped and billeted in the villages surrounding Dijon, and it was a very important center of the American activities.

A great deal of construction work was carried on; immense warehouses and depots for quartermaster, ordnance and the supplies of other departments were being erected by thousands of engineers and labor troops. Heavy work, continual drilling and training, coarse foods and inadequate latrine facilities were some of the factors which very soon indicated that in our hospital at least, the proctologic service would be not an inconsiderable one.

Before the Americans were actually in the trenches, the base hospitals, which had been established early, were fairly well filled with patients suffering from the ordinary diseases encountered in civilian activities.

The work of the medical staff was subdivided so as to render any special skill possessed by its members available for all patients who required it. My service, embracing abdominal surgery and proctology, consisted, during this phase of hospital activity, of the treatment of hernia, appendicitis, rectal and colonic diseases. The work was so classified that individual wards were devoted to each of these classes of disease.

The vast majority of cases of appendicitis were of the acute variety, many of which were suppurative and not a few ruptured. When one stops to recall that our patients were all young men of the age when appendicitis is most commonly found and their living conditions were such as to intensify any predisposition to that disease, the frequency with which appendicitis affected our boys was not unusual. Patients who were tired and hungry and had plainly been sick for some time before the seriousness of their condition was recognized, were taken off troop trains after a two or three days' journey from the sea port, in a box car, with a straw-covered floor.

Other patients, suffering from ruptured appendix and general peritonitis, were brought in by ambulance from camps from 30 to 50 kilometers distance.

The number of hernia cases was exceptionally large.

One could always tell when a new convoy of troops arrived from the United States by the flood of patients suffering from hernia and chronic hemorrhoids, who would arrive at the hospital in groups of from fifteen to fifty at a time. So many of these patients gave histories of long continued existence of hernia, hemorrhoids, or both, that it was perfectly clear to us that

somewhere in the chain of physical examinations in the United States there was a weak link or two.

Our acute proctologic cases consisted of thrombotic hemorrhoids, fissures, abscesses and impactions. It is interesting to note at this point that the rarest proctologic condition, with the exception of carcinoma, was that syndrome known as pruritus ani.

In the operative treatment of all cases of hemorrhoids, acute or chronic, fissure, polypi and most cases of abscess and fistula, the anesthetic of choice was the infiltration of 0.25 per cent. solution of procain. All patients were given an enema the night preceding operation, and this was repeated the following morning. A quarter grain of morphin and 1-150 grain of atropin were administered hypodermically forty-five minutes before operation. Skin sterilization was accomplished by the use of alcohol followed by iodine. The patients were placed in the exaggerated Sims position.

External thrombotic hemorrhoids were removed by infiltration, excision, evacuation of clots, and closure without suture. Prolapsing internal hemorrhoids were removed by the author's technic of high ligation and excision. Fissures were treated by incision or excision, depending on their extent and chronicity.

Abscesses, when very extensive, were sometimes punctured under local anesthesia, allowed to drain and contract for a couple of days, and then opened to their widest dimension.

Fistulas were incised if simple, or their tracts excised, if chronic or multiple. It is interesting to note in this connection that at one time I had under my care seven patients suffering from old chronic sinuses resulting from sacral or coccygeal dermoid cysts. All of these patients claim that the condition existed when they were still in the United States and that medical officers knew of the condition, but allowed them to go to France, nevertheless, and clutter up hospital beds needed for more urgent cases.

Our work was so well organized that we were able to handle our cases of rectal surgery with much expedition. Under local anesthesia, we handled four cases an hour in the operating room, and had the majority of our patients on their feet and in the mess line on the third day. Rectal patients do much better on their feet and outdoors, than lying around the hospital ward.

As the American forces took their places on the fighting fronts, the character of the work in an advanced base hospital, such as ours, took on a different aspect. All patients with hernia and chronic hemorrhoids were evacuated to hospitals nearer the sea ports and farther removed from front line activities.

The proctologic surgeon along with other specialists took over a certain number of general surgical wards, but in addition took special charge of all wounds involving the intestinal tract. All types of ammunition and projectiles were responsible for these wounds. Direct penetrating wounds of the abdomen, when the patient's condition did not contraindicate operation, called for laparotomy, location and closure of intestinal wounds.

In extensive tears of the intestine, it was found better in some cases to perform temporary enterostomy. In penetrating gunshot wounds of the rectum, simple cleansing and drainage of them sufficed. On the other hand, extensive lacerated wounds in which the sphincter was involved would call for temporary colostomy until the lower wound could be repaired, if at all.

\* Read before the Section on Gastro-Enterology and Proctology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In wounds of the buttocks communicating with the rectum, it was occasionally found necessary to convert these into open or gutter-wounds. After irrigating for several days with surgical solution of chlorinated soda (Carrel-Dakin solution), we were able to accomplish secondary suture with marked success.

It might be mentioned in this connection that we were able to follow the same procedure with a number of our fistula cases. The use of the Carrel-Dakin solution, with daily bacterial counts in the surgical treatment of fistula, is a valuable addition to the treatment of this condition. It is surprising how a wound in this locality can be cleaned and kept clean if the Carrel-Dakin technic is carefully carried out. Secondary suture of fistula wounds will, I believe, become more commonly practiced when the employment of this technic becomes more generally known.

During several epidemics of dysentery, the proctologist became of great service to the internist in the differential diagnosis between the various types of dysentery and between these and other colonic diseases. Several cases of true amebic dysentery were recognized by smears taken from rectal and colonic ulcers and examined on the warm stage.

The possession of a sigmoidoscope by a medical officer skilled in its use was of great advantage to the base hospital with which this officer was stationed.

On account of conditions mentioned above, fecal impaction was frequently encountered. The use of 25 per cent. hydrogen peroxid enemas proved to be of the greatest service in their treatment.

As is well known, mustard gas burns were found most frequently in the region of the genitals and buttocks. The treatment of these cases fell to the lot of the proctologist. Alkaline baths, free opening of blebs and blisters, exposure to sunlight, which was one of our rarest therapeutic agents in France, and protecting with zinc oleate or stearate proved very efficacious in our hands.

As has been mentioned above, pruritus ani was one of the rarest diseases encountered among our troops. Pruritus ani is supposed to be caused by practically every disease affecting the anal region; but in spite of our large proctologic service, pruritus was a condition conspicuous by its absence.

Those soldiers who did complain of itching in the region of the rectum and who did not present evidence of parasitic infestation were found to be suffering from proctitis, fistula, fissure or ulcer. The indicated surgical treatment for these conditions very quickly cured the pruritus.

In all of our proctologic work, the employment of local anesthesia was the greatest single factor in lessening the length of a soldier's hospitalization. He was returned to his command in from one-third to one-half the time ordinarily required for convalescence from operations performed under general anesthesia. As every day saved in a soldier's absence from duty was of direct assistance in keeping up the man power of the Army, local anesthesia in proctology did its little bit in winning the war.

When a surgical team was sent from the base hospital to the front, medical officers representing all of the different specialties took their turn on the team. The proctologist was no exception to the rule, and on account of his experience in abdominal surgery, he served a very useful purpose. Whether called on to remove a piece of shell from the brain, to sew a lacerated pleura, to remove a tight tourniquet and save a

limb, or to perform the most delicate of intestinal repair, he always gave the best that was in him.

The attention to detail in after-care, which the surgical specialist is wont to give in his own special field, always stood him in good stead when doing his share of general war surgery in an advanced hospital unit.

After all, the proctologist, in whatever he did in the medical service during the war, represented only one class of specialist. They were all alike; although most of them were beyond the so-called military age, they were all willing and anxious to do anything in the realm of medicine and surgery to help win the war. Whether acting as interns or consultants, they were always medical officers in the Army of the United States, and always tried to be good soldiers.

#### ABSTRACT OF DISCUSSION

DR. ALOIS B. GRAHAM, Indianapolis: There is no essential difference between military and civil practice in the ordinary proctologic cases. The same fundamental principles that govern the one govern the other. It is very true, as Dr. Hirschman has said, that a surprisingly large number of proctologic cases occupied beds in base hospitals that could have been used to much better advantage in caring for soldiers suffering from gunshot wounds. We did most of our proctologic work in Base Hospital No. 32 under local anesthesia. In a few cases we employed nitrous oxid and oxygen. We also used a modification of Depage's anesthesia (ethyl chlorid, ether and chloroform) and it proved most satisfactory.

DR. D. C. MCKENNEY, Buffalo: Dr. Hirschman has covered the subject of war proctology very fully, and I agree with everything he said. There is absolutely no question that many men, who ought not to have gone, slipped into the army and were sent abroad with their rectal conditions not remedied. Each man so disabled took one man from the fighting front, besides requiring the employment of other men needed for other work to take care of him at some hospital. I saw very little constipation in the army and I am not sure that the squatting position during defecation, that was employed so generally all over France, had something to do with it. About the wounds, although many cases involved the rectum, an interesting observation was that with most horrible wounds of the buttocks, the rectum frequently escaped injury. Wounds that involved the rectum very often also involved the bladder, so that it was necessary to do a laparotomy and repair the wounds inside the abdomen as well as do a colostomy to allow the rectal wound to heal. Frequently it was necessary to add a suprapubic bladder drainage.

DR. JOHN L. JELKS, Memphis, Tenn.: A boy with an enormous mass of hemorrhoids, bleeding, oftentimes inflamed, passed the board A-1, went to France and fought and bled—but not from bullet wounds. Another man with a tuberculous fistula also passed the board. He was in the hospitals for months, an expense to his country, a burden to the shipping capacity, and finally, after months of no service, at an expense to his government, with loss of health to himself, he returned to Memphis, and I have been treating him ever since for the tuberculous fistula. These two cases illustrate how little attention is paid rectal conditions. I have known of several men who went into the army with infectious diseases of the rectum and colon. Not only were they an expense to the army but they were a menace to those with whom they came in contact. Therefore, I emphasize the importance of not allowing these men to go unexamined.

DR. DWIGHT H. MURRAY, Syracuse, N. Y.: In my address as retiring chairman of this section I recommended that a committee of five members be appointed, and a committee was appointed consisting of Martin E. Rehtanus, chairman, Dr. Dudley Roberts, Dr. William Gerry Morgan and myself. We went to Washington for the purpose of putting this thing before the army medical officers, and we did it. The final result was that thirty-two gastro-enterologists and pro-

tologists were appointed. Dr. Graham was one of them. Some of them were proctologists, but most of them were gastro-enterologists, and one was assigned to each base hospital in this country. There is no doubt that the army could have done much better if it had appointed a proctologist with each gastro-enterologist.

DR. J. COLFS BRICK, Philadelphia: I wish to relate an instance which I think would be a proper basis for a plea that this society make in Washington, as a matter of record, in case of a future war, for the appointment of a reference board for the examination of rectal cases, and I will mention a case which I think will justify it. A man was passed in Class A and he was ready to go to camp when he made the statement to his physician that he had a marked rectal prolapse. The examining surgeon failed to locate any rectal trouble. The man came to me and I gave him an enema in order to demonstrate the degree of prolapse, and found a proctidemia. The rectal wall came out four inches, making eight inches outside of the anal margin. I gave him a certificate stating that this could be produced at will by giving an enema and having him bear down. The examining surgeon declined to accept it, still putting him in Class A, unless I would make an affidavit that he was unfit under military conditions, which I did. In other words, "he passed the buck." Now, it seems to me if this society sees fit to make certain recommendations to the authorities at Washington for the appointment of a reference board to determine the rectal conditions with reference to military service it would be apropos.

DR. A. CITARTIER, Sorel, Quebec, Canada: I cannot let this occasion go by without telling you the way we acted in Canada, especially on rectal cases. The instructions received by the examiners were that men suffering with rectal diseases, such as hemorrhoids and fistulas, should not be placed in class A; and, therefore, they could not go in the fighting line and become, if I may put it that way, a burden to the hospitals at the front. The men were placed in classes B, C and E, depending on the seriousness of the trouble. As for being in the trenches and unfitted for the work by rectal troubles, I believe that very few were there, because the medical boards all through our country had received instructions on the classing of men and the examination of the rectum was never neglected.

DR. J. DAWSON REEDER, Baltimore: In defense of some of the surgical records, I feel that perhaps a little injustice has been done us. I was a member of the Medical Advisory Board, No. 1, of the state of Maryland, and have been limiting my practice to proctology for at least ten years. I had nothing to do with the assignment, but was assigned as a genito-urinary expert on this board, and a gynecologist was assigned to make the general inspection, carry out the orders of the War Department, which included the inspection of the ano-rectal region. Some of the mistakes that have been presented here today were due to the faulty assignments in the various medical advisory boards throughout the country.

DR. LOUIS J. HIRSCHMAN, Detroit: If a criticism of the method of examinations seems to be implied in the paper it was absolutely meant as a criticism—not a criticism of the individual medical officer who did his bit, whether he did it on an examining board or whether he did it on the front line, but a criticism of our military methods. The War Department was warned by a committee sent by this section, as Dr. Murray has told you, and instead of heeding the warning given early they did not profit by it, and "by their fruits you shall know them." Every man who was in a base hospital in France will tell you the same story that I told you, that we had beds littered up with rectal cases that should have been taken care of at home. Class C men should have been made into Class A men by being operated on at home and then sent over, and they would have saved a great loss of man power. So far as our duty in the matter is concerned, it is very clear. It is up to us, in some way, shape or manner, perhaps through our delegate who represents the section in the house of delegates, to bring up some sort of a resolution calling the attention of the War Department to the fact that through our histories received from

patients we discovered that many of them were not examined at all for rectal diseases, and that those that were examined were examined very superficially. I have had officers tell me they were examined by sergeants who were not even medical men, and a note was made on the medical history. We should ask for a recommendation of this kind, that a proctologist should be appointed for each training camp for medical officers, and if he does not do another thing he should teach the medical officers the way to make a proper examination of the rectum and the reason for such an examination. By showing figures which can be compiled very easily from the Surgeon-General's report of the thousands of operations done in France, which should have been done at home, we can make our point. We can instruct men who are assigned to rectal operations how to do them, and in that way we can get some service for our men in the next war. In the British army the examination was very thorough. In the American army, however, we would not put a man with prolapsing hemorrhoids or any rectal disease even in Class B, because our Class B men were sent in the service of supply that had to do with supplies and transportation, and if you can imagine a Class B man with a big prolapse of the rectum carrying a big 100-pound sack of flour on his back, you will see he was working just as hard in the Class B service as in Class A. So I still maintain that the complete treatment and the complete relief of proctologic conditions should take place not anywhere near the zone of war, but at home before the men are sent away.

### CIRCUMSCRIBED PHLEGMONOUS GASTRITIS (SUBMUCOUS ABSCESS OF THE STOMACH)

REPORT OF A CASE WITH RECOVERY AFTER RESECTION OF THE STOMACH

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Phlegmonous gastritis is one of the rarest of diseases encountered by the abdominal surgeon. It is almost always fatal, and in only a very few cases have surgical measures been employed for its relief. Indeed, so far as I have been able to learn from a fairly thorough review of the subject, the case I am about to report is only the second in medical literature in which radical cure of the disease, by resection of the stomach, has been resorted to.

#### REPORT OF CASE

*History.*—C. E., a girl, aged 19, unmarried, who was referred to my service at the South Baltimore General Hospital by Dr. J. A. Miller of Baltimore, and whose family history was uneventful, had enjoyed good health, with the exception of frequent attacks of tonsillitis, up to the time of the onset of the present trouble. In January, 1918, she was operated on at another hospital for chronic appendicitis. At this operation, which was performed through a McBurney incision, the appendix was found to be very much adherent. The upper abdomen was not explored at this time. For about three years previous to her admission to the hospital, the patient had suffered with pain after eating, the distress coming on sometimes even while eating, and lasting from about one half to three quarters of an hour after meals. The pain was confined to the epigastric region, although there was said to be a slight "pulling" pain in the right iliac fossa previous to the operation for appendicitis. Following the operation, this pain in the right side disappeared, but the stomach symptoms above described still persisted.

For the six months previous to admission, pain in the epigastrium had been constant, although, as a rule, it was made

worse by eating. During this period there had been at least five severe exacerbations, with a great deal of pain, lasting usually about one week. Throughout the entire illness there had never been any nausea or vomiting. April 2, the patient was taken with sudden excruciating pain while on the street car coming from her work, so that she had to be taken home in a taxicab. Rest in bed and anodynes did not ameliorate the pain, and when the patient was seen, April 4, in consultation with Dr. Miller, the pain was so sharp that she could not move. There was a slight evening fever at this time, which continued until the patient was admitted to the hospital. April 7, when the evening temperature was 101. Her pulse, however, was normal.

**Examination.**—There was an oblique scar over McBurney's point. No tenderness was present in the lower abdomen. Pressure over the gallbladder region, even when very light, caused much pain. There was marked rigidity over the gallbladder area, and, indeed, over the entire epigastrium. A tentative diagnosis of cholecystitis was made.

**Operation and Result.**—The operation was performed, April 9. An incision was made in the right rectus, about 1 inch to the right of the midline, beginning a short distance below the costal margin and extending almost to the umbilicus. As soon as the peritoneal cavity was entered, the stomach, which was much distended with gas, projected into the wound. It was at once seen that the pyloric end of the stomach was the seat of a large tumor mass. The area of the tumefaction extended from the pyloric ring for a distance of about 2½ inches, being more marked along the lesser curvature than along the greater. The external surface of the stomach over the growth was covered with numerous adhesions, and showed also, along both curvatures, a chain of enlarged glands. The gallbladder was normal except for some adhesions which extended down to the region of the pylorus.

The whole pyloric mass was about the size of a lemon, and firmly adherent to the surrounding structures—transverse colon, pancreas, etc. The exact nature of the growth could not be determined from external examination. The general feel was exactly that of an advanced carcinoma of the pylorus. In view of the patient's age and also of the extensive inflammatory reaction, it was thought quite possible that it might, however, be an enormous gastric ulcer with extreme inflammatory reaction. At any rate, it seemed wise to attempt removal of the lesion by resection of the stomach. This operation was carried out with difficulty, owing to the extensive adhesions and the extreme vascularity of the tissues. The technic employed for the operation was that recommended by Balfour. The duodenum was severed and the distal end inverted. The proximal cut end of the stomach was then anastomosed directly into the side of the jejunum, the loop of bowel being carried up in front of the transverse colon. This part of the operation presented no unusual difficulty.

The patient left the table in good condition, the pulse being 96. Recovery from the operation was uneventful. The patient is now enjoying perfect health and is entirely free from digestive symptoms of any kind.

**Pathologic Report.**—The specimen consisted of the pyloric end of the stomach and about 2 cm. of duodenum, the length of the entire specimen being about 11 cm. The external surface of the stomach was covered with numerous adhesions. Along the lesser curvature was a thick fringe representing the greatly infiltrated lesser omentum. Several enlarged lymph glands were seen on both curvatures. On opening the resected portion of the stomach along the greater curvature, a tumor-like mass was seen to arise from the lesser curvature (Fig. 1). It was sessile, its base measuring about 6 cm. in length. From this, the tumor, which was somewhat pear-shaped, projected for a distance of 3 cm. into the lumen, so that it almost touched the opposite curvature. A small channel, however, measuring about 1 cm. in diameter, was left between the tumor and the greater curvature (Fig. 2). The surface of the tumor was perfectly smooth. The larger end, pointing toward the cardiac end, was rather plum-colored, while the mucosa covering the narrowed portion, extending toward the pyloric orifice, was pale and macerated. There was no evidence of gastric ulceration, the mucosa covering the mass being absolutely intact. The consistency of the tumor was soft, with an indefinite sense of fluctuation.

On making a longitudinal section into the tumor, it was seen at once that it contained a large cavity filled with thick, whitish pus (Fig. 3). The inner dimensions of the abscess cavity were 4 by 3 by 3 cm. The enveloping wall varied in thickness. Internally it was very thin and crustlike, while the floor of the abscess merged into the wall of the stomach, which was enormously infiltrated, measuring as much as 2 cm. in places. The inner lining of the abscess cavity was shaggy and necrotic looking.

**Microscopic Examination.**—Microscopic examination presented a striking picture. Beginning at the extreme cardiac end of the resected portion of the stomach, its wall was practically normal. As the abscess cavity was approached, however, it

was found that the submucosa showed increasing infiltration, with polymorphonuclear leukocytes and small round cells. This infiltration was intense immediately surrounding the cavity. The latter, it was easy to see, was developed in the submucous layer of the stomach wall, which seemed to be bifurcated, the mucosa and muscularis mucosae being raised to form the roof of the abscess, the muscular and serous layers forming the floor of the cavity. The immediate lining of the abscess wall was an irregular zone of inflammatory exudate, made up chiefly of leukocytes and round cells, the former predominating (Fig. 4). Along the floor, however, were broad areas showing beginning cicatrization, indicating the probable chronicity of the condition.

While the phlegmonous process was most marked in the submucosa, the infiltration extended also, to a certain degree, into the other coats. The mucosa overlying the abscess showed little change except a slight infiltration of the deeper layers and considerable hemorrhage in the superficial portions. The gland epithelium was normal in appearance. The muscular coats showed a considerable degree of involvement, especially in the form of clumps and chains of round cells extending along the lymph spaces.

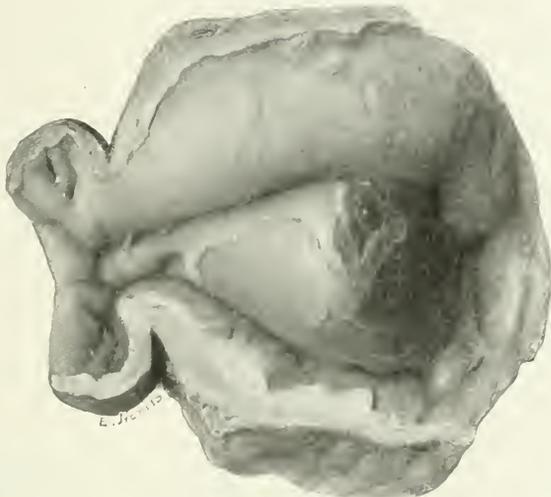


Fig. 1.—Resected portion of stomach opened along greater curvature, exposing the mass, which is seen arising from the lesser curvature. At the left is the removed portion of the duodenum. Note thickening and infiltration of stomach wall.

## TYPES OF THE DISEASE

Types of phlegmonous gastritis are encountered in the literature under various names ("submucous abscess of stomach," "gastritis purulenta," "phlegmon of stomach," etc.). The designation adopted in this paper—phlegmonous gastritis—is the one most commonly employed, in spite of some theoretical objections. The disease occurs in two forms, the diffuse and the circumscribed. In the former, as will be described later, the phlegmonous process involves a greater or less extent of the stomach wall in a diffuse manner,

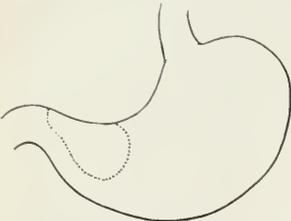


Fig. 2.—Seat of origin of growth and manner in which it infringed on cavity.

while in the circumscribed variety the disease is localized, with the formation of one or more abscesses. My own case is obviously of the circumscribed type.

**HISTORY**

According to Leith,<sup>1</sup> the first description of phlegmonous gastritis was given by Varandaeus as far back as 1620 ("Tractatus de Morbis Ventriculi"). Other early reports were those of Borel ("Opera," 1656), Sand (1701), and Bonet (1700). It is interesting to note that all of these earlier observations on phlegmonous gastritis had to deal with the circumscribed variety of the disease. Indeed, it was not until 1839 that Andral<sup>2</sup> gave what seems to have been the first description of the diffuse type. From that time, cases of both varieties have been reported at intervals. In 1861, Raynaud<sup>3</sup> was able to collect twenty-one instances of both types, while, in 1907, Bovec<sup>4</sup> estimated that seventy-five cases of both varieties had been observed. More recent figures for the total number of cases, as given by Leith in 1910 and Jensen<sup>5</sup> in 1911, are 100 and 131, respectively. In an earlier paper, published in 1896, Leith<sup>6</sup> stated that references were to be found to thirty cases of the circumscribed abscess group. These figures, however, include quite a number of questionable cases, such as the one of Deininger.<sup>7</sup> To illustrate the variance of statistics on this point, Mayo Robson and Moynihan<sup>8</sup> were able to find only eleven undoubted cases of the circumscribed type up to 1904. It is certainly true, as has been stated, that not over 20 per cent. of all cases of phlegmonous gastritis are of the circumscribed variety, and it is doubtful whether the total number of authentic cases of the latter exceeds twenty, or at most twenty-five.

## PATHOLOGIC ANATOMY

Little need be said concerning the pathologic anatomy except to emphasize the fact that the seat of the purulent disease in all cases seems to be the submucous coat. The mucosa is, of course, hyperemic and mildly

infiltrated with inflammatory products, and may, as in our case, be more or less hemorrhagic. In some of the reported cases, one or more openings, usually very fine, have been found on the mucosa, overlying a circumscribed abscess, suggesting the appellation of "carbuncle of the stomach." The infiltrated submucosa is thickened, edematous, and usually a pale, yellowish white.

Microscopic examination reveals enormous numbers of polymorphonuclear leukocytes and round cells. In cases of circumscribed abscess, the purulent process is localized, with the formation of an abscess cavity of variable size. The mucosa and the muscularis mucosae are lifted away from the muscularis by the pus accumulation, as in the case I have reported. The muscularis is practically always the seat of at least a moderate degree of cellular infiltration, especially along the lymph channels. According to Leith, the serous coat is often unaffected. In my own case, however, as well as in a number of others, there had been an intense peritoneal inflammatory reaction, with widespread adhesions. The lymph glands along both the lesser and greater curvatures of the stomach may be much enlarged.

The pathology of this disease, its tendency to chronicity in certain cases, and the fact that the principal involvement is in the submucous coat suggest a possible relationship with linitis plastica. This disease, like phlegmonous gastritis, may be either diffuse or circumscribed, the latter type involving the pyloric region most frequently. Although these various facts are suggestive, no direct relationship, so far as I am aware, has as yet been traced between these two diseases.

## ETIOLOGY

The immediate cause of the disease is an infection of the stomach wall, the organism concerned being almost always the streptococcus. Mixed infection is not uncommon, the secondary organism being usually the colon bacillus. Just how the organism makes its

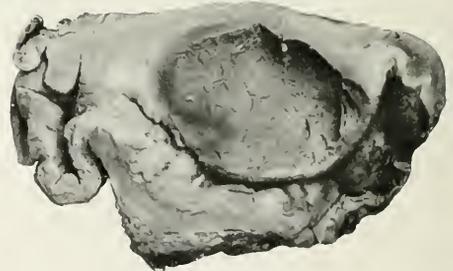


Fig. 3.—Longitudinal section through resected mass, exposing abscess cavity.

entry into the gastric tissue is still a point of discussion. Most cases are of the so-called primary or idiopathic type, only a few being secondary or metastatic, that is, consequent on such diseases as cancer, ulcer of the stomach, or puerperal fever. The streptococcus, according to the work of Lubarsch<sup>9</sup> and Dornberger,<sup>10</sup> is a normal inhabitant of the stomach, in spite of the

9. Lubarsch, quoted by Hermann: *Ergebn. d. allg. Path. u. path. Anat.*, 1896. Hermann: *Ueber die Phlegmons der Magenwand*, München, 1912.

10. Dornberger: *Jahrb. f. Kinderh.* 35:395 (quoted by Hermann).

1. Leith: *Edinb. Hosp. Rep.*, 1:51, 1866.  
2. Andral, Gabriel, quoted by Leith: *Clinique médicale, Maladies de l'abdomen* 1839, Ed. 4, Crochard & Cie; Fortin, Masson & Cie., 2.  
3. Raynaud: *Bull. Soc. anat. de Paris* 6:62, 1861.  
4. Bovec, J. W.: *Tr. South. Surg. & Gynece. A.* 20:378, 1907.  
5. Jensen, J.: *Phlegmonous Gastritis*, *Hospitaltidende* 54:505 (May 10) 1911, abstr. *J. A. M. A.* 57:530 (Aug. 5) 1911.  
6. Leith, in Allbutt and Rolleston's *System of Medicine* 3:419, 1910.  
7. Deininger: *Deut.-ch. Arch. f. klin. Med.* 23:624, 1897.  
8. Robson, A. W. M., and Moynihan, B. G. A.: *Diseases of the Stomach and Their Surgical Treatment*, Ed. 2, New York, William Wood & Co., 1904.

presence of the slightly acid gastric juice. Whether the organism finds a portal of entry in some abraded or otherwise weakly resisting point in the gastric mucosa, or whether the infection is blood borne, according to our modern conception of focal infections cannot be stated in the present state of our knowledge.

The disease may occur at any age, the youngest patient in Leith's series being 10, and the oldest 85. It is far more frequent in men than in women, Oser<sup>11</sup> giving the proportion as eight to one, Leith as between three and four to one. Dietetic errors and alcoholic excess have been considered by some as important etiologic factors, but their influence is very questionable.

#### SYMPTOMS

In the great majority of cases, the onset has been quite sudden. Pain is perhaps the most prominent symptom, being present in at least 75 per cent. of the cases (Leith). It is usually described as pressing in character, but may be violent. It is located chiefly in the epigastrium. Not infrequently, however, it may be more marked on one side or the other, usually the right, as in our own case. Associated with the pain there is often much tenderness and rigidity, so that it is easy to understand why the picture may simulate that of cholecystitis. Vomiting is described as an almost constant symptom. Leube is quoted as saying that "it was absent in only one of the cases recorded, and even then there was a disposition to emesis."

It is interesting to note, therefore, that in my patient vomiting had not occurred throughout the entire course of the illness. The vomiting may persist throughout the malady, or it may cease after a day or two, perhaps reappearing with the onset of peritonitis.

Vomiting of pus is rare, but may occur. In one case, that of Deininger,<sup>7</sup> 0.25 liter (quart) of pus is said to have been vomited, recovery ensuing. The correctness of the diagnosis in such a case is obviously open to question. Fever is a common but not invariable symptom.

The later symptoms merge into those of the peritonitis which almost always supervenes. The pain spreads over the abdomen, the fever rises, the pulse becomes more rapid, the abdomen becomes tympanitic, delirium may occur, and the patient gradually succumbs.

#### DIAGNOSIS

From what has been said, it may be seen that it is perhaps true that, as Leith says, "we cannot hope to do more than guess at the diagnosis" of phlegmonous gastritis. In only a few instances (Chvostek, Dörbeck, McCaskey), not all of established authenticity, is diagnosis said to have been made during life.

#### PROGNOSIS

The prognosis is grave. Recoveries from the diffuse form of the disease are exceedingly few, and even in

these the diagnosis must remain open to doubt. In the circumscribed cases, it is conceivable that recovery may follow spontaneous evacuation of the abscess into the stomach. The occurrence of one or more perforations into the stomach is not, however, a guarantee of recovery, as shown in Koenig's case,<sup>12</sup> in which there were numerous fine openings through the mucosa, although the abscess still remained. I am convinced, however, that Koenig is correct in his belief that in a certain proportion of cases, phlegmonous gastritis, after an initial acute attack, may sub-side into a subacute or chronic stage, characterized by the formation of a definite, localized abscess, often simulating a neoplasm in its gross appearance. This I believe to have been

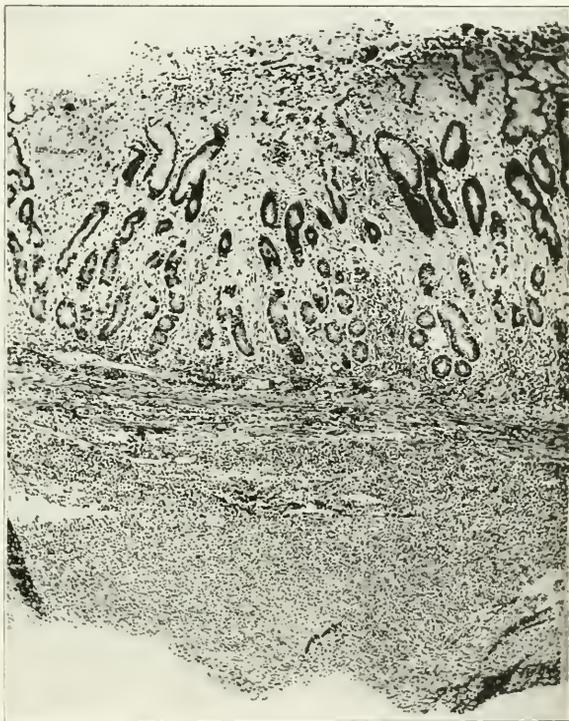


Fig. 4.—Above is the mucosa, showing slight infiltration and hemorrhage. Below this is the muscularis mucosae, while the abscess itself is within the submucous layer. Note intense infiltration with leukocytes and round cells. (Photomicrograph by Schapiro.)

the history in my own patient, which is indicated not only by the long clinical course but also by the evidences of beginning cicatrization detected on microscopic examination.

#### TREATMENT

In all except a few of the cases reported in the literature, treatment has been purely symptomatic. In one undoubted case of von Mikulicz, reported by Lenge-  
mann,<sup>13</sup> saline irrigation and gauze tamponade resulted in recovery. The patient in Leith's case was subjected to exploratory laparotomy, with irrigation of the peri-

11. Oser: Magenentzündung, Real-Encyclopädie 7: 412, 1887 (quoted by Leith).

12. Koenig, F.: Deutsche med. Wochenschr. 14: 631 (April 6) 1911.  
13. Lengenmann: Mitt. a. d. Grenzgeb. d. Med. u. Chir. 9: 76, 1902.

tonium, but death ensued. Gastro-enterostomy was also performed in two cases by Robson and Moynihan,<sup>8</sup> once successfully and once unsuccessfully. In Bovée's case,<sup>4</sup> in which the disease was of the diffuse variety and involved the pyloric end of the stomach, recovery followed incision of the diseased stomach wall and drainage by a rubber tube, which was tightly stitched into it.

I myself, however, have been most interested in the case reported in 1911 by Koenig,<sup>12</sup> because of its close similarity to my own. In Koenig's case, as in mine, the pyloric end of the stomach, when it was exposed at operation, appeared to be the seat of a soft tumor, like a medullary carcinoma, while there was an extensive inflammatory reaction in the peritoneum, with adhesions and lymphadenitis. Resection of the pyloric end of the stomach was performed by the Kocher technic, the patient making an uneventful recovery. When the resected portion of the stomach was opened, a raised abscess was disclosed, with numerous sieve-like openings. As far as I can gather from the rather brief description and from the illustrations accompanying the article, there was not the very distinct tumor-like appearance which characterized the abscess in my patient.

It would seem that, in the present stage of advancement of stomach surgery, the outlook in the cases of phlegmonous gastritis which will be observed from time to time will be less devoid of hope than it has hitherto been. This applies especially to the circumscribed form, which should be just as amenable to cure by resection as any other benign pyloric lesion. In my own case, pylorectomy was performed by the Balfour technic,<sup>14</sup> a modification of the Polya method.<sup>15</sup>

It may not be amiss to express the satisfaction I have derived from the Balfour operation in the small series of cases in which I have had the opportunity of using it. I have been impressed with its advantages over both the Polya operation and the Billroth No. 2, which I had used formerly. It is easier and quicker, and, as has been amply demonstrated at the Mayo Clinic, it is safer for the patient.

26 East Preston Street.

14. Balfour, D. C.: Restoration of Gastro-Intestinal Continuity by Means of Anticolic Gastrojejunostomy Following Partial Gastrectomy, *Surg., Gynec. & Obst.* **25**: 473 (Nov.) 1917.

15. In addition to the references already given, the following will be found of interest:

Bossart, L.: *Cor. Bl. f. Schweiz. Aerzte* **42**: 177 (Feb. 20) 1912.

Robertson, H. E.: *Phlegmonous Gastritis*, *J. A. M. A.* **49**: 2143 (Dec. 28) 1907.

Scharnwyler, K.: *Arch. f. Verdauungsle.* **12**: 116, 1906.

Firk, E. R.: *Boston M. & S. J.* **175**: 795 (Nov. 30) 1916.

Sundberg, H.: *Nord. m. Ark* **51**: 303 (May 15) 1919; *abstr.*

*J. A. M. A.* **73**: 802 (Sept. 6) 1919.

## HEMANGIO-ENDOTHELIOSARCOMA OF THE LIVER

A DISEASE OF EARLY LIFE\*

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WASHINGTON, D. C.

In a recent communication not as yet published, I reported a case of hemangio-endothelioma of the liver in an infant, and cited four other cases previously reported. A study also of the histories of a number of so-called primary hemangiosarcomas of the liver in infants led me to the conclusion that some of these, at least, were really hemangio-endotheliomas and should be so classified. Because of gross and microscopic anatomic details found in the cases reported as sarcomas by Lendrop<sup>1</sup> and de Haan,<sup>2</sup> and despite meager histologic facts in the cases of Parker<sup>3</sup> and Bondy,<sup>4</sup> it is certain that all of these so-called angiosarcomas were really hemangio-endotheliomas of the liver, and should be added to the number of these rare growths reported up to the present time.

Because of the confusion in terminology, and since, according to Adami,<sup>5</sup> "the actively growing tumors of transitional lepidic character have also from this standpoint to be considered as sarcomatous," I suggested that all malignant hemangiomas of this type be called "hemangio-endotheliomas."

I shall briefly summarize the case which I recently reported.

CASE 1.—A boy, aged about 3 months, was brought to the hospital suffering from obstinate constipation and enlarged abdomen which the family physician thought might be due to an intestinal obstruction. There was nothing notable

in the past history of the infant, except difficulty in feeding and constipation extending over some weeks and accompanied by loss of weight. The abdomen was enlarged and distended, and a large mass occupied the liver region, 7 cm. below the costal margin in the mammary line and extending backward to the left till it reached the pelvic brim. The mass was soft, and no distinct or sharp outline could be felt. The child had not been jaundiced, and the mother had not noticed the enlarged liver till about a month before. An exploratory laparotomy was performed by Dr. Crook to relieve, if possible, any cause for obstruction. Nothing of note was found except a large, purplish, nodular liver, one of the cut nodules

\* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Lendrop: *Hospitalstidende*, 1893, p. 217.

2. De Haan: *Beitr. z. path. Anat. u. z. allg. Path.* **24**: 215, 1903.

3. Parker: *Tr. Path. Soc. London* **21**: 290.

4. Bondy, Julius: *Angiosarcoma of the Liver in an Infant*, *J. A. M. A.* **56**: 873 (March 25) 1911.

5. Adami: *Principles of Pathology* **1**: 762, 1910.

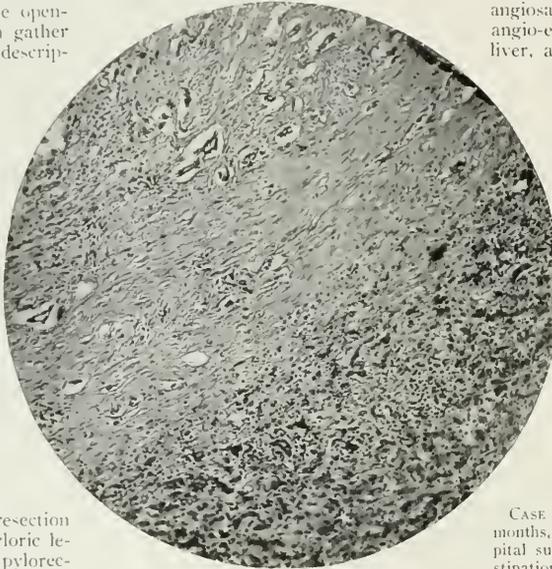


Fig. 1.—Area of compressed tissue, containing lacunae, near edge of nodule;  $\times 106$ .

of which was bleeding freely. The infant died twenty-four hours later. The necropsy revealed a very large purplish liver, studded with nodules varying in size from that of a millet seed to that of a walnut. Some were confluent and all showed lighter under the liver capsule. Cut sections revealed these nodules consisting of a whitish ring with a dark red center throughout the liver. The liver, after hardening, weighed 750 gm. Histologic sections showed the liver cells degenerated and vacuolated, especially near the nodules. The interlobular septums were increased in size. The smaller blood vessels were choked with endothelial cells in multiple layers. The nodules were filled with these cells with large vesicular nuclei; also some nodules showed red blood cells and leukocytes. The larger nodules had areas of dense fibrous material around them made up of compressed liver tissue and in places containing lacunae. Mitotic figures could be seen in many of the endothelial cells.

Section of the other viscera showed no metastatic growths. A diagnosis of hemangio-endothelioma was made.

It is important to differentiate these growths which are recognized in the liver of the infant shortly after birth, from the malignant changes which occur in hemangiomas, especially of the liver, among adults. The condition we are now considering is distinctly a disease of early life since none of the patients reported have lived to be over 6 months old. The disease appears early and undoubtedly exists at birth. That a supposedly benign angioma may develop into the endothelial sarcoma type is proved in the case of the skin tumor cited by Dutton<sup>6</sup> and in Fischer's<sup>7</sup> study of three cases of hemangioma of the liver of an endothelial type found in adults. It is true that these adult growths

these adult cases seems to have reverted to an embryonic type, it is probable that in the rapidly fatal infantile type the endothelium has never wholly lost its

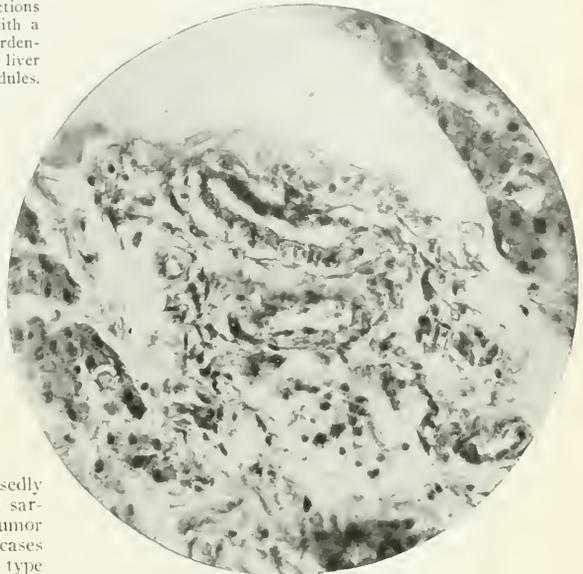


Fig. 3.—Beginning infiltration of blood vessels in interlobular septum;  $\times 450$ .

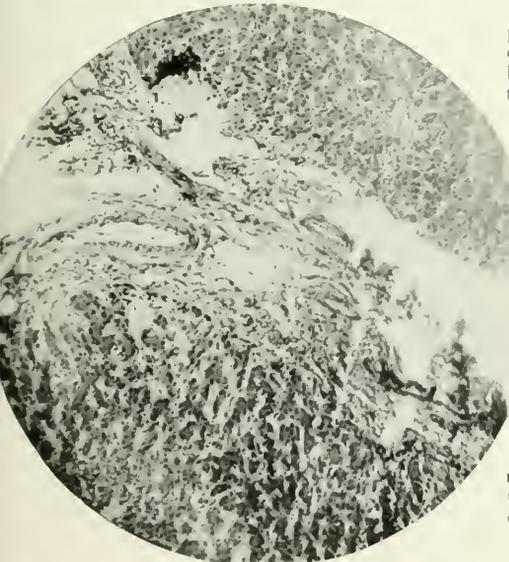


Fig. 2.—Degenerated liver tissue with septum, showing larger blood vessels without multiple layers of endothelium;  $\times 100$ .

primitive characteristics. This embryonic type of liver endothelium, retaining even an embryonic function of hematopoiesis, has been described by Borst and others, though not especially in this particular connection.

A striking peculiarity of these new growths is that in no case has metastasis been demonstrated. In 1899, Hewlett<sup>8</sup> reported a case which, though called a sarcoma of the liver, unquestionably belonged in the hemangio-endotheliosarcoma group. The history, gross anatomy and histology corresponded to the case histories already cited. Metastases in the lungs were described by Hewlett in the form of nodules of the same general structure as the liver nodules. Unfortunately, he did not offer any histologic detail of these lung nodules except as to fibrosis and thickening of the alveolar walls. It is quite possible that metastases might occur in hemangio-endotheliosarcoma of the liver, but proof is so far lacking, in marked contrast to the frequency of metastases in simple sarcomas. If the case just cited be added to those already reported, the total number of protocols will be ten—a number sufficient to summarize the main characteristics of these interesting growths.

SUMMARY OF TEN CASES<sup>9</sup>

*Family History.*—No history of malignant disease of the liver in parents was given in any case.

8. Hewlett: *Intercolon*, 3, J. Australia 4: 615-619, 1899.  
9. These cases include the five reported in Footnotes 1, 2, 3, 4 and 5, together with:  
Cherevinsky: *Arch. de physiol. norm. et path.* 6: 553, 1885.  
Bruchanow: *Ztschr. f. Heilk.* 20: 431, 1889.  
Vveder and Austin: *Am. J. M. Sc.* 104: 102-107, 1917-1913.  
Stern: *Arch. Diagnostics* 8: 72-73, 1911.  
Foote, John. In *Older Anniversary Volume*.

are similar histologically to the infantile type now under consideration; but while the endothelium in

6. Dutton, J. E.: *Liverpool M. Chir. J.* 184: 369-376, 1898.  
7. Fischer, B.: *Frankfurt Ztschr. f. Path.* 12: 399-421, 1913.

*Character of Labor.*—No peculiarities of note occurred during pregnancy or parturition.

*Precious History.*—Ten were breast fed at the beginning. All were well nourished, but developed digestive troubles and constipation later.

In seven cases, nodules were described as being seen throughout the liver. In only six, reports were made of the appearance of the nodules on section, and in all these the nodules were said to be dark red in the center and surrounded by whiter areas or rings. Three were described as having some confluent nodules.

*Histology.*—Six protocols describe multiple layers of endothelial cells in the smaller blood vessels, nodules packed with large round or oval cells with vesicular nuclei, with or without hemorrhagic areas. Seven also describe the effects of pressure in causing fibrosis around the nodules and degeneration of liver cells. In two the histologic details are incomplete or fragmentary, and a mere statement of the diagnosis is made in one case. Round cell infiltration of liver tissue is observed in every case, and in one a "fine cirrhosis" is noted.

#### SUMMARY

Summing up the information gained from a study of these cases, we may define hemangio-endotheliosarcoma of the liver as a congenital disease manifesting itself by an enlargement of the liver and some digestive disturbances within three months after birth, and caused by rapid and unrestrained proliferation of the endothelium of the liver capillaries causing the formation of nodules on the surface of and within the liver and a rapid and progressive increase in the size of that organ with a fatal termination usually before the sixth month as a result of pressure and obliteration of liver tissue. Jaundice and ascites are not usually observed, and metastases are not found. The liver is purplish, and is studded with nodules varying in size from that of a millet seed to that of an egg, some of which are confluent. These nodules are lighter in color than the surrounding tissue, and are also seen throughout the liver in cut sections to be dark red in the center surrounded by a lighter colored ring. Histologically the liver shows an infil-

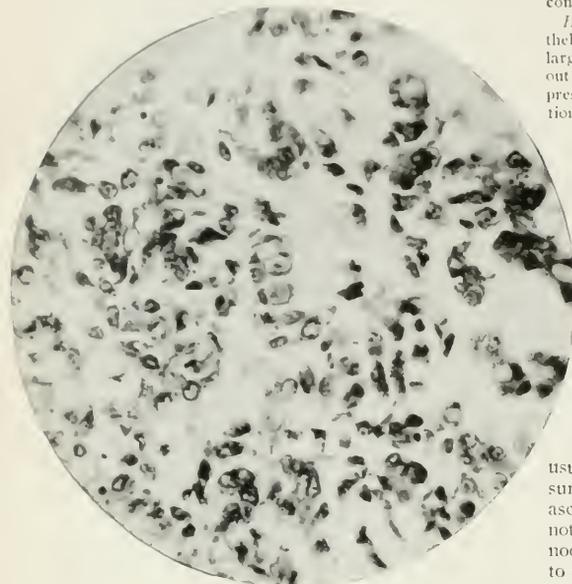


Fig. 4.—Center of a nodule;  $\times 450$ .

*Date when Liver Enlargement was Noticed.*—In some cases, abdominal enlargement was not noted till the patient was brought to the hospital. In two cases the growth was noted at 3 weeks, in two at 6 weeks, in two at 10 weeks, in one at 12 weeks, in one at 15 weeks and in two at 16 weeks. In no case was the nodular outline observed by the mother.

*Special Symptoms.*—In addition to enlargement of the abdomen, all patients suffered from constipation, and one from vomiting. Disturbances of digestion occurred shortly before or after the third month.

*Clinical Course.*—Four cases were reported as anemic. In three, mention was made of undigested stools. In no case was any jaundice observed after the initial jaundice of the new-born had subsided. Five patients were submitted for treatment because of a discovered abdominal mass, one because of indigestion, one for constipation and vomiting, and three for constipation alone. One patient had angiomas of the skin. No abnormalities of pulse or respiration were noted. Ascites was not observed except in a case on which a laparotomy had been performed.

*Date of Death.*—One child died at 5 weeks, one at 7, one at 11, one at 12, two at 15, two at 16 and one at 24 weeks. In two cases exploratory laparotomy was performed. Progressive weakness and exhaustion was cited as the cause of death in seven cases.

*Metastases.*—No metastases have been demonstrated.

*Description of Liver.*—The smallest liver weighed 522 gm., the largest, 1,625 gm. The average in the six cases in which the specimen was weighed was 902 gm. All were described as purplish or dark red. Nodules showed lighter under the capsule in every case. In one, the nodules were described as "of all sizes"; in one, of "varying sizes up to a walnut"; in one, "pea to a cherry size"; in two, simply "covered with nodules"; in two, "millet seed to walnut sized"; in one, "millet seed to a marble," and in two, "pea to hen's egg" size.



Fig. 5.—Center of a nodule;  $\times 100$ .

tration of the more normal areas with small round cells. In places the liver cells are distorted, atrophied and vacuolated. The interlobular connective tissue is increased. The smaller blood vessels are choked with large endothelial cells, some showing mitotic figures.

The nodules are surrounded by a fibrous band of compressed liver tissue. In some places this fibrous band shows lacunae containing degenerated liver cells. The larger nodules are packed with large round or irregular cells with large nuclei, some areas resembling

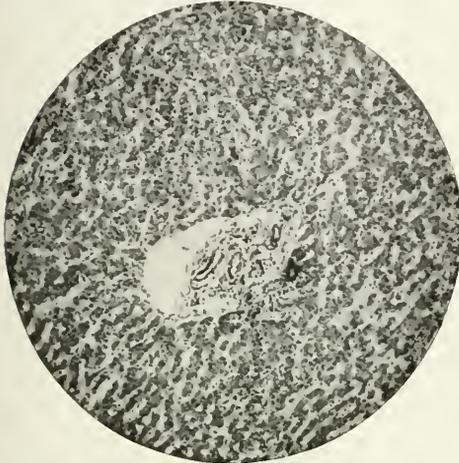


Fig. 6.—Larger vessels show swollen endothelium, smaller ones infiltration;  $\times 100$ .

myxosarcoma. Giant cells and polymorphonuclear leukocytes are also seen in some areas. Hemorrhagic areas are also noticeable in some fields.

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SOME UROLOGIC ASPECTS OF  
DERMOID CYSTS\*

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Although in gynecologic and surgical literature and textbooks the varying clinical manifestations caused by dermoids are well known and frequently noted, it is only in rare instances that they are brought to the attention of the urologist. Such growths may at times, however, give rise to marked disturbance and involvement of the urinary tract, and it is to emphasize this fact that the following case histories are reported:

REPORT OF CASES

CASE 1 (7888).—*Dermoid cyst of the vesicovaginal septum, causing ulceration of the bladder with profuse hematuria.*

*History.*—A married woman, aged 25, entered the Peter Bent Brigham Hospital complaining of hematuria. She had had two children without any complications of delivery. Nine years before her entrance into the hospital, there had occurred occasional attacks of urgent urination. About one year previously, these attacks had become more severe, and at this time undue frequency of urination also appeared. There was a feeling at the end of micturition as if she still should pass water, but she was unable to do so. There was never any pain in the bladder. About two months before her admission, hematuria began, and at times the blood was

seen in clots. More recently, the bleeding had increased definitely in amount.

*Examination.*—The general physical examination disclosed nothing abnormal. Vaginal examination revealed a moderate sized cystocele and a slight lateral tear of the cervix uteri. Otherwise, the pelvic organs were normal.

Examination of the bladder by use of the cystoscope showed it to be normal except for an area 2.5 cm. in circumference situated on the left aspect of the trigon, just inside the internal urinary meatus. This area was raised above the level of the bladder, and the mucous membrane was irregular, eroded and ulcerated. In one or two areas there were hemorrhagic spots, evidently the source of the bleeding. In other areas there were extensive phosphatic deposits. The ureters were uninvolved and normal in appearance. Normal urine, free from blood, came from each. It was felt that this area in the floor of the bladder was probably neoplastic in origin because of (1) its long duration without other signs than those of bleeding, and (2) its tendency to necrosis with a deposit of lime salts. It seemed wise to advise excision of the area.

*Operation.*—The abdomen was opened, Dec. 24, 1917, by a vertical incision in the midline extending from the pubes to within 3 cm. of the umbilicus, the patient being in the high Trendelenburg position. Through this incision the intestine was walled off by gauze packs and the uterus drawn backward. The peritoneum was incised transversely at the level of its reflection onto the bladder, and the bladder separated from the anterior surface of the uterus by blunt dissection. There were no evident areas of neoplasm in this region. The bladder was then opened by a vertical incision made from above downward on its posterior wall, and the ulcerated area inspected. This was found to be considerably raised above the general surface as previously described. On ocular

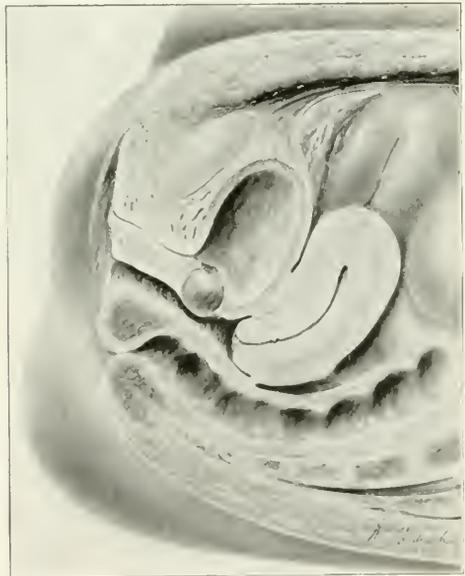


Fig. 1 (Case 1).—Dermoid of vesicovaginal septum causing ulceration of bladder.

inspection, however, it did not look especially malignant. By extending the incision in the bladder wall downward, and by the aid of sutures placed over the edges of the cut to aid in traction, it was possible to surround the ulcerated area by an elliptic incision, cutting through all thicknesses of the

\* From the Urological Clinic of the Peter Bent Brigham Hospital.  
\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

bladder. The area in question was thus excised. The bladder was repaired by interrupted stitches of fine catgut in a double row. It was found impossible to place accurately the stitches nearest the urinary meatus, and therefore this was left to be approximated from the vaginal approach. After closure of the bladder as high as its vertex, the peritoneum was sutured by a running catgut stitch, and a drain was left in the bladder to divert the urine. The abdomen was then closed in the usual manner by a continuous stitch for the peritoneum, interrupted stitches for the fascia, and silk for the skin.

The patient was then placed in the lithotomy position, and preparation was made to separate the anterior vaginal wall from the neck of the bladder. On following the transverse incision below the urethra, it was at once seen that what had previously been considered a cystocele was a dermoid cyst. This was excised and found to be filled with possibly 10 c.c. of material like yellow, thick cream. The wall of the cyst was excised and found to connect superiorly immediately with the area of the bladder which had previously been dissected. The bladder floor was closed over this incision by interrupted stitches, and after being sure that the wall of the cyst was entirely removed, the anterior vaginal mucosa was sutured with interrupted chromic catgut. A vaginal pack was put in place for twenty-four hours.

It is evident that we have here dealt with a chronic bleeding ulcer of the bladder, which was a complication of a dermoid cyst of the anterior vaginal wall, and was caused by it. Although the diagnosis was not made before operation, it seems probable that in this condition in the bladder would have responded readily to no treatment other than excision.

*Postoperative History.*—The patient made an uninterrupted recovery and was discharged on the nineteenth day after the operation. At this time, cystoscopy revealed a perfect healing of the bladder floor.

A recent note from the patient states that she is entirely cured.

*CASE 2 (10055).*—*Dermoid cyst of the ovary filling the true pelvis; communication with vault of bladder; severe cystitis.*

*History.*—An unmarried woman, aged 43, entered the Peter Bent Brigham Hospital, complaining of dysuria. Except for the fact that the patient had had an attack of "peritonitis" when she was 23 years old, the past history was essentially negative. Until four months before entrance, she had been entirely well. She then noticed suddenly that urination was painful, and the condition had persisted ever since. There was moderate frequency of urination, and the urine was turbid. There was never any hematuria, and there were no attacks of fever. During the month before admission, the bowels had become exceedingly constive. The patient also

noticed that she was losing weight. During six weeks preceding her admission to the hospital, the dysuria and frequency became more marked, and she was finally required to urinate at least five or six times at night. There had been a dull, intermittent, suprapubic pain for two weeks, and this was not relieved by emptying the bladder. Pain in the lower abdomen, on walking, had also been a late development.

*Examination.*—The patient was poorly developed and nourished. The only abnormality found was a mass above the pubes, rounded in outline with its base below, extending half way up to the umbilicus. Its greatest width was 11 cm. Palpation revealed a firm, moderately tender tumor which did not disappear on emptying the bladder. There was no tenderness in either costovertebral angle. When this mass was palpated by rectum, it was found to fill the whole pelvis and to cause marked downward dislocation of the uterus. On account of extreme tenderness it was impossible to determine the relations of this mass definitely.

The urine was cloudy, with a specific gravity of 1.017, and in the sediment were many leukocytes and small round cells. No blood or casts were found.

On cystoscopy, the bladder was found to be of slightly diminished capacity, and contained a considerable amount of thick,ropy pus. There was considerable infection in the region of the trigon. In the posterior upper portion of the bladder wall, just below its vertex, was seen an area, about 1 by 2 cm. in size, showing sloughy and irregularly hyperemic elevations and depressions, and surrounded by bullous edema. It was considered to be uncertain whether this area in the vault represented a definite penetration of the bladder or whether it was merely due to circulatory changes in the wall, due to adhesions formed between it and the pelvic mass.

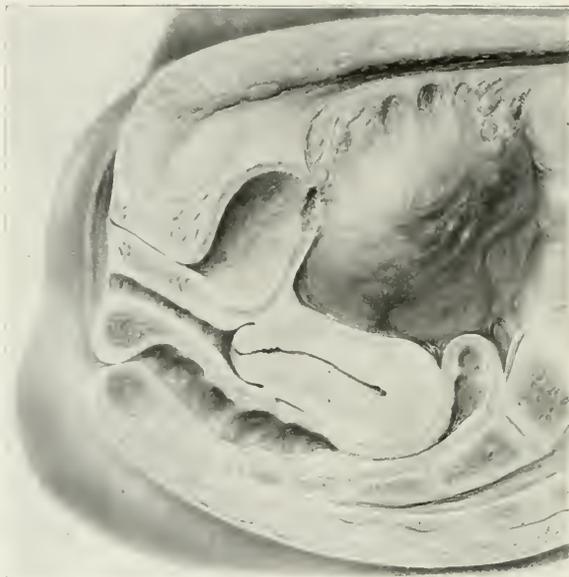


Fig. 2 (Case 2).—Large adherent dermoid of ovary filling the pelvis and communicating with the bladder.

*Operation.*—March 6, 1919, with the patient in the Trendelenburg position, a linear incision was made from above the symphysis to the umbilicus, in the median line. The omentum was found firmly adherent in a large mass low just behind the pubes in the region of the vault of the bladder. Below this adherent omentum was a tumor mass with a roughly nodular surface, semifluctuant. On further exploration, this mass was found to be intimately adherent to all the pelvic structures. It was necessary to resect the omentum in order to lift it upward. This was done, cutting after tying off with sutures passed on needles. It was then found that the mass represented the right ovary, and that it was a dermoid cyst containing pultaceous material and hair. After enucleation from the posterior surface of the right broad ligament, firm adhesions to the sigmoid were encountered. These were cut after ligation and the mass lifted upward. On the extreme left it was not adherent, but above the fundus of the uterus and in front it was densely adherent to the bladder, and in separating these adhesions the bladder was inevitably entered, with the escape of some of its contents into the pelvis. The bladder was sutured, after removal of

the cyst, as well as might be, although it was quite impossible on account of the absence of peritoneum to make a satisfactory separation of the bladder from the peritoneal cavity. Following removal of the cyst, the pelvis was drained with one large cigaret tube, and the bladder drained by a self-retaining catheter in the urethra. The operation was exceedingly difficult on account of the density of the adhesions, and its duration was two hours. The patient's condition, however, at the end of the operation, was quite satisfactory.

**Subsequent Condition.**—Six days after the operation the following note was made:

"Since operation the patient has been showing increasing signs of intestinal obstruction. She has vomited at irregular intervals, which have grown more frequent. She has been quite unable to retain any nourishment and there have been frequent intervals when the pulse has been poor. She has had no fever at any time. The bladder condition has been fairly satisfactory. The catheter has drained well enough for the most part, although two days ago there were signs of leakage around the abdominal drain, and this was therefore replaced by a small sized tube. The output of urine has been only moderate in amount, but seems to have been sufficient. Today the abdomen is tensely distended, but there is no dullness to be found in either flank, although the patient is vomiting green bile. She is very weak and has typical abdominal facies. It is evident that in spite of repeated enemas and stomach washouts she is not making progress. Secondary operation is therefore necessary to relieve probable obstruction."

**Second Operation.**—March 13, 1919, under light anesthesia, the old incision was opened and the abdomen explored. No collapsed bowel could be found, all the bowel, large as well as small, being markedly distended. There was no purulent peritonitis present, although over the coils of the pelvis there were occasional bits of fibrin with adhesion. One coil of ileum was quite markedly kinked deep in the pelvis on the right side, and, after release, its gas was heard to move freely through the intestine. All coils of bowel which had become adherent in the site of the previous operation were freed, and a Mixer tube was quickly sewed into the cecum. This was led out from the abdomen through a small incision in the right lower quadrant. The pelvis was again drained with a deep cigaret wick and the wound closed in the usual manner.

From the second operation the patient did not rally, and death occurred about thirty-six hours later.

**Postmortem Examination.**—Paralytic ileus following fibrinous peritonitis was found at necropsy, together with necrosis of the posterior wall of the bladder, with cystitis, and cellulitis of the perivesical tissues.

This condition was undoubtedly the result of partial rupture of the adherent dermoid during its removal, with some soiling of the pelvis. The content of dermoid cysts is well known to have a toxic proteolytic action on any fresh tissue with which it comes in contact. In the peritoneum this action is marked and results in a nonbacterial adhesive peritonitis. Leakage of urine through the sutured area in the bladder probably played a very minor part in causation of the peritonitis, if leakage occurred at all, for at the second operation the suture seemed to be holding firmly.

**Examination of Dermoid Cyst.**—Gross description: The specimen consisted of a cyst about 7 cm. in diameter. The surface was rather bright red. There were numerous injected blood vessels. It felt boggy. Its contents consisted of a large mass of brownish hair mixed with a grayish yellow material about the consistency and general appearance of thin clay. The wall varied in thickness from 2 to 4 mm. It was quite fibrous, and anteriorly was covered with a very vascular granulation tissue on which was a layer of yellow necrotic tissue about 1 to 2 mm. in thickness. This could be stripped off, exposing a very vascular, roughened surface. From one place over an area about 2 cm. wide the growth of hair seemed to spring, the hair being intimately adherent to the wall by a red, fibrous pedicle. There were two or three areas where the wall was thickened and quite firm, and on section it was pale white and with the consistency of cartilage. A frozen section of this portion of the wall showed

it to consist chiefly of a hyalin framework in which there were numerous leukocytes and necrotic cells. A frozen section in another portion of the wall was seen to consist chiefly of granulation tissue. Smears of the yellow exudate showed necrotic leukocytes, necrotic cells and gram-negative bacilli.

**Microscopic Report:** There were three sections from various parts of the cyst wall. Lining the cyst was a thick layer of granulation tissue containing numerous giant cells and occasional small areas of necrosis. Beneath this layer the wall was composed of dense fibrous tissue which in great part was of a pale, hyalin appearance. There were numerous small abscesses in the wall with intense polymorphonuclear reaction and areas of necrosis. Many of the smaller blood vessels showed the changes of obliterative endarteritis and perivascular mononuclear infiltration.

**Diagnosis:** The diagnosis was: a dermoid cyst, with acute and chronic inflammation of the wall.

A third case illustrating in striking manner the action of dermoid cysts when causing renal colic is found in the recent report of Fagge.<sup>1</sup>

**CASE 3.—History.**—Nurse H., aged 27, complained one evening of dull "stomach-ache," which she had endeavored to treat with castor oil, but without success. The history she gave was that she had had scarlet fever in childhood, but no other illness of importance. The recent pain had been at first a diffuse abdominal pain. She had taken a dose of castor oil, and then, as the first dose had made her sick, she had taken another.

The physician who first saw her regarded the case as one of so-called gastritis, and gave her an anodyne; this alleviated the pain, and she slept fairly well. By the following evening, however, the pain had returned; it originated in the left loin, radiated to the left subcostal region, around the waist, and (a little later) toward the groin. It was of a colic-like nature, and accompanied by nausea, though not by actual vomiting. No tumor could be felt in the renal region, or elsewhere, and the urine was reported by the sister of the nurse's sickroom to be normal on chemical examination.

Renal colic due to calculus was suspected, and a roentgenogram was taken, which cleared up the diagnosis. Two teeth were to be seen very plainly at the level of the pelvic inlet—the root-canals could distinctly be seen in the original plate. Since the patient had not swallowed any teeth, it was evident that she was suffering from an ovarian dermoid cyst. Moreover, roentgenograms of the kidneys gave no evidence of calculi, so that the cyst was probably the cause of the symptoms, and not merely incidental.

The patient was transferred to a surgical ward. While awaiting the visit of the surgeon in charge, a sudden change occurred in her condition. She began to vomit violently and became distended and tympanic; in short, she showed not only signs of pressure on the ureter, but also those of intestinal obstruction. It should be remarked that prior to this attack of obstruction, she had suddenly passed an unusually large quantity of urine, suggesting that the renal symptoms which had predominated at the early stage of her illness were due to hydronephrosis—closed at first and finally opened.

**Operation and Result.**—In view of the sudden change in the patient's condition, a laparotomy was performed with the least possible delay; it was found that there were two ovarian cysts, firmly impacted in the pelvic brim. Both were multilocular, and contained hair and pultaceous material of the usual kind. The teeth were found in the right cyst, while the left cyst had evidently pressed on the pelvic colon and caused the obstructive symptoms. The left ureter showed no external signs of obstruction, but as some hours had elapsed since the discharge of urine, it is not surprising that no such sign was seen, and the absence of any such indication in no way controverts the diagnosis of hydronephrosis. The pelvic colon showed the usual signs of recent moderate

1. Fagge, C. H.: Bilateral Ovarian Dermoid Cysts Simulating Renal Colic, *Brit. J. Surg.* 6:468 (Jan.) 1919.

obstruction. Both cysts were excised. No trace of ovarian substance or of supernumerary ovaries could be seen macroscopically. Recovery was uneventful.

The further history of the case is not at present ascertainable, but it seems probable that complete amenorrhea will soon set in, with all the ordinary train of physical and psychic changes, for the girl's appearance, prior to the operation, was such as to suggest that her supply of ovarian internal secretion had long been deficient.

The main interest of the case centers in the unusually complete simulation of renal trouble at the start, and then the sudden transformation into a case of intestinal obstruction; and also in the rapid and certain aid to diagnosis afforded by the roentgen rays.

The teeth in the right dermoid were about as long and as thick as adult canines; the crowns were slightly flattened, and showed several little cingula near the top. Each tooth had a single root, though the apex of one of them was a little bent to one side. No trace of dental or bony matter was found in either cyst beyond these two teeth, though there were a few partially calcified areas in the debris.

## COMMENT

Such cases as these are illustrations of the fact that a dermoid cyst, frequently quite benign, may later take on characters of growth causing marked adhesion and even penetration into an adjacent viscus. When the bladder is thus involved or the ureters occluded by pressure, a knowledge of such characteristics by the urologist is all important.

## ABSTRACT OF DISCUSSION

DR. HUGH H. YOUNG, Baltimore: A man came to the dispensary of the Johns Hopkins Hospital some time ago bringing with him a small calculus that he had passed in his urine. It was attached to a hair. We cystoscoped him and found another calculus on the anterior wall of the bladder. It, too, was attached to a hair. As the patient was shaking, it would move back and forth like a pendulum, and it was very easy to trace it to a little opening on the anterior wall of the bladder, which very evidently had some pocket. He was not willing to go into the hospital then, therefore we caught this calculus with a cystoscopic rongeur and removed it, thinking that it might possibly cure him. In a few months he returned with another hair calculus. I did a suprapubic cystostomy and removed a pocket in the anterior wall which contained a very small amount of hair. Apparently he has been cured by this simple procedure.

DR. ARTHUR L. CHUTE, Boston: About two years ago I saw a case of dermoid of the ovary that had ruptured into the bladder. The patient, who had been having urinary distress with an infected urine, showed, on cystoscopic examination, a bladder that contained great masses of hair. A mass as big as my fist, filled with hair, was removed abdominally and the opening into the bladder was closed. The patient made a good recovery.

**Influenza in the Philippines.**—In the *Revista Filipina de Medicina y Farmacia*, Dr. Eugenio Hernando, the chief of the provincial division of the sanitary service of the Philippines, reviews the epidemic of influenza that occurred in the Philippines from June to December, 1918. The total number of deaths caused by the epidemic was 70,513. It is estimated that the disease attacked 40 per cent. of the total population of about 7,000,000, the mortality being about 2.5 per cent. of those attacked. The epidemic really began in June although it did not assume severity until October. The groups of ages that suffered most were those between 10 and 29 years. The disease did not seem to be imported, since cases were occurring before any ships arrived from infected countries, although after the importation of cases it assumed a more severe form. The June epidemic seemed to confer a certain degree of immunity during the second outbreak of the disease in October.

THE SIMULATION OF MENINGITIS  
BY INFLUENZA

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In reports of the pandemic of influenza and its complications, reference has been made to toxemia and to the symptoms of shock and meningitis. Thus, Keeton and Cushman<sup>1</sup> mention the delirium observed early as well as late in the disease, and liken the shock to that following operations. They noted the engorged conjunctival blood vessels, so constantly seen in the acute exanthems, in a number of the patients suffering from influenza and pointed out the difficulty not infrequently encountered in differentiating influenza from meningitis.

Evidence of this systemic infection is also present in statements regarding toxemia and delirium in the reports made by Friedlander and his co-workers,<sup>2</sup> and by Snyttot and Clark.<sup>3</sup> Strouse and Bloch<sup>4</sup> mention one case, in the 500 studied clinically by them, at first suggestive of meningitis but with the spinal fluid unchanged except for increased tension. Nervous manifestations were observed in the patients suffering from influenzal pneumonia and also from uncomplicated influenza by Lyon and others<sup>5</sup> at Camp Upton. More recently Neal<sup>6</sup> has made this feature of influenza the subject of special consideration. She reports twenty instances in which she observed meningeal symptoms, headache, stiffness of the neck, positive Kernig sign, and extreme apathy, in patients convalescing from attacks which clinically appeared to be influenza. The spinal fluids in her patient's were negative in chemical and cytologic constituents with rare exceptions. Bloomfield and Harrop<sup>7</sup> and Alexander<sup>8</sup> have referred to the evidence of systemic infection in cases of influenza and have likened the onset to that of the acute infections and acute exanthems with constitutional reactions, such as headache, chills, fever, general aching, malaise, prostration, anorexia, nausea and vomiting. Generalized infection in influenza is also referred to by Le Count,<sup>9</sup> who states that it is difficult to ascribe death to the small amount of lung tissue actually pneumonic in many cases of influenzal pneumonia.

With these matters in mind we have reviewed again the records studied by Keeton and Cushman with the addition of those which have accumulated since their report, 3,400 cases in all, and find that nearly 1 per cent. of these patients had symptoms suggestive of meningitis or cerebral involvement. They varied

1. Keeton, R. W., and Cushman, A. B.: The Influenza Epidemic in Chicago, A Type of Toxic Shock, *J. A. M. A.* **72**: 1962 (Dec. 14) 1918.

2. Friedlander, Alfred; McCord, C. P.; Sliden, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, *J. A. M. A.* **71**: 1652 (Nov. 16) 1918.

3. Snyttot, M. J., and Clark, Elbert: The Influenza Epidemic at Camp Dix, *J. A. M. A.* **71**: 1816 (Nov. 30) 1918.

4. Strouse, Solomon, and Bloch, Leon: Notes on the Present Epidemic of Respiratory Disease, *J. A. M. A.* **71**: 1568 (Nov. 9) 1918.

5. Lyon, I. P.; Tenney, C. F., and Szerlip, Leopold: Some Clinical Observations of the Influenza Epidemic at Camp Upton, *J. A. M. A.* **72**: 1726 (June 14) 1919.

6. Neal, Josephine B.: Meningeal Conditions Noted During the Epidemic of Influenza, *J. A. M. A.* **72**: 714 (March 8) 1919.

7. Bloomfield, A., and Harrop, G. A.: Epidemic of Influenza, *Bull. Johns Hopkins Hosp.* **30**: 1 (Jan.) 1919.

8. Alexander: *Berl. klin. Wchnschr.*, 1918, No. 38; abstr. *Deutsch. med. Wchnschr.* **44**: 1171, 1918.

9. Le Count, E. R.: The Pathologic Anatomy of Influenzal Bronchopneumonia, *J. A. M. A.* **72**: 650 (March 1) 1919.

from slight neck rigidity and unilateral or bilateral Kernig reactions to deep delirium and marked rigidity of the neck, and in one case to opisthotonos. These cases, numbering twenty-nine, are conveniently considered in two groups: first, those in which a diagnosis other than influenza was incorrectly made as shown by postmortem examination; and second, those in which influenza or influenzal pneumonia was clinically diagnosed with meningeal complications which prompted the performance of spinal puncture. In each of the latter group the diagnosis was influenza or influenzal pneumonia complicated by meningitis.

TABLE 1 (GROUP 1).—EIGHT FATAL CASES FOLLOWING INCORRECT DIAGNOSIS

Case	Clinical Diagnosis	Total Days Ill	Total Hours in Hospital
1	Epidemic meningitis.....	24	48
2	Uremia.....	Unknown	17
3	Uremia.....	14	1
4	Uremia.....	Unknown	1
5	Tuberculous meningitis.....	10	23
6	Apoplexy.....	Unknown	2
7	Apoplexy.....	1	16
8	Polyarthritis.....	14	108

The eight cases of the first group were shown by necropsy to be influenzal pneumonia with diagnosis incorrectly recorded as follows: uremic coma, three; apoplexy, two; epidemic meningitis, tuberculous meningitis, and toxemia and septicemia secondary to polyarthritis, each one. In all of these patients active delirium or deep unconsciousness was present associated with rigidity of the neck, and positive Kernig and Brudzinski signs. The spinal fluid was constantly under increased tension, but the demonstration of globulin, albumin and increased cell counts was variable; the spinal fluids were sterile.

Among these eight cases, both early and late, involvement of the lung was found at necropsy. An instance of the early fulminating type is illustrated by the following case:

CASE 1.—An Irishman, aged 32 years, was brought to the hospital in a stupor and active delirium with an admission diagnosis of meningitis. Relatives of the patient stated that he had complained of soreness in his joints, headache and stiffness of the neck for two days. Bubbling râles were heard in the lungs, but nothing else of importance was demonstrated. The neck was markedly rigid, Kernig's sign was distinctly positive, and the spinal fluid was under increased tension but was otherwise unchanged. The clinical diagnosis was recorded as: acute polyarthritis with severe toxemia and delirium all out of proportion to the other manifestations of the disease.

Five days later the patient died, and necropsy was performed the same day. No changes were found in any of the joints of the extremities. The pia-arachnoid vessels were engorged; the spinal fluid was abundant but bacteriologically negative. The mucous membrane lining the larynx, trachea, bronchi and finer bronchioles of the left side was decidedly hyperemic. In the lumen of the trachea and left bronchial tree was a moderate amount of frothy mucopurulent material. The right lung was but little changed. The following description was made of the left: There is a large confluent subpleural, interlobar hemorrhage, 5 by 6 cm. in opposite dimensions, surrounded by many millimeter-sized petechiae on the posterior surface of the lung. There are similar hemorrhages; one, 1 by 1.5 cm. on the posterior surface of the upper lobe; two, 0.5 by 1 cm., and 2 by 2.5 cm., respectively, on the posterior surface of the lower lobe. The pleura is raised up over these. In the lower lobe there are nine irregular, dark brown regions firmer than the surrounding tissue adjacent to bronchi and in the periphery of the lung,

They are from 0.6 by 2.5 cm. to 0.6 by 5 cm. in size. There are four similar places having a maximum diameter of 1 cm. in the upper lobe.

Changes like these have been noted by others in acute fulminating influenza and called "hemorrhagic pneumonitis." They are mentioned by the British Medical Research Committee<sup>9</sup> and by MacCallum.<sup>10</sup>

Evidence of systemic infection, with active delirium and meningeal symptoms occurring in a late stage of influenzal pneumonia is illustrated by the subjoined case:

CASE 2.—A laborer, aged 41, was brought to the hospital in delirium with an admission diagnosis of epidemic meningitis and alcoholism. No areas of consolidation were found in the lungs. There was marked rigidity of the neck, and the Kernig and Brudzinski signs were positive. Spinal fluid was under moderately increased tension, the globulin tests were positive and the lymphocyte count was from 10 to 12. All cultures of the fluid remained sterile. The patient died at the end of forty-eight hours' stay in the hospital, and post-mortem examination was made a few hours after death. The brain was found to be very edematous and the spinal fluid increased in amount and clear. Bacteriologic examination of the fluid was again negative. The trachea and bronchi contained thick, green mucopurulent material which revealed an intense hyperemia of the mucosa of the air passages. There was no consolidation in the left lung. The pleura of the right lung on the posterior surfaces of the adjacent parts of the middle and upper lobes was raised, dark and firm. The lung underlying these areas contained two dark red, consolidated, liverlike regions, each 2 by 3 cm., one in the upper part of the middle lobe, the other adjacent in the lower part of the upper lobe.

In the second group are twenty-one cases (Table 2) diagnosed as influenza or influenzal pneumonia with meningism, the latter being made after negative spinal fluid examination. There are two types of cases in this group; first, thirteen patients with active delirium and unconsciousness and second, eighteen who were able to give a history and respond intelligently to ques-

TABLE 2 (GROUP 2).—OUTCOME OF CASES IN WHICH SPINAL PUNCTURE WAS PERFORMED AFTER CORRECT DIAGNOSIS

Case	Clinical Diagnosis	Total Days Ill	Total Days in Hospital	Outcome
1	Pneumonia.....	20	26	Recovery
2	Pneumonia.....	7	5	Death
3	Influenza.....	7	4	Improved
4	Influenza.....	18	15	Recovery
5	Pneumonia.....	11	5	Death
6	Influenza.....	Unknown	23	Death
7	Influenza.....	27	20	Recovery
8	Pneumonia.....	11	6	Death
9	Pneumonia.....	9	5	Recovery
10	Pneumonia.....	Unknown	19	Recovery
11	Influenza.....	16	11	Recovery
12	Pneumonia.....	11	4	Death
13	Influenza.....	13	9	Recovery
14	Pneumonia.....	Unknown	24	Recovery
15	Pneumonia.....	7	11	Improved
16	Pneumonia.....	28	22	Death
17	Influenza.....	8	5	Death
18	Influenza.....	13	6	Recovery
19	Pneumonia.....	13	4	Death
20	Influenza.....	17	10	Recovery
21	Pneumonia.....	18	15	Recovery

tions. There were five deaths among the thirteen severe cases and but two deaths among the eight less severe. In all of the twenty-one patients, a rigidity of the neck was noted; in thirteen the Kernig sign was positive; in six the Brudzinski sign was positive and opisthotonos was present in one, a baby of 10 months, which later recovered. The tension of the spinal fluids of all these patients was increased and all

9. Abstracts of Foreign Literature by the British Medical Research Committee, J. A. M. A. 71: 1375 (Nov. 9) 1918.  
10. MacCallum, W. G.: Pathology of Pneumonia Following Influenza, J. A. M. A. 72: 729 (March 8) 1919.

the fluids were clear. The albumin and globulin tests were positive in one instance, but in no instance was there an increase in the lymphocyte count.

Postmortem examination was performed on the bodies of four of the patients in the second group. The changes were similar to those usually found in the later stages of pneumonia following influenza. The mucous lining of the air passages was acutely inflamed, and a thick mucopurulent material was present in the lumens; in the lungs pneumonia, lobular in arrangement, with much blood and a scarcity of fibrin was present. The brain and its membranes presented only edema and engorgement of the blood vessels.

## SUMMARY

A severe toxemia and active delirium with definite meningeal manifestations such as is encountered in systemic infections and the acute exanthems occur in some patients suffering from influenza and influenzal pneumonia.

The clinical picture in some instances closely simulates that of an actual meningitis or other intracranial causes of delirium and unconsciousness, and postmortem examination fails to reveal any inflammation of the brain or its membranes.

## HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT

WITH SPECIAL REFERENCE TO THEIR OCCURRENCE AFTER TONSILLECTOMY \*

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Since the epidemic of interstitial bronchopneumonia, either primary or secondary to measles, in the army camps of the United States, a new interest has been aroused in the hemolytic streptococci.

First, I wish to review briefly the most recent literature regarding the morphology and cultural characteristics of hemolytic streptococci in the throat of the healthy and sick, and then to present my results from cultures of the nose and throat with special reference to the occurrence of streptococci after tonsillectomy.

## CULTURAL CHARACTERISTICS AND MORPHOLOGY OF HEMOLYTIC STREPTOCOCCI FROM THE THROAT AS DESCRIBED BY DIFFERENT AUTHORS

Andrews and Horden<sup>1</sup> isolated fifty-five strains of hemolytic streptococci from the throat in tonsillitis and scarlet fever, and according to Gorden's tests they were identified as *Streptococcus pyogenes* and *S. anginosus*.

Savage<sup>2</sup> also obtained from the inflamed and normal throats these two types of streptococci. In broth the organisms from the inflamed throat appeared in long chains and those from the normal throat in short chains. In experiments on goats<sup>3</sup> they failed to produce mastitis; hence he classified them as of the human type.

\* From the John McCormick Institute for Infectious Diseases, Chicago.

<sup>1</sup> This work was aided by a grant from the American Medical Association through its Committee on Scientific Research.

1. Andrews and Horden: *Lancet* 2:775, 1906.

2. Savage: *Rept. of Med. Officer, Local Govt. Board, London, 1907*, p. 359.

3. Savage: *Rept. of Med. Officer, Local Govt. Board, London, 1908-1909*, p. 294.

The organisms of the Chicago epidemic of septic sore throat in 1912 were studied by Davis<sup>4</sup> and Rosenow.<sup>5</sup> These streptococci were capsulated and appeared in pairs or in short chains. On blood agar plates the colonies were large, moist, and surrounded by a narrow, hemolytic zone. On the agar slants the colonies had no mucoid appearance.

The hemolytic streptococci in the septic sore throat studied by Hamburger<sup>6</sup> usually appeared as diplococci surrounded by "halo," but no capsule was demonstrated.

During the epidemic of tonsillitis in Massachusetts in 1912 and 1914, Smith and Brown<sup>7</sup> demonstrated two types of streptococci, namely Alpha and Beta, the former being surrounded by a zone of partial hemolysis and the latter by a zone of complete hemolysis.

During the severe infections with hemolytic streptococci at Camp Zachary Taylor, Alexander<sup>8</sup> isolated nineteen strains from the tonsils and forty-eight from the throat. On blood agar plates the colonies appeared small, round, raised and gray, and were surrounded with a wide, clear, hemolytic zone. They usually produced a sedimental growth in 1 per cent. glucose broth.

Davis<sup>4</sup> isolated several strains of hemolytic streptococci from the actinomycetes-like granules with a marked anaerobic property.

Keegan<sup>9</sup> recently described a type of hemolytic streptococci isolated from the sore throat which seems different from the ordinary *Streptococcus pyogenes* in cultural characteristics. On blood agar the colonies were large and moist, and on drying they tended to flatten out, sometimes showing radial lines or concentric rings. Hemolysis was not marked. Cultures in glucose broth gave at first uniform turbidity and then formed sediment at the side and bottom of the tube, the cocci being diplococci in short chains.

## OBSERVATIONS ON THE OCCURRENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF THE HEALTHY AND SICK

Cole and MacCallum<sup>11</sup> studying the prevalence of hemolytic streptococci in the throat found that thirty-nine out of sixty-nine patients in measles wards harbored this organism in their throats, whereas on admission only five out of forty-four gave positive cultures.

Levy and Alexander<sup>12</sup> found that 77.1 per cent. of measles patients admitted to the hospital were carriers of hemolytic streptococci, while the percentage of carriers among new recruits was very low—about 14.8 per cent.

Cunning, Spruit and Lynch<sup>13</sup> reported that 35 per cent. of measles patients and 6 per cent. of average

4. Davis, D. J.: Bacteriologic Study of Streptococci in Milk in Relation to Epidemic Sore Throat, *J. A. M. A.* 58:1852 (June 15) 1912.

5. Davis, D. J., and Rosenow, E. C.: An Epidemic of Sore Throat Due to a Peculiar Streptococcus, *J. A. M. A.* 58:773 (March 16) 1912.

6. Hamburger, L. P.: An Epidemic of Septic Sore Throat in Baltimore and Its Relation to a Milk Supply, *J. A. M. A.* 58:1109 (April 13) 1912.

7. Smith, T., and Brown, J. H.: *J. M. Res.* 31:455, 1915.

8. Alexander, H. L.: Hemolytic Streptococci Causing Severe Infections at Camp Zachary Taylor, Kentucky, *J. A. M. A.* 70:775 (March 16) 1918.

9. Davis, D. J.: Streptococci in Granules in Tonsils, *J. Infect. Dis.* 23:562 (Dec.) 1918.

10. Keegan, J. J.: Hospital Epidemic of Streptococci Sore Throat with Surgical Complications, *J. A. M. A.* 72:1134 (May 17) 1919.

11. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, *J. A. M. A.* 70:1146 (April 20) 1918.

12. Levy, R. L., and Alexander, H. L.: The Predisposition of Streptococci Carriers to the Complications of Measles, *J. A. M. A.* 70:1827 (June 15) 1918.

13. Cunning, J. G.; Spruit, C. B., and Lynch, C.: The Pneumonias; Streptococcus and Pneumococcus Groups, *J. A. M. A.* 70:1066 (April 13) 1918.

individuals were found to have hemolytic streptococci in their throats.

Nichols and Bryan<sup>14</sup> obtained hemolytic streptococci from the crypts of tonsils in 75 per cent. of the cases examined, and from the nose in five of nine cases, that is, 55 per cent.

Keegan,<sup>15</sup> studying the bacteriology of influenza, found hemolytic streptococci in the throat in pure culture in 4 per cent. and in mixed culture in 19 per cent. of influenza cases, and in 20 per cent. of convalescent patients.

Blanton and Irons,<sup>16</sup> from the swabbing of the throat and nasopharynx of influenza patients, obtained hemolytic streptococci in 34 per cent. of the throat cultures and in 75 per cent. of the nasopharyngeal cultures.

During the epidemic of influenza at Camp Sherman, Friedlander, McCord, Sladen and Wheeler,<sup>17</sup> studying cultures from the throats and nasopharynx, found hemolytic streptococci in only 4 per cent. of all the influenza cases.

Opie, Freeman, Blake, Small and Rivers<sup>18</sup> recorded that hemolytic streptococci were present in the throat in 22.4 per cent. of normal persons, in 1.3 per cent. of pneumonia patients, and in 3 per cent. of bronchitis patients. The incidence of hemolytic streptococci in the throat of measles patients was very low—about 2.7 per cent.—on admission, but later gradually increased to as high as 24.1 per cent.

Blanton, Burhans, and Hunter<sup>19</sup> obtained hemolytic streptococci from the tonsils of normal persons in 90 per cent. and from the depth of tonsils in 80 per cent. of their cases. Furthermore, they emphasize especially the number of streptococci in the individual throat. For this reason, they investigated the percentage of throats showing over 50 per cent. of hemolytic streptococci as compared with the other organisms on a plate. They found 11.4 per cent. in normal throats in the camp organization; 10.1 per cent. in normal throats among the laboratory workers; 47.6 per cent. from patients with upper respiratory infection; 42.8 per cent. from patients convalescent from pneumonia, and 30.1 per cent. from patients with empyema.

Smillie<sup>20</sup> found that about 50 per cent. of normal throats harbored hemolytic streptococci, but the Beta type of streptococci he found only once in the 100 normal throats studied.

After studying streptococci from scarlatinal and normal throats, Ruediger<sup>21</sup> concluded that hemolytic streptococci were present in 59 per cent. of the normal throats and constantly in abundance on the tonsils of patients with tonsillitis and scarlet fever.

Davis,<sup>22</sup> studying the bacteriology of tonsils from various diseases, presents his results as follows: Twenty-five of twenty-eight cases of arthritis, nine of

ten cases of nephritis, six of ten cases of endocarditis, and fifty of sixty-one cases of tonsillitis hypertrophy gave hemolytic streptococci in the crypts of the tonsils.

HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF DISPENSARY PATIENTS

Cultures have been made from the nose and throat of 567 persons on blood agar plates and studied. The presence of hemolytic streptococci of the Beta type is spoken of as a positive culture. Most of the patients were from the services of Dr. E. L. Kenyon and Dr. T. W. Lewis in the Central Free Dispensary, Rush Medical College. To them, I am greatly indebted.

*Technic.*—A sterile cotton swab was rubbed against the tonsils, the anterior pillars of the fauces, and the posterior wall of the pharynx in such a way as to avoid other parts of the mouth as much as possible. The nasal cultures were taken as follows: The nostrils were opened wide with a nasal speculum, and a sterile

TABLE 1.—CARRIERS OF HEMOLYTIC STREPTOCOCCI AMONG DISPENSARY PATIENTS

Sex*	Age	Diagnosis	Condition of Throats	Remarks	Hemolytic Streptococci Colonies
♂	9	Hypertrophy of tonsils	Normal	Recurrent attacks of cold	5 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	16 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	21 throat
♂	13	Hypertrophy of tonsils	Normal	No other symptom	3 throat
♂	21	Hypertrophy of tonsils	Normal	No other symptom	7 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	15 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	31 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♂	16	Hypertrophy of tonsils	Normal	No other symptom	4 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	12 throat
♂	7	Hypertrophy of tonsils	Normal	No other symptom	17 throat
♂	25	Hypertrophy of tonsils	Normal	No other symptom	10 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	25 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	3 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	13 throat
♂	16	Hypertrophy of tonsils	Normal	No other symptom	3 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	5 throat
♂	12	Hypertrophy of tonsils	Normal	Cough, headache	14 throat
♂	21	Hypertrophy of tonsils	Normal	No other symptom	31 throat
♂	15	Hypertrophy of tonsils	Normal	No other symptom	17 throat
♂	18	Hypertrophy of tonsils	Normal	No other symptom	9 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	2 throat
♂	14	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	9	Hypertrophy of tonsils	Normal	No other symptom	24 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	12 throat
♂	12	Hypertrophy of tonsils	Normal	No other symptom	27 throat
♂	20	Hypertrophy of tonsils	Normal	No other symptom	14 throat
♂	10	Hypertrophy of tonsils	Normal	No other symptom	9 throat
♂	11	Hypertrophy of tonsils	Normal	No other symptom	5 throat
♂	10	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Dry cough, sore throat	25 throat
♀	7	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Headache, sore throat	30 throat
♀	15	Hypertrophy of tonsils and tonsillitis	Slightly inflamed	Sore throat	47 throat
♂	8	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Fever, cough, sore throat	Pure throat culture
♂	11	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Constant cough, sore throat	14 throat
♀	7	Hypertrophy of tonsils and tonsillitis	Markedly inflamed	Sore throat	3 throat
♂	46	Acute tonsillitis	Markedly inflamed	Bad cold, headache	8 throat
♀	26	Acute tonsillitis	Markedly inflamed	Bad cold, headache	40 throat
♂	14	Acute tonsillitis	Markedly inflamed	Bad cold, headache	28 (throat 2 nose)
♀	35	Acute tonsillitis	Markedly inflamed	Fever, cough, membrane over tonsils	throat 9 nose
♂	21	Acute tonsillitis	Markedly inflamed	Fever, cough, headache	25 (throat 5 throat)
♂	19	Acute tonsillitis	Markedly inflamed	Sore throat, cough	45 throat
♂	14	Acute tonsillitis	Markedly inflamed	Sore throat, cough	21 throat
♀	21	Acute tonsillitis	Markedly inflamed	Sore throat, cough	13 throat
♂	46	Chronic tonsillitis	Inflamed	Sore throat every winter	27 throat
♂	15	Chronic tonsillitis	Inflamed	Constant cough for 2 years	3 throat
♀	37	Chronic tonsillitis	Inflamed	Cough for 3 mo.	11 throat
♂	14	Chronic tonsillitis	Inflamed	Cough, sore throat every winter	29 throat
♀	8	Follicular tonsillitis	Markedly inflamed	Sore throat	20 throat

\* In this column, ♂ indicates male, and ♀ female.

14. Nichols, H. J., and Bryan, J. H.: The Tonsils as Foci of Infection in Streptococcus Hemolyticus Carriers, *J. A. M. A.* **71**: 1813 (Nov. 16) 1918.  
 15. Keegan, J. (Ed.): The Prevailing Pandemic of Influenza, *J. A. M. A.* **71**: 1051 (Sept. 29) 1918.  
 16. Blanton, W. B., and Irons, E. E.: A Recent Epidemic of Acute Respiratory Infection at Camp Custer, Mich., *J. A. M. A.* **71**: 1988 (Dec. 14) 1918.  
 17. Friedlander, A.; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, *J. A. M. A.* **71**: 1652 (Nov. 16) 1918.  
 18. Opie, E. L.; Freeman, A. W.; Blake, F. G.; Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston, *J. A. M. A.* **72**: 108 (Jan. 11) 1919.  
 19. Blanton, W. B.; Burhans, C. W., and Hunter, O. W.: Studies in Streptococcal Infections at Camp Custer, Mich., *J. A. M. A.* **72**: 1520 (May 24) 1919.  
 20. Smillie, W. G.: Beta Hemolytic Streptococcus, *J. Infect. Dis.* **20**: 45 (Jan.) 1917.  
 21. Ruediger, J. *Infect. Dis.* **3**: 755, 1906.  
 22. Davis, D. J.: *J. Infect. Dis.* **10**: 148, 1912.

TABLE 1.—CARRIERS OF HEMOLYTIC STREPTOCOCCI AMONG DISPENSARY PATIENTS. (Continued)

Sex	Age	Diagnosis	Condi- tion of Throat	Remarks	Hemolytic Streptococci Colonies
♂	21	Follicular tonsillitis....	Markedly inflamed	Had cold.....	11 throat
♀	33	Follicular tonsillitis....	Markedly inflamed	Three months ago had cold	2 throat
♀	9	Peritonsillar abscess....	Markedly inflamed	Running from nose	21 throat
♂	37	Peritonsillar abscess....	Markedly inflamed	Fever, cold, head- ache	3 throat
♀	28	Chronic rhinitis.....	Normal	.....	9 throat
♀	19	Chronic rhinitis.....	Normal	.....	4 throat
♀	25	Chronic rhinitis.....	Normal	Recurrent attacks of sore throat	10 throat
♀	41	Chronic rhinitis.....	Slightly inflamed	Cough.....	14 throat 3 nose
♀	25	Chronic rhinitis.....	Slightly inflamed	constant headache for 3 months	10 throat
♀	26	Acute pharyngitis.....	Markedly inflamed	Had influenza months ago	26 throat 7 nose
♀	23	Acute pharyngitis.....	Markedly inflamed	Sore throat.....	18 throat
♀	31	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	22 throat
♀	19	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	36 11 roat
♀	24	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	14 throat
♀	18	Acute pharyngitis.....	Markedly inflamed	Sore throat, cough	4 throat
♂	45	Acute laryngitis.....	Markedly inflamed	Poor voice, head- ache	32 throat
♀	20	Acute laryngitis.....	Markedly inflamed	Cough, headache..	27 throat
♀	33	Acute laryngitis.....	Markedly inflamed	Cough, headache..	9 throat

\* In this column, ♂ indicates male, and ♀ female.

cotton swab was then introduced into the nasal cavity as far back as possible and rubbed against the nasal mucosa. The swab was placed in a tube containing 2 c.c. of plain broth, immediately after a surface streak on a blood agar plate was made. With this broth another blood agar plate was made by the shake method in each case; this served to determine whether the hemolytic streptococci would be overgrown by other organisms on the surface streak. The blood agar plate was incubated at 37 C. and studied at the end of twenty-four and forty-eight hours' incubation. The number of hemolytic streptococci colonies, if any, was counted carefully.

The blood agar was made according to Becker's<sup>23</sup> standard blood agar method. From 4 to 5 ounces of plain agar were placed in a flask; this flask was heated until the agar was melted, and then cooled to from 45 to 50 C. Now 1 c.c. of the defibrinated goat blood was added to each 6 c.c. of agar. Approximately 7 c.c. were used for each plate. In the shake method, 1 c.c. of goat blood was added to 6 c.c. of melted agar in a tube at 45 C. This tube was incubated from the culture in broth, and the whole was thoroughly mixed and poured into a Petri dish.

Of 100 cultures made from the throat, sixty-seven showed the presence of hemolytic streptococci; of the nasal cultures, only five in 100 examined gave positive results. Of the 100 individuals, thirty-nine were school-children sent for examination by their schools, and thirty-two, or 80 per cent. of them, harbored hemolytic streptococci in their throats. Of sixty-one average individuals of this series, thirty-five, or 57 per cent., were found as carriers. The higher percentage of carriers among schoolchildren so far examined is probably due to the tonsillar hypertrophy, as almost every schoolchild examined had large tonsils (Table 1).

In my experience, the shake method is more reliable than the surface streak in detecting the hemolytic

streptococci. There were seven throat cultures that seemed negative on the surface streak plate but gave positive results by the shake method.

#### RESULTS OF CULTURES OF THE TONSILLAR SURFACE COMPARED WITH THOSE OF CULTURES OF CRYPTS

One hundred and twenty-five pairs of excised tonsils were examined. Before each tonsillectomy, an ordinary throat culture was made and placed in 2 c.c. of plain broth. The tonsils, after removal, were placed in 25 per cent. silver nitrate for five minutes. The tonsillar capsule, if any, was removed by a sterile knife. One or two loopfuls of crypt contents were taken and placed in a broth tube. Blood agar plates were made at once according to the shake method. The plates were studied after twenty-four hours' incubation and again later. The results are given in Table 2.

TABLE 2.—COMPARISON OF CULTURES FROM TONSILLAR SURFACE WITH THOSE FROM CRYPTS

Number of Cases	Positive Cultures from Tonsillar Surface		Positive Crypt Cultures	
	Number	Per Cent.	Number	Per Cent.
125.....	74	60	98	83

The outcome is quite in accord with the results of Davis<sup>22</sup> and Nichols and Bryan<sup>14</sup> in the United States Army, and Pilot's unpublished observations mentioned by Davis.<sup>21</sup>

#### THE INCIDENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT AFTER TONSILLECTOMY

I have examined 342 persons, medical students and dispensary patients, to learn whether hemolytic strep-

TABLE 3.—INCIDENCE OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT AFTER TONSILLECTOMY

Case	Time of Tonsillectomy	Hemolytic Streptococci		Remarks
		Throat	Nose	
1	6 years ago.....	+	—	In good health
2	2 years ago.....	+	+	In good health; tonsillar remnants found
3	2½ years ago.....	+	—	Recurrent attacks of cold
4	3 weeks ago....	+	—	Influenza last winter
5	Unknown.....	+	—	Backache; tonsillar remnants found 1
6	5 years ago.....	+	—	Sore throat 3 months ago
7	Unknown.....	+	+	Had cold; throat in good condition
8	8 years ago.....	+	+	In good health
9	Unknown.....	+	—	In good health
10	5½ years ago....	+	—	Rheumatism; tonsillar remnant found
11	9 years ago.....	+	—	Rheumatism
12	2 months ago..	+	+	Acute nephritis 6 months ago; tonsillitis 3 months ago
13	2½ months ago	+	—	Influenza last winter
14	6 months ago..	+	+	Pleurisy 7 months ago
15	1½ months ago	+	+	In good health
16	5 weeks ago....	+	—	In good health; tonsillar remnants found
17	3 weeks ago....	+	—	In good health; tonsillar remnants found
18	2½ years ago..	—	+	In good health
19	3 years ago....	—	+	Chronic rhinitis
20	Unknown.....	—	+	Rheumatism
21	Unknown.....	—	+	In good health

tococci are as frequently present in the nose and throat after tonsillectomy as before. Of this large number of tonsillectomized persons only seventeen throat cultures and ten nasal cultures made in the way described showed hemolytic streptococci. In six cases positive cultures were obtained from both nose and throat. In five of the cases giving positive throat cultures, rem-

24. Davis, D. J.: Hemolytic Streptococci, J. A. M. A. 72: 319 (Feb. 1) 1919.

nants of tonsils were found on careful examination; and it is also known that tonsillectomy had been done from three weeks to five years before (Table 3). These results appear to agree with those of Blanton, Burhans and Hunter, Nichols and Bryan, and Davis.

In order to learn whether hemolytic streptococci may be present or absent regularly in throats with the tonsils removed, four tonsillectomized persons previously found to be carriers, and eleven also tonsillectomized persons known to be noncarriers, were selected

tococci in throats studied by different authors are the same strains.

CONCLUSION

The tonsils, especially when hyperplastic, are a breeding place for hemolytic streptococci, and complete tonsillectomy appears to be followed in most cases by the absence of hemolytic streptococci from the throat.

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TABLE 4.—CONSTANCY OF HEMOLYTIC STREPTOCOCCI IN THE NOSE AND THROAT OF TONSILLECTOMIZED PERSONS

Exam nations:	Noncarriers											Carriers			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
First.....	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Second.....	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+
Third.....	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+

\* In cases 13 and 15, hemolytic streptococci were found in successive examinations, owing probably to tonsillar remnants in throats.

for subsequent examinations. The interval between the examinations varied from six to ten days. The result is given in Table 4.

CULTURAL CHARACTERISTICS AND MORPHOLOGY OF HEMOLYTIC STREPTOCOCCI FROM NOSE AND THROAT

Most of the surface colonies on blood agar plates appeared small, round, raised, moist and gray. They were surrounded at the end of twenty-four hours by a clear hemolytic zone, from 2 to 4 mm. wide. The deep colonies appeared in different shapes under the microscope: some were oval, some round with smooth edges, and others with irregular edges and nucleus in the center. Their hemolytic zone was usually narrower than that of the surface colonies. Three cultures from the throats of patients with acute tonsillitis produced large, flat, moist and gray colonies surrounded by a narrow hemolytic zone, but this characteristic was lost on subsequent cultures.

In smears from plain broth cultures after twenty-four hours' incubation at 37 C., all the strains were proved gram-positive. In some strains the cocci appeared spherical and in others elongated. There

INFECTIONS OF THE GENITO-URINARY TRACT COMPLICATING INFLUENZA \*

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Medical literature for the past nine months has been flooded with reports and statistics relative to the influenza epidemic which has spread throughout this country and abroad. Complications involving the respiratory, circulatory and nervous systems have been recorded in large numbers, but little has been reported concerning the genito-urinary tract. One brief report<sup>1</sup> of four cases of focal infection of this tract is the sole contribution to date, other than references to the kidneys from a purely medical standpoint.

In a comprehensive review of the literature of the recent pandemic as it occurred in Europe,<sup>2</sup> it is stated that influenza recurs every twenty to thirty years in explosive waves spreading through whole continents, and that although twenty-seven years elapsed since the last pandemic, there has been neither an intelligent anticipation of the event nor certainty as to the true nature of the gigantic outbreak when it appeared.

A disease which causes such inroads on the community should certainly be studied in all its phases if similar outbreaks in the future are to be anticipated and a better knowledge gained of the complications and their management when these occur.

The teaching of the Pfeiffer school, that the Pfeiffer *B. influenzae* is the causative organism, and that the various non-Pfeiffer epidemics were not true influenza, was upset when Stephan, in August, 1917, described a diplococcus mucosus as the agent of a clinically typical epidemic of influenza which broke out in December, 1916, in Strümpell's clinic at Leipzig. It is not necessary here to trace the subsequent bacteriologic history of this protean disease. It is safe to say, however, that the entry of various cocci into the bacteriologic arena will more and more direct attention to complications and sequelae other than those affecting the respiratory system. It is in this connection that attention may be drawn to involvement of the genito-urinary system and clinical observations reported.

Medical reports mention a general hyperemic condition of the kidneys.

Blanton, Burhans and Hunter<sup>3</sup> hold that it is impossible to divorce a discussion of streptococic infection from such antecedent diseases as influenza, measles,

TABLE 5.—FERMENTATION TEST

No. of Strains	Raffi- nose	Dex- trose	Inu- lin	Lac- tose	Muc- tose	Man- nite	Saccha- rose	Sali- cin	Plain
31	+	—	—	+	—	—	+	—	—
13	—	—	—	+	—	—	+	—	—
1	—	—	—	+	—	+	+	—	—

were nine strains of diplococci in short chains; the rest were arranged in long chains. All the strains were bile insoluble. In litmus milk all produced acid, and six produced a firm coagulation on the third day. Forty-five strains were tested for carbohydrate fermentation. The result is found in Table 5.

According to Holman's classification,<sup>25</sup> *Streptococcus pyogenes* ferments lactose and salicin but not mannite; *Streptococcus anginosus*, lactose but not salicin and mannite; *Streptococcus infrequens*, all three sugars. These forty-five strains, therefore, can be divided into these three groups according to their fermentation. Owing to lack of details of information it is not possible to say whether all these strains of hemolytic strep-

\* Presented before the Thirty-First Annual Meeting of the American Association of Genito-Urinary Surgeons, Atlantic City, N. J., June 16-17, 1919.

1. Brunner, Herbert: *Urol. & Gynae. Rev.* 23: 200 (April) 1919.

2. Medical Supplement to Review of the Foreign Press 1: (March) 1918.

3. Blanton, J. B.; Burhans, C. W., and Hunter, O. W.: Studies in Streptococic Infections at Camp Custer, Michigan, with Special Reference to Influenza and Other Antecedent Infections, *J. A. M. A.* 72: 1520 (May 24) 1919.

and upper respiratory inflammations. Among other localizations of streptococci, these writers mention abscesses of the kidney.

Bradbury and Krumbhaar, in twenty-eight necropsies at No. 16 (Philadelphia U. S. A. Army) General Hospital, out of 533 cases of influenza, representing the height of the epidemic in that locality, found abscesses in the kidneys in two, among other lesions representing a general pyemia. The kidneys in other cases at necropsy showed dark congestion.

Sofré,<sup>4</sup> of Naples, in summing up the principal features of the epidemic, gives severe acute nephritis as a constant finding in fatal cases.

Dalmier<sup>5</sup> found, in a systematic daily examination of the urine, the presence of a large quantity of albumin in a high percentage of cases quite distinct from febrile albuminuria. He has seen numerous instances of acute and even hyperacute uremia in such cases, and is inclined to believe that the cases of acute edema of the lung recorded by Ravaut<sup>6</sup> were really examples of this kind.

A large number of cases of acute nephritis with well marked edema and dropsy among soldiers from the front, and also among civilians, have recently been studied by Dünner and Pupko.<sup>7</sup> As the cases were observed during an outbreak of influenza, this disease suggested itself to the writers as the cause of nephritis. In all the cases the patient's serum agglutinated *B. influenzae* in from 1:200 to 1:400. The influenzal etiology of the nephritis was rather supported by (1) its occurrence during an epidemic; (2) the exclusion of other well-known causes of nephritis; (3) the fact that the nephritis was recent, and not a recrudescence of an old process.

Lichtenstern<sup>8</sup> observed fifteen cases of vesical hemorrhage which occurred on the third or fourth day of the disease, lasted on the average three or four days, and slowly subsided. Examination of the bladder showed considerable swelling and injection of the vesical mucous membrane, apparently due to subepithelial ecchymoses. The amount of the hemorrhage was usually very great. In one case severe hemorrhage occurred on the second day, and it was necessary to plug the bladder. In three cases well-marked diminution in the urinary secretion took place, and was accompanied by severe pain in both loins. These symptoms lasted for twenty-four hours, and then the amount of urine gradually increased. In two cases unilateral pyelitis developed.

Stengel<sup>9</sup> states that renal complications were apparently infrequent in the epidemic of 1889 to 1890. No figures could be given as to the frequency of albuminuria and cylindruria, but it is quite certain that very few cases of actual nephritis developed. In the pandemic of 1918 albumin and casts were very commonly found in the urine, and seemed to Stengel to be

of little significance except when they were accompanied by other evidence indicative of nephritis. A few cases of acute hemorrhagic nephritis with pronounced uremic symptoms were observed in the series.

Of sixty-two urinary examinations made fairly early, Ely, Lloyd, Hitchcock and Nickson<sup>10</sup> found that twenty-six showed albuminuria and hyaline and granular casts; seven showed albumin only, and twenty-nine were normal. The kidneys, at necropsy, were found enlarged and congested, an edematous condition frequently being found about the suprarenals.

In a clinical study of influenzal pneumonia, Adolphus D. Rood<sup>11</sup> found that the kidneys presented nothing worthy of special note on microscopic examination. Most cases showed the urine of atoxic parenchymatous nephritis. The specific gravity was raised from 1.020 to 1.025 or 1.035, varying with its concentration. Albumin was found in nearly every case, and varied from a slight trace to 30 per cent. by volume, or even more. Rood considered its presence of prognostic value, although many patients recovered even with large amounts of albumin. Hyaline casts and cylinders were present in varying amounts, but usually disappeared toward the end of lysis, or shortly after the temperature had reached normal. The presence of granular casts indicated that the patient was very seriously ill, and with few exceptions, when showers of granular casts were reported, the patient seldom recovered. It was striking to note how quickly the urinary picture cleared after toxic symptoms began to abate.

Riesman<sup>12</sup> considered it a striking feature of the majority of cases, both good and bad, in the recent epidemic in Philadelphia, that there was free diuresis, probably connected with the abundant water intake and fairly efficient kidney function. Albuminuria was commonly present; no more, however, than is seen in other acute infections. In a few cases a true hemorrhagic nephritis, with marked albuminuria, dark and light granular and cellular casts, and abundance of free blood, was noted. Even in some of these the quantity of urine kept up very well. A not infrequent symptom, sometimes overlooked, was retention of urine with great distention of the bladder.

While the foregoing gives evidence that the kidneys in the severe cases are overwhelmed by the intense toxemia which is shown in other organs of the body, it is surprising that more local complications in the genito-urinary organs have not been recorded. It is possible that in the extremely severe cases the patient is so ill that the local signs or symptoms are masked or overlooked.

The changes, varying from acute congestion to renal hemorrhages and severe nephritis, certainly predispose to acute infection of the kidneys, and the fact that we have seen thirty-nine cases of definite infectious foci in the genito-urinary tract makes us feel that these complications have been unrecognized and that careful histories taken in the future will disclose the starting point in many lesions in the influenza attack.

4. Sofré, G.: *Riforma med.* 31:712 (Sept. 7) 1918.

5. Dalmier, R.: *Bull. Acad. de méd., Par.* 80:456 (Nov. 19) 1918.

6. Ravaut, P.: *Bull. de l'Acad. de méd., Par.* 80:290, 1918; reviewed in *Medical Supplement*, 2:24 (Jan.) 1919.

7. Dünner, L., and Pupko, S.: *Berl. klin. Wechschr.* 65:56, 1919; reviewed in *Medical Supplement* 2:166 (April) 1919.

8. Lichtenstern, K.: *Wien. med. Wechschr.* 68:2119, 1918; reviewed in *Medical Supplement* 2:166 (April) 1919.

9. Stengel, A.: *The Influenza Epidemics of 1889 and 1918*, M. Clinics N. America 2:645 (Nov.) 1918.

10. Ely, Lloyd, Hitchcock and Nickson: *Influenza as seen at the Puget Sound Navy Yard*, J. A. M. A. 24:24 (Jan. 4) 1919.

11. Rood, A. D.: *New York M. J.* 109:493 (March 22) 1919.

12. Riesman, D.: *Influenza—Remarks upon the Symptoms, Prevention, and Treatment*, M. Clinics N. America 2:903 (Nov.) 1918.

In twenty-two of these thirty-nine cases, kidney infections were shown in one or both kidneys; in five, perinephritic abscess was shown; in four, prostatic abscess; in one, perinephritis and prostatic abscess; in six, epididymitis, and in one, seminal vesiculitis.

#### KIDNEY INFECTIONS

The kidney infections were as follows: right pyelonephritis in fourteen, left pyelonephritis in two, double pyelonephritis in five, right pyonephrosis in one. Nineteen of these patients were females, three were males. The ages were as follows: under 20, 2; 20-29, 2; 30-39, 8; 40-49, 2; 50-59, 6; 60-69, 2; total, 22.

Of these twenty-two patients, fourteen gave a history of no previous urinary symptoms.

Four of these fourteen presented prolapsed kidneys which drained poorly, and two were pregnant. In two, the right kidney was prolapsed and involved, in two others, both kidneys were prolapsed and the infection was bilateral. All of the remaining eight gave a history of pneumonia complicating the influenza, and were profoundly toxic.

The histories of the eight patients with previous urinary symptoms were interesting. In three patients, a nephrectomy had been done twelve, ten and five years previously. In each case there was a well-marked pyelonephritis in the same kidney, the opposite kidney not being involved, and in each case the kidney was low and in two cases it was freely movable, yet these patients state that they had had no local discomfort since the operation until the attack of influenza. The fourth patient had a ureteral calculus, but had had no symptom of kidney infection until seized with the influenza. The fifth gave a history of two attacks of hematuria, four and two years previously, and examination revealed polycystic kidneys. The sixth gave a history of two attacks, seven and three years previous to this one, which were similar in every way and which were apparently attacks of pyelonephritis. The seventh had noticed frequency for eighteen years, but had no local kidney symptoms. The eighth gave a history of painless hematuria for eighteen months. A papilloma of the bladder was found. Four of these eight cases gave a history of pneumonia.

These twenty-two patients with kidney infections were seen during the height of the influenza attack; or as late as six months afterward. From observation and the histories of these cases, the symptoms indicating a kidney involvement came on from four days to two weeks after the onset of the influenza, the average being nine days.

The symptoms were pain and tenderness in the kidney region; frequent, burning, painful urination, except in two cases in which the ureter on the affected side was occluded; high temperature, chills, malaise. In thirteen cases one or both kidneys could be palpated at the time of the examination.

Cystoscopic examination and ureteral catheterization revealed a very much injected bladder; distinct ecchymoses in six cases, moderate congestion in the others; poor drainage on the affected side in eight of the unilateral cases; pus and blood cells from the affected kidney, in each case, from both kidneys in the

bilateral infections; profuse hematuria in two cases, and deficient function on the affected side in each case. Nineteen cases showed casts in the urine.

Bacteriologic examination of the catheterized specimen revealed colon bacilli in twelve cases; staphylococci in three; diplococci in three; bacilli, reported as possible influenza, in three.

The cases of pyelonephritis were treated by catheter drainage, pelvic lavage, diet, colonic irrigation, and urinary antiseptics. The acute symptoms subsided rapidly. The uncomplicated cases have been cured; the others are improved.

The case of pyonephrosis necessitated a nephrectomy, and the case of ureteral calculus had a primary carcinoma of the kidney which had previously given no symptoms. This kidney was removed.

#### PERINEPHRITIC ABSCESS

There were five cases of perinephritic abscess, one a female, four males. The ages of the patients were 14, 21, 24, 31 and 46 years.

The patients presenting perinephritic abscess were all distinctly septic, having had severe attacks of influenza. Of the five patients, three had had pneumonia, two had other septic foci.

These patients were seen from seven days to four weeks after the acute onset, and the local symptoms, pain in the side and back, tenderness in the lumbar region of the affected side, had persisted from five days to two weeks when first observed. Each patient had a persistent temperature, three had chills, and in four there was distinct bulging in the flank.

One patient had frequent and painful urination. Cystoscopic examination and ureteral catheterization revealed no definite renal lesion in any case other than the urinary changes in acute renal congestion.

Incision and drainage was made in each case. In one case no pus was found, but the symptoms subsided at once.

Cultures showed streptococci in one, staphylococci in one, colon bacilli in one, and possible influenza bacilli in one.

All patients made a complete recovery. This was slow in two cases owing to the septic condition of the patient.

#### PERINEPHRITIC AND PROSTATIC ABSCESS

F. E., a man, aged 48, presented a perinephritic and a prostatic abscess. These foci were both well marked on his entrance into the hospital, four weeks after the onset of the influenza. His chief complaint, retention of urine, had been present for twenty-four hours. A large, boggy, tender mass was present in the prostate. Pressure on this bulging mass per rectum caused pus to exude from the meatus. Influenza bacilli and staphylococci were reported in the pus. A second bulging mass was palpable in the left costovertebral angle. Both foci were drained. The convalescence was slow, owing to the poor condition of the patient.

#### PROSTATIC ABSCESS

Four patients presented prostatic abscesses. The ages of the patients were 32, 44, 47 and 52. Two of these presented abscesses of large size, distinctly palpa-

ble by rectum, necessitating perineal incision and drainage; the other three presented one or more small foci distinctly palpable by rectum (a suppurative prostatitis), which drained by the urethra. These patients gave a history of the onset of the local symptoms ten, thirteen, seventeen and twenty-one days after the onset of the influenza. Two had pneumonia. Influenza bacilli were reported in one, staphylococci in two, and there was no bacteriologic report on the other two. Two of these patients gave a history of gonorrhéal infections eleven and fifteen years previously, but no urinary symptoms subsequent to that time until the onset of the present trouble. One developed a urethro-rectal fistula. All made good recoveries.

#### EPIDIDYMITIS

Acute epididymitis developed in six cases, from four to fourteen days after the onset of the acute influenza. The ages of the patients were 31, 36, 38, 44, 47 and 48. None of these patients had pneumonia or other complications. The epididymitis developed rapidly; the swelling became of large size, although not so large as gonorrhéal epididymitis; it was painful, and subsided slowly; the urine became cloudy, in four cases showing pus, in two cases, colon bacilli, in one, staphylococci, and in one, streptococci.

There was no venereal history of recent date, nor were there previous urinary symptoms in any of these patients.

#### SEMINAL VESICULITIS

A man, aged 51, developed violent frequency, tenesmus and painful urination, three days after the onset of a severe attack of influenza. These symptoms persisted, and when I saw him, two weeks later, the physical and urologic examinations were negative other than for the presence of large, boggy seminal vesicles. The urine was clear until pressure was applied over the vesicles, after which it became cloudy with pus. Colon bacilli were found in the expression. The condition was entirely relieved by local treatment.

#### SUMMARY

These cases bear out the present understanding of the disease, namely, that the system of the infected individual is overwhelmed by a toxemia so severe that the resistance of the several organs is reduced, allowing various organisms to become active. The genitourinary tract is not an exception.

These cases demonstrate that kidneys once the seat of a lesion, or subject to interference with drainage, are more vulnerable when the individual is attacked by a severe infection. This should lead one to study the kidneys more carefully, favoring elimination, especially when they are known to be pathologic.

Perinephritic abscess, prostatic abscess, and epididymitis may be a part of any hematogenous infection.

**Organic Heart Disease in Children.**—The importance of safeguarding the growing heart is shown by the large number of cases of organic heart disease among children. In New York it is estimated that 2 per cent. of all schoolchildren are suffering from organic heart disease. That all cases of organic heart disease in children are not due to rheumatic infection is brought out by a report made by Dr. Goodman in a series of cases studied in the Jacobi Ward in the Lenox Hill Hospital, in New York, where 80 per cent. of the cases were due to rheumatic infection, 16 per cent. to contagious diseases of childhood and 4 per cent. to developmental defects.—Dr. Julius Levy.

## ETIOLOGY OF EPIDEMIC (LETHARGIC) ENCEPHALITIS

### PRELIMINARY NOTE\*

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AND

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In previous articles<sup>1</sup> it has been demonstrated that there is present in the nasopharyngeal mucous membrane of patients suffering from epidemic encephalitis a filtrable virus capable of producing in monkeys and rabbits lesions typical of those found in the brain in human cases. By the use of Berkefeld (V and N) filtrates of nasal washings and nasopharyngeal mucous membrane from fatal cases, we were able to develop in monkeys and rabbits the clinical and pathologic pictures of the disease.

In the second article it was stated that cultivation of all material on ordinary laboratory mediums was negative both aerobically and anaerobically. We further stated that the studies by the Noguchi method had been undertaken and were then in progress. We now wish to describe the results of the latter studies on the nasal washings, nasopharyngeal mucous membrane, and brain in both human cases and inoculated animals.

The methods used were identical with those employed by Noguchi<sup>2</sup> for the cultivation of spirochetes. A successful growth was manifested on the fifth to the seventh day by clouding of the mediums, commencing about the region of the kidney tissue and extending rapidly upward to within about 1 cm. of the top of the ascitic fluid column. At times extensive disintegration and autolysis of the tissue caused deceptive clouding. By means of dark-field illumination and examination of control tubes and stained specimens, the positive cultures were disclosed. The clouded tubes were all recultivated on ordinary laboratory mediums to exclude contamination. The growth in solid mediums appears as minute colonies, more numerous about the region of the kidney tissue. The optimal solid medium is of a gelatinous consistency, made so by the addition of 1 part of 2 per cent. nutrient agar to 4 or 5 parts of ascitic fluid, the kidney tissue being added as usual. All control studies were negative with both fluid and solid mediums.

Smears were stained with Giemsa solution or with methylene blue after preliminary fixation in methyl alcohol. The organisms appear as small, globular, purplish or bluish bodies. They assume different arrangements, occurring singly, in diplo forms, chains or clumps. Larger degenerated forms are seen in older cultures. On dark-field illumination they appear mostly as diplo forms and as masses. They are not motile. The reaction to the Gram stain depends a great deal on the medium used and the age of the individual culture. Young cultures and those grown on solid mediums are mostly gram positive. Older cultures and those grown on fluid mediums tend at times to be gram negative.

\* From the Pathological Laboratory of Mount Sinai Hospital, Aided by a grant from the Altman Fund of the Neurological Division.

1. Strauss, Hirschfeld and Loewe: *New York M. J.* **100**: 772 (May 3) 1919; Loewe, Hirschfeld and Strauss: *J. Infect. Dis.*, to be published.

2. Noguchi, Hideoy: *J. Exper. M.* **14**: 99, 1911; **15**: 90, 1912; **16**: 199, 211, 1912; Flexner, Simm, and Noguchi, Hideoy: *Experiments on the Cultivation of the Virus of Poliomyelitis*, *J. A. M. A.* **60**: 362 (Feb. 1) 1913; *J. Exper. Med.* **18**: 461, 1913.

As a whole, in morphology, appearance of colonies and growth, the organism resembles that described by Flexner and Noguchi<sup>2</sup> in poliomyelitis. It differs in results obtained with animals and particularly in the susceptibility of rabbits to this organism.

Up to the present time, the filtrable organism has been carried to the twelfth generation. It has been recovered from the brains of rabbits and monkeys injected with filtrates of human nasopharyngeal mucous membrane and of brains of inoculated animals. Monkeys and rabbits injected with the later generations (seventh to eleventh) of the organism, originally obtained from human mucous membrane and not previously passed through animals, have succumbed with typical symptoms. Necropsy findings and microscopic pictures are characteristic of those found in the human being. The organism was recovered from the brains, and, in a few instances, from the mucous membranes of the nasopharynx of these animals. Use of the later generations excludes the possibility of the transmission of sufficient original virus to produce any such results.

The organism was recovered from 50 per cent. glycerinated filtrate of human nasopharyngeal mucous membrane kept on ice for four months. The organism remains viable and virulent in cultures for a period of at least six weeks.

## OPEN AIR CLASSES \*

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The Bureau of Child Hygiene of the department of health of New York City conducts only activities of preventive medicine. These activities cover a period of the child's life from the prenatal state until the completion of the elementary school. The activities are controlled by definite divisions of the bureau to cover various periods of life, as well as special activities. The division of baby welfare supervises the prenatal work and care of the infant from birth until the second year is reached. The division of midwives and foundlings issues permits to midwives and supervises their methods in carrying on their practice. It also issues permits for the privilege of keeping foundlings, and supervises the care they receive. The division of school medical inspection conducts a progressive campaign of preventive medicine throughout the year, both in the schools and in the homes of the pupils. The division of employment certificates issues certificates only to schoolchildren of correct age who are in physical condition to work. There is a division of eye clinics and a division of dental clinics which conduct their special branches of medicine exclusively for the benefit of schoolchildren.

The preschool age of the child, that is, from the second year until the child's entrance into school, is not systematically supervised. Some pioneer work has been done by our bureau, and the necessity and value of it have been conclusively proved. This period of the child's life can no longer be neglected, and one of the next steps in public health and preventive medicine will be the giving of more attention to it.

One of the activities of the division of school medical inspection is the medical supervision of the open air classes of the public schools. The pedagogic work of these classes is conducted entirely by the board of education.

The classes were organized to provide special opportunities for the physically subnormal pupils, after an experiment had been conducted in one class to ascertain the value of such organization. The results have been so gratifying that there are now 110 open air classes. The classes are at present located on the roofs of the school buildings, roofs of auditoriums, in public parks and in the school buildings.

Our experience has proved that in a large city these classes are best placed in the school building, in a classroom properly located and with the required structural changes. Besides, it is difficult to protect them from the rain, snow, direct sunlight and dust. Roofs require the climbing of too many stairs. Locations in the parks would be ideal were it not for the expense of the structures required. Besides, in our city, the parks available are so inadequate that only a small number of classes can be located in them. When the original school building is being constructed, very little additional cost is added by providing one or more open air classrooms. The board of education now provides at least one open air classroom in every new school building.

At present the following types of children are admitted to the open air classes:

1. Children exposed to tuberculosis at home, or in whose family there has been a recent death from this disease.
2. Children who have had tuberculosis which is now arrested or cured.
3. Children suffering from malnutrition.
4. Children who become tired easily or show languor or fatigue before the end of the day, and on this account are unable to carry on their class work.
5. Children suffering from nervous diseases except chorea.
6. Children who frequently are absent because of colds, bronchitis, etc.
7. Children suffering from cardiac disease, who are recommended by the private physician as pupils who ought to be put in these classes.

The classification provides for the tuberculous, pre-tuberculous and physically subnormal children who may be benefited by becoming pupils in one of these classes.

The regular equipment for open air classes consists of individual school study chairs, cots and sleeping bags. The study chairs are easily movable, and groups of any of the children can be formed for the convenience of the teacher. The children use their sleeping bags when sitting in their study chairs or lying on their cots.

The important factors in the success of this work are fresh cool air, light, food, correction of physical defects that retard growth and development, and proper hygienic living conditions. These are all provided for during the school session. But it must be borne in mind that the children are in school only five hours a day on school days and that we have about 190 school days a year.

During the school hours, the children are completely under control and receive the care they require. The classrooms have ample light and air, as they are always located where these can be provided. Our choice is always a southern and eastern exposure when these are procurable. We have found that the cold air

\* Read before the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

is a decided advantage and that no temperature is too low, provided the children are properly protected by their clothing and their sleeping bags. The greatest increase in weight is always made during the colder weather. With the first return of warm weather, the increase of weight is retarded. This is, to a great extent, because of the influence of the temperature on the appetites of these children. Their appetites are always better in colder weather.

Food is one of the essentials for children of these types, and we have found that three meals a day are not sufficient to assist them to a normal average weight. Extra feeding is always provided between breakfast and lunch and, as far as possible, between lunch and supper. This extra food is absolutely required by the children during the colder weather, and they all anxiously await it. Milk and bread and butter are the best foods for them; but our funds, which all come from private sources, have been limited, and for the past year and a half we have had to rely on cereals and milk. All classrooms located in new buildings, as well as many in the old ones, have a separate kitchen in which to prepare the food.

The children whose growth and development has been retarded because of physical defects, such as adenoids, hypertrophied tonsils and carious teeth, respond very quickly after their defects are properly remedied. Though they would in most cases improve in regular classes after correction of their defects, the improvement is more rapid when they have the advantages provided in the open air classes. Nearly all of these children having physical defects improve while in these classes, but return to their previous condition rapidly if sent back to a regular class.

TABLE 1.—DAILY ROUTINE OF AN OPEN AIR CLASS

9:00 to 10:00 a. m.	School Work
10:00 to 10:15 a. m.	Extra feeding
10:15 to 11:00 a. m.	School work
11:00 to 12:00 noon	Rest period
12:00 to 1:00 p. m.	Lunch period
1:00 to 2:45 p. m.	School work
2:45 to 3:00 p. m.	Second extra feeding

In school, the children have frequent short recesses for recreation. They have a rest period of one hour before lunch, during which time all children lie on their cots. Some learn to sleep during this period, but many merely rest. The daily routine followed in an open air class (Table 1) divides the day into three periods: two hours for school work, two hours for rest and lunch and, again, two hours for school work. We have the long rest period before lunch, as we have found that if we stop the school work after two hours to give the children a long rest, they do not become overfatigued. They recuperate rapidly, and by lunch time are fully back to their normal condition; and, furthermore, not being fatigued, they have good appetites, and derive the benefits which accrue from eating large meals.

Classes that are located on the upper floors have a rest period from 1 to 1:10 p. m. also. The time is deducted from the morning period of rest, and is given to afford the children a short rest after climbing so many stairs.

Parents are instructed to have their children rest at home before supper, and they are also urged to continue the morning extra feeding and to see that the children rest during the usual time on those days when the school is not in session.

The most difficult problem we have to contend with in a large city is that of the hygienic conditions at home. They entail a great deal of social service work, which, however, our teachers and nurses willingly do. This work may appear foreign to the subject, but it cannot be neglected, for all the results gained in school will avail nothing unless the home conditions are properly corrected.

From our present experience, I believe that the factors already enumerated are the important ones, and none of them can be slighted if success is to be our goal.

#### MEDICAL ATTENTION AND TEACHERS

The classes are visited daily by the school nurses of the health department. Their duties are definitely defined, and they work in cooperation with the medical inspectors and the teachers. The medical inspectors of the health department have full medical charge of these classes. They admit and discharge pupils, make regular systematic physical examinations of all pupils, and repeat the examination in any individual case as often as the child may require it. All the work of the nurses and inspectors in the classes and in the homes of the pupils is recorded on individual record cards for each pupil.

The medical inspectors decide the extent of physical exercise in which each pupil is permitted to participate. The department of physical training of the board of education supervises the exercises and play, and regulates them for each pupil according to the limitations ordered by the medical inspectors.

The scholastic work is entirely under the supervision of the board of education. The classes are limited to a registration of twenty-five pupils. As these pupils are usually in various grades, the group method of teaching is used. Only essential subjects can be taught.

Teachers of open air classes are specialists, and only those filling the required qualifications are selected. The qualifications considered essential are: good health; even temperament; capacity for doing a large amount of school work well, as a number of grades must be taught; physical ability to make home visits; tact in handling both children and parents; willingness to do social service, and a desire to study the problems of this work in the class by reading and taking an appropriate study course.

A poor teacher, or one not physically strong, is a great handicap to an open air class, as the success of the work rests to a great extent on her.

#### RECORD OF PUPILS

Children who are transferred from the open air class to a regular class are seen at least once a month by the

TABLE 2.—CASES DISCHARGED FROM OPEN AIR CLASSES

Gained Weight	Remained Same	Lost	Scholarship Improved	Same	Worse
319	43	5	70	292	5

nurse, who keeps a record of their condition, weight and scholastic standing. Of 506 children transferred, 367 were followed up, with the results observed in Table 2.

The effects on all pupils in the open air classes are shown in Table 3.

Those children who failed to gain in weight were suffering from physical defects of such marked char-

acter that it is most reasonable to attribute their failure to gain to this known cause. The children who failed at least to maintain their regular scholastic standings are mental defectives, as their previous records show. These children ought not be placed in open air classes, as it is impossible to give them there the attention they demand.

TABLE 3.—PROGRESS OF ALL PUPILS IN OPEN AIR CLASSES

Gained More Than Average	Average Gain	Less Than Average	Scholarship Improved	Same	Worse
2,131	796	79	718	2,198	90

We have one open air class with pupils of the usual average physical condition. This class has been conducted by the same teacher for five years, and the pupils, all boys, are in one of the grades of the last two years of the elementary school. It is a regular class placed in an open air classroom. All the work of their grade is covered. They have no coats, and only short recesses without a rest period. They do receive the morning extra feeding. They do their drawing and shop work in a regular classroom during the cold weather. All the rest of their school work is done in their own room, which is always at the temperature of the outside air. This class has a registration of forty-five pupils.

The observations made during the past five years, of ten separate classes, fully demonstrate many facts which are all proved by the records of the various classes. These results can be best summed up by drawing a comparison between the scholastic and physical records maintained in the open air classrooms and those in the regular classrooms of the same grades, as shown in Table 4.

TABLE 4.—STANDARDS IN OPEN AIR CLASS ROOM AS COMPARED WITH THOSE IN REGULAR CLASS ROOMS

	Pupils	Teacher
Scholastic Record	Work: Full work or more. Penmanship: Satisfactory. Application: Better ..... Progress: More rapid.... Effort: Increased ..... Written work: Not handicapped. Absences: Decreased .... Sickness: Lessened ..... Promotions: Higher Average. Less home work required.	Easier to get results. Less mental tax. Can cover more than prescribed course in assigned time.
Physical Record	More active and responsive to work. Display ability and willingness to do more. Show an increase in weight more than the average gain. Show no fatigue from scholastic work.	Physical condition easily maintained. No loss of weight. Absences less. Daily fatigue not appreciable.

The improvement in the physically subnormal children in open air classes over those in regular classes is now a well established fact, and the only handicap is the number of such classes necessary. A great many more are required than are now provided for; but we are unable to use many more classrooms for only twenty-five pupils while there are so many part time classes in existence in our city. The open air classroom is still an experiment and must remain so until

we have ample school buildings to permit the organization of as many open air classes as are required.

OPEN AIR CLASS WORK FOR ALL PUPILS

Our experiment with a regular class in an open air classroom opens up another field, however; now that there is such an active campaign to improve the physical condition of the nation, there appears to us no better way to effect the improvement than by extending the use of the open air classroom to every schoolchild. If the routine can do so much for the subnormal, is it not natural to expect at least as much for the average child? To change to open air class work would naturally entail a marked reform in our school buildings and could not be immediately put into operation. But we do look forward to the time when we will strive to raise a hardy race and not hothouse plants. A building properly constructed would require no heat in any other classrooms than those used for manual work, such as shop work, designing, cooking, etc., provided the children were properly equipped to be protected from low temperatures. Such a step would be a great progress in preventive medicine. Any one who has the opportunity of visiting a regular and an open air classroom during the winter can readily decide for himself which one is conducive to growth, development and health. We look forward to the time, not far off, when we shall be able to conduct an entire school of normal children as an open air class school.

RESULTS

From the observations made so far, these results of open air class work can be enumerated:

1. Physically subnormal children improve in their mental and physical condition.
2. Their nutrition and weight improve.
3. The gain, in most instances, will be permanent.
4. In arrested cases of tuberculosis there are no relapses.
5. The nervous system is restored to a normal condition.
6. In cardiac cases pupils kept under proper medical supervision improve markedly.
7. The capacity for doing work is increased and brought to at least a normal average.
8. Absence from school on account of illness is greatly reduced.
9. A proper diet is followed, and the food is properly prepared.
10. Good habits are established.
11. Hygienic rules are lived up to.
12. Children learn how to do the right things at the right time.

It is our firm belief that average children will give even better results if afforded the same opportunities.<sup>1</sup>

ABSTRACT OF DISCUSSION

MISS ANNIE MORRISON, Grand Rapids, Mich.: I find that the dangers with the ungraded rooms are often greater than the dangers with the normal children in the realm of education. As to the personal guidance, when the abnormal children reach the age at which they go to work, between 14 and 16, is there any vocational guidance in New York for these children? We find that when the child in the ungraded room of the open air school leaves the school and goes to work, it ought to be guided, because it is not fitted bodily for the average work which is required of a physically fit laboring man or woman. Then, again, is any study given to the kind of work that the child afflicted with tuberculosis should be engaged in after the school age

<sup>1</sup> A detailed account of the method of conducting open air classes of New York City appeared in the Monthly Bulletin of the Department of Health, City of New York, October, 1918.

half hour is seated in a previously warmed bath tub the outlet of which is open. From a small tub or large basin water at a temperature of 90 F. is dipped with a broad mouthed vessel and poured with some force over the shoulders, back and chest of the patient successively. Begin with two affusions over each part, reduce the water temperature daily or twice daily when needed, until 65 F. is reached, then increase the quantity of water used. Dry the patient and send him out of doors. Good reaction is required, or at least an absence of chilliness after dressing. The water temperature is not increased if the patient feels chilly after dressing, but the procedure is made brief and is gradually restored in duration as reaction improves. In the beginning reaction may be promoted by friction, but the aim of all procedures for this neurovascular training is to evoke spontaneous reaction.

### Annals of Surgery, Philadelphia

September, 1919, 70, No. 3

- \*Knee Joint War Injuries. Wilkens' Treatment; Management of Sub-articular Fracture by Drainage and Mobilizations. C. A. McWilliams, New York, and W. B. Hetzel, Pittsburgh.—p. 257.
- \*Treatment of Knee Injuries. F. H. Pool, New York, and T. H. Epton, Philadelphia.—p. 266.
- \*Open Amputation Through Knee Joint. M. K. Smith, New York.—p. 267.
- \*Gross Injuries of Knee Joint. In Base Hospital. V. C. David, Chicago.—p. 250.
- \*Fracture of Acetabulum with Intra-articular Displacement of Femoral Head. Report of Case. M. M. Peet, Ann Arbor, Mich.—p. 296.
- \*Report of Cases. F. Martin, Baltimore.—p. 305.
- \*Treatment of Deformity in Fractures: New Conception of Mechanism of Fractures of Upper Extremity. T. T. Thomas, Philadelphia.—p. 350.
- \*Pneumoperitoneum. Method of Detecting Intestinal Perforation. W. E. Dandy, Baltimore.—p. 378.

**Knee Joint Injuries.**—Thirty-two patients of the eighty-two whose clinical history was analyzed by McWilliams and Hetzel did not have a fracture. Eight had simple fractures, while the remaining forty had combinations of comminuted fractures, the patella being fractured in eighteen, the femur in twenty-nine, the tibia in twelve cases and the fibula in one case. Of seventy-three patients operated on for knee joint injuries, of whom final reports were obtainable as to infection, fifty-seven remained clean; in seventy of seventy-six known cases the synovial membrane was completely closed while six were drained into the joint. In general, Wilkens' treatment was not well carried out. Generally a splint was not used, except in cases where a fracture made it imperative but the lack of night nurses made active motion at night impossible and in the daytime the patient was left to make the motions by himself. There was no general system, even in the daytime, for forcing the patients to make active motions regularly. Even with this abortive plan, all the operators say that early motion gave excellent results, function having returned well in a short time. The too early evaluations sometimes stiffened the joints irrevocably.

**Treatment of Recent Wounds of Knee Joint.**—Pool and Jones emphasize that in all cases of wounds of joints by projectiles, except certain perforating (through and through) wounds by bullets, operation should be done. The principles of conservative treatment are thus summarized: complete debridement of the tract of the projectile through the joint; absolute closure of the joint by suture; primary or delayed closure of the superficial parts according to the rules laid down for primary suture of the soft parts alone; finally, early active motion. Thirty-four cases are analyzed.

**Open Operation Through the Knee Joint.**—Open amputation through the knee joint, as opposed to open amputation through the lower end of the femur, Smith claims, offers the full range of advantages: Fresh bone and marrow cavity are not exposed to infection; there is opportunity for a longer, and in some instances an osteoplastic stump; operative shock is minimal.

**Correction of Deformity in Fractures.**—In Thomas' opinion the roentgen ray is not being used with sufficient frequency to determine the results of efforts at reduction of fracture deformity. He is convinced that sufficient use of it for this purpose would probably demonstrate that reduction of overlapping of fragments in fractures of the shafts of long

bones, without operation, is rarely accomplished. The contraction of the surrounding muscles caused by the irritation of fragments never relaxes until the muscle is permanently shortened by organization of the traumatic exudate which always infiltrates these muscles about the fracture. Probably no known method of extension can effectively overcome this contraction. Thomas claims that most fractures and dislocations of the upper extremity are probably due to falls on the hand. A dislocation is merely a fracture of the skeleton at a joint with displacement of the fragments. In a fall the upper extremity is interposed, palm down and elbow rigidly extended, to break the force of the fall, so that the mechanism by which the force is applied to it is essentially the same in all falls. The common and typical displacements in fractures and dislocations of the upper extremity can be explained more effectively by such a fracturing force than by the theory of the pull of certain special muscles.

**Pneumoperitoneum.**—From personal observation Dandy is convinced that perforation of the intestines or the stomach can be diagnosed by the roentgen-ray findings. The escaping intestinal gases accumulate under the diaphragm if the head is elevated. The roentgenogram shows the diaphragm and liver sharply outlined and a collection of air separating these structures. Localized collections of gas in the abdominal walls, the buttocks, etc., may betray a colon infection and therefore an abscess resulting from a perforated bowel. No intraperitoneal injections of air have been made in patients, although Dandy feels that the procedure is safe and should offer valuable information which may lead to correct diagnoses in obscure cases. By determining the exact shape, size and position of various abdominal structures, a big lead will be obtained not only as to the exact organ which is diseased but also as to the pathology of the organ involved. Many patients may thereby be spared a useless exploratory laparotomy by the disclosure of inoperable conditions, whereas others may be offered specific rather than exploratory operations, or a rational rather than an empiric form of treatment.

### Arkansas Medical Society Journal, Little Rock

September, 1919, 16, No. 4

- Abdominal Drainage. T. J. Stout, Brinkley.—p. 75.
- Public Health and Democracy. C. W. Garrison, Little Rock.—p. 80.
- Practitioner's Place in Public Health. J. B. Roe, Newark.—p. 81.

### Boston Medical and Surgical Journal

Sept. 25, 1919, 181, No. 13

- \*Treatment of Infected Bone Wounds. Report of Cases. F. J. Cotton, Boston.—p. 379.
- \*Method for More Accurate Study of Injuries to Atlas and Axis. A. W. George, Boston.—p. 395.
- Certain Diagnostic Aspects of Medico-surgical Diseases of the Gastro-intestinal Tract. C. W. McClure, Boston.—p. 399.

**Treatment of Infected Bone Wounds.**—Cotton reviews the work done in these cases at U. S. Army General Hospital No. 10, Boston. The good results obtained are credited to Carrel's technic and the use of surgical solution of chlorinated soda. Three hundred and forty-six patients were admitted. One hundred and eighty-two operations were performed. There was one death; a patient with empyema, who came in moribund, died before he could be operated on. There were two amputations, one for a hopelessly crushed and crippled leg with a septic knee, one deliberately after the wounds had been healed for a limb so badly damaged and paralyzed as to be worthless. There have been no reamputations, no resections and no cases of secondary osteomyelitis after the cleaning operation.

**Method for More Accurate Study of Injuries to Atlas and Axis.**—The principal object of George's method is to leave with students some fundamental facts: first, the study of the anatomy; second the variations from the normal.

### Colorado Medicine, Denver

September, 1919, 16, No. 9

- Stomach Surgery. Report of Cases. A. R. Pollock, Monte Vista.—p. 220.
- Eversion of Tissue Margins in Wound Approximation. C. E. Tennant, Denver.—p. 224.
- Breech or Pelvic Presentations. M. R. Fox, Sterling.—p. 226.
- Fifty Appendectomies Under Local Anesthesia. L. E. Likes, and W. O. Sheller, Lamar.—p. 230.

**Iowa State Medical Society Journal, Des Moines**

Sept. 15, 1919, 9, No. 9

Mental Hygiene and the War. F. P. Norbury, Jacksonville, Ill.—p. 299.  
Pneumonia Situation in Camp Pike, Arkansas. C. H. Herrmann, Jr.,  
Amana.—p. 315.

**Journal of Cutaneous Diseases, Chicago**

September, 1919, 37, No. 9

\*Alkali Reserve of Blood in Various Diseases of Skin. H. J. Schwartz,  
O. L. Levin and H. C. Mahlenk, New York.—p. 575.

\*Usual Case of Granuloma Annulare. A. W. Stillians, Chicago.  
—p. 580.

\*Neurodermatoses and Pseudolichens. F. Wise, New York.—p. 590.

**Alkali Reserve in Skin Diseases.**—The authors confined their attention almost entirely to the inflammatory dermatoses. They examined 139 patients of whom eighty, or 59.7 per cent., gave normal values; fifty, or 35.9 per cent., gave values indicating a moderate acidosis, and one, or 0.7 per cent., showed a severe acidosis. This last patient had diabetes complicated with carbuncles. Included in this group were cases of sycosis, acne, psoriasis, eczema, pruritus, erythema nodosum, dermatitis herpetiformis, erythema multiforme and lupus erythematosus.

**Granuloma Annulare: Cure by Means of Radium.**—The odd features in Stillians' case were the entire absence of ringed lesions, the failure to localize on the hands, its occurrence in a patient who has a persistently positive Wassermann reaction, and its superficial resemblance to xanthoma. The administration of potassium iodid, 10 grains, three times a day, and mercurial inunctions, had no effect whatever on the lesions. Salicylic plaster, worn for forty-eight hours, made no impression on the lesions. Roentgen rays administered short of the erythema dose gave no result. The Kromayer lamp pressed on (without blue filter) long enough to cause a sharp reaction, had no effect on the lesions. Radium, filtered through 4 mm. of aluminum, cleared up the ankle and knee lesions promptly, but those on the elbows were stubborn, requiring a larger dose, which was sufficient to leave a scar in one spot, without clearing up the lesion entirely.

**Neurodermatoses.**—Wise discusses a certain peculiar morbid change in the skin, to which a variety of names has been allotted, the most familiar being lichen simplex chronicus, lichen chronicus circumscriptus, neurodermatitis, prurigo circumscriptus and pruritus with lichenification. He also makes a brief report of his own observations, based on clinical and microscopic studies.

**Journal of General Physiology, Baltimore**

Sept. 20, 1919, 2, No. 1

Comparative Studies on Respiration. VII. Respiration and Antagonism. W. J. V. Osierhout, Cambridge, Mass.—p. 1.

Id. VIII. Respiration of Bacillus Subtilis in Relation to Antagonism. M. M. Brooks, Cambridge, Mass.—p. 5.

Id. IX. Effects of Antagonistic Salts on Respiration of Aspergillus Niger. F. G. Gustafson, Cambridge, Mass.—p. 17.

Relative Physiologic Effects of Beta and Gamma Rays on Egg of Nereis. A. C. Redfield and E. M. Bright, Boston.—p. 25.

Changes in Protoplasmic Consistency and their Relation to Cell Division. R. Chambers, New York.—p. 49.

Change in Bar Gene of Drosophila Involving Further Decrease in Facet Number and Increase in Dominance. C. Zeleny, Urbana, Ill.—p. 69.

Epinephrin in Annelids. Comparative Study of Origin of Sympathetic and Epinephrin-Secreting Systems and of Vascular Muscles Which They Regulate. J. F. Gaskell, Cambridge, Eng.—p. 73.

Electrification of Water and Osmotic Pressure. J. Loeb, New York.—p. 87.

**Journal of Laboratory and Clinical Medicine, St. Louis**

September, 1919, 4, No. 12

\*Experimental Study on the Impregnation of Cloth With Pediculicide Substances. W. Moore and A. D. Hirschfelder, Minneapolis.—p. 707

\*Relation of Pancreas to Diabetic State. D. M. Ervin, Cincinnati.—p. 711.

\*Studies on Cholesterol. VI. Value of Blood Cholesterol Determinations and Their Place in Cancer Research. G. Luden, Rochester, Minn.—p. 719.

\*Isaacson Method for Estimating Glucose. E. C. Pennell, Santa Barbara, Calif.—p. 736.

Modified Portable Artificial Respiration Outfit. J. A. Hiffins, Chicago.—p. 737

\*Use of Floccule Formation To Corroborate Wassermann Test. R. J. McCann, New York. p. 742

**Investigation of Pediculicide Substances.**—A number of derivatives of cresol, preserving the general cresol structure, but diminishing the volatility, were experimented with by Moore and Hirschfelder to test their power to kill lice. The calculated amount of bromin was dropped from a separating funnel directly into glacial acetic acid containing the cresol and a small piece of bright iron wire as a catalyzer. Bromination, as shown by titrating a sample with potassium iodid and thiosulphate, was complete in less than one hour. The mixture was then neutralized, separated and filtered off, washed first with sodium thiosulphate to remove any excess of bromin or bromin that had entered the hydroxyl group, then with sodium bicarbonate and water and finally filtered or separated off. Chlorin was introduced by bubbling into the glacial acetic acid solution of cresol in the presence of iron wire until the calculated weight of chlorin had been taken up. The substances were otherwise treated in the same way as the bromin derivatives. Iodin was introduced in saturated sodium bicarbonate solution in the presence of potassium iodid. A series of monobrominated and dibrominated chlorinated and iodo cresols, orthocresol, metacresol and paracresol was thus prepared in which the halogen had entered the ring. By this mode of treatment the trihalogen compounds of the metacresol only are formed and not trihalogenated ortho and para compounds were obtained. Chlorin was also introduced into monobrominated metacresol and in this way a monobrom, monochlor and monobrom-dichlormetacresol was formed and in the same way a dibrom, monochlormetacresol. The substances which were found to be best suited to the purpose were the dibrommetacresol which lasted ten days and the dichlormonobrommetacresol which lasted thirteen days. These compounds seemed to fulfil the requisites of the problem so far as a laboratory trial could demonstrate.

**Relation of Pancreas to Diabetic State.**—The experiments reported on by Ervin show that a depancreatized animal as long as six hours after depancreation develops a hyperglycemia and glycosuria just as in the true state of pancreatic diabetes, yet consumes glucose at the same rate as the normal animal. The hyperglycemia and glycosuria are dependent on the rate of synthesis of glucose into glycogen and not on interference with the normal rate of oxidation. Ervin believes that the internal secretion of the pancreas is an enzyme, similar to the external secretion but diverted into the portal blood for the rapid synthesis of glucose into glycogen. The failure of its action is the cause of the state of pancreatic diabetes; a diabetic is one who fails to synthesize the absorbed glucose into glycogen at a sufficiently rapid rate to prevent a hyperglycemia.

**Cholesterol Determinations in Cancer Research.**—Luden's observations suggest that the test for cholesterol is capable of giving valuable clinical information, although it should not be looked on as a specific, diagnostic test, such, for example, as the Wassermann test. It might fully be compared to the test for albumin in the urine. The test furnishes information concerning cholesterol metabolism; it will, therefore, furnish information about the disturbances of cholesterol metabolism connected with cholelithiasis and carcinoma, for instance. A detailed account of the technic used by Luden is given. This technic is based on the determination of more than 1,500 individual blood samples. The cholesterol content of the blood is influenced by the nature of the diet, the rate of basal metabolism, radium treatment, bacterial infection (ulceration, infectious disease) and hemorrhage. Luden insists that determinations of blood cholesterol should have a place in cancer research. Details of observations made in sarcoma and carcinoma cases are given.

**Isaacson Method for Estimating Glucose.**—The rapid colorimetric for determining glucose in urine, which was published by Isaacson, was tried out by Pennell with unsatisfactory results.

**Floccule Formation Reactions and Wassermann Test.**—McCann investigated the methods of Forges and Meier, Elias, Neubauer, Forges and Salomon, Klausner and Herman and Lertz. From the results obtained the author is convinced that, possibly with the exception of the Herman and Lertz

tionately large enough, no matter what the origin, to admit of a routine exploration either in front of or behind the sinus. Despite the fact that 62 per cent. of all cerebellar abscesses originate from the petrous pyramid, and notwithstanding the importance of the surgical localizing value of a dead labyrinth (namely, with a dead labyrinth, the cerebellar abscess is likely to be on or near the anterior surface of the cerebellum, frequently admitting of operative localization by exploration in front of the sinus), the number of cerebellar abscesses of labyrinthine or perilyabyrinthine origin that are not accessible by this route is large enough to preclude its routine employment.

Similarly, cerebellar abscesses, originating from a thrombosis of the lateral sinus, while generally located on or in the posterior two thirds of the cerebellum, are frequently so situated, either on the upper or under surface of the cerebellum, as not to be accessible by puncture from behind the sinus.

In the treatment of cerebellar abscess, to meet the surgical requirement that the operative procedure may be attended by a systematic exploration which will admit of a uniform operative localization of the supuration and its complete evacuation, it is necessary in all cases:

1. To obliterate and doubly ligate the descending portion of the lateral sinus. The sinus, no matter how large, may be quickly obliterated and ligated by invulsing the external wall into its cavity.<sup>1</sup>

2. To expose the dura of the whole cerebellar fossa of the affected side; and, as the affected hemisphere occupies a position beyond the median line, the bone over the unaffected hemisphere should be freely removed.

3. To perform a ventricular puncture in order to relieve the internal hydrocephalus.

4. Then to incise the dura as far forward as possible, the incision extending outward through the obliterated sinus and continued in whichever direction necessary.

Because of the variety of situations of cerebellar abscess as found at postmortem, no other surgical manipulation promises uniformly to locate the abscess or allow of its complete evacuation, and the introduction of drainage material within the abscess itself.

#### ABSTRACT OF DISCUSSION

DR. GEORGE F. COTT, Buffalo: As to the mortality, some claim 20 per cent. and some from 40 to 50 per cent., but mine has been 100 per cent. I have not had more than six or seven cases of brain abscess in the last twenty-five years, and two of these were cerebellar abscesses. The doctor spoke of the radical mastoid operation being done when there is a cerebellar abscess. He must remember that when we are called to the country to operate we have neither hospital, nor nurse, nor time to study the case; we have nothing, except a patient in bed with a chronic suppurative middle ear and we are supposed to give relief. I have seen a number of these patients die who no doubt had brain abscess of which we knew nothing. Every case of chronic middle ear suppuration should be studied carefully before we decide what to do; in that way a cerebellar abscess may be discovered which would otherwise escape detection.

PROF. FERNAND LEMAITRE, France: Before discussing the paper of Dr. Eagleton I wish to express my appreciation of the great honor you have done me by electing me to honorary membership in your society. With your permission I shall

relate some of my observations in cases of cerebellar abscess. In cases of cerebellar abscess of static origin the route of surgical approach is of prime importance. Three routes are before us: in front of, behind and through the lateral sinus. Which is the best? Considered from the purely anatomic standpoint, the posterior route is preferable, the anterior being too narrow (this is particularly true when the sinus is of the procedent type), and the middle route requiring opening the sinus. However, pathologic conditions greatly modify our choice of routes. The best route is the shortest. For this reason it is not possible to choose a route until the location of the pus is known. I have usually found the abscess located in the interior portion of the cerebellum, and for this reason I have usually used the anterior route. The great question, after all, is the location of the pus.

But how solve this problem? There are three ways: (1) The clinical symptomatology: I realize that localization in the cerebellum is far from being precisely worked out. However, the spontaneous deviation of the index finger seems to me to be in favor of localization anteriorly. On the contrary, a decided retropulsion is in favor of a localization posteriorly. The adiadokocinesis and hypermetria are observed in both localizations. (2) The lesions as observed during the operation: The general principle of otology, "The specialist must follow the course of morbid process," finds here a most useful application. This procedure usually allows one to find the pus in the most direct way, and, what is more important, it makes it possible to penetrate the meninges and subarachnoid space at the point where spontaneous walling off is already under way. (3) The needle puncture: When dura and sinus are exposed, the exploring needle introduced where the abscess is supposed to be, shows pus, its localization and its depth. Following these guides, I have rarely found the abscess behind the sinus, but most frequently in front of it. In one case, finding the sinus full of pus, I was led to the cerebellar abscess on the farther side of the sinus wall. Consequently, I believe we are frequently forced by the circumstances to choose the narrow space existing between the anterior part of the sinus and the posterior part of the petrous portion of the temporal bone, removing a portion of the latter, if necessary.

I should also like to say a few words concerning my method of walling off the subarachnoid spaces. This method is as follows: When the meninges are exposed and the pus location has been indicated by means of the needle, instead of cutting the membranes by a sharp instrument, I introduce at the site of the needle a grooved director, allowing the pus to partially evacuate by this means. In abscess of cerebrum this is important, but it is of even more importance in cerebellar abscess, because it is known that the pus under tension is not as well borne by the cerebellum as by the cerebrum. Then a small rubber drainage tube is introduced through the small meningeal opening. I have observed that the presence of this tube provokes the formation of fibrous adhesions, which wall off the subarachnoid space. Every day a larger tube is substituted until a diameter of from 9 to 11 mm. is reached. By this time a strong, firm ring of fibrous tissue surrounds the tube, which now functions as a drain. In cerebellar abscess, at this stage I replace the soft tube by a vulcanized one, which is specially prepared in my laboratory. The particular features of these tubes are that they are fenestrated and the anterior ends are cut obliquely. This obliquity prevents contact between the tube and anterior portion of the sinus, thus avoiding traumatism and grave hemorrhage. In subsequent dressings these tubes are diminished in length but not in caliber, as granulation tissue appears and pushes the tube outward. It is better to await spontaneous expulsion than to withdraw the tube. I have the detailed record of a case of cerebellar abscess following a concussion injury to the ear, in which there was complete recovery after having been treated in the manner just outlined. This case forms part of a paper dealing with the general subject "The Exclusion of the Subarachnoidal Space."

DR. EWING W. DAY, Pittsburgh: I wish to make a plea for compulsory postmortems. Dr. Eagleton and the others who have studied his subject are hindered by the lack of

1. Eagleton, W. P.: Original Device for the Control of Hemorrhage from the Large Sinuses of the Brain by Invulsion of the Outer Wall into the Lumen, M. Rec. 95:274 (Feb. 15) 1919.

good postmortems and the published reports. I would like to urge every member of this society to go before the board of governors of your hospitals and have them enact a rule requiring postmortems in all cases in which death was due to trouble within the cranium. We have been diverted from this for some time on account of objections we thought might arise. In 1908 we had it introduced in the Pittsburgh Eye and Ear Hospital; it has therefore been in force for eleven years. We have had only three objections, and they did not amount to anything. They have patients sign an agreement before they go into the hospital, drawn up by competent legal authority, making it a contract, that in consideration of the treatment received in the ward, in case of death there shall be a postmortem. When we do that our knowledge of intracranial conditions will be greatly enlarged.

DR. EDWARD J. BERNSTEIN, Detroit: I would like to ask what relation Dr. Eagleton has found between the various diagnostic aids we have and the location of cerebellar abscess.

DR. JOSEPH C. BECK, Chicago: Of the fifteen cases of sinus thrombosis that I have had in twenty-five years only two patients have lived. In only one case have I made use of a point that Dr. Eagleton mentioned, the ventricular puncture, and that was after I saw the late Dr. Beckman of Rochester, Minn., in operation on a gasserian ganglion, use this method. I only bring this up because this is the one thing that is bothering us in the operation on the brain, the tremendous intracranial pressure.

DR. WELLS P. EAGLETON, Newark, N. J.: I think we should recognize that there is no one method of treatment that is adapted to all brain abscesses. I want to emphasize the importance of diagnosing between two separate and distinct conditions, both of which are classed as cerebellar abscess, viz., intrapia-arachnoid abscess situated within the pia-arachnoid; and intracerebellar abscess, situated within the cerebellar tissue. To obtain the best results, they must be treated differently. In intrapia-arachnoid abscess puncture and the insertion of a drain will not stop the suppurative process. The pressure of the brain against the dura prevents evacuation by drainage; the suppurative process continues to extend beyond the dural opening and the patient ultimately dies. All books on abscess of the brain speak of these cases as giving a high mortality, because, I think, of reliance entirely on drainage. Professor Lemaitre spoke of puncture; unquestionably it is the best treatment of acute intracerebellar abscess. We should differentiate between acute and chronic abscess. If we operate without complete preparation we will have a high mortality. A brain abscess requires the undivided attention of the surgeon from the time he makes a provisional diagnosis. I have seen four deaths, all possibly avoidable, because the surgeons had other engagements. The operations were put off for a day and during the delay the patients died. We should examine a case of suspected cerebellar abscess most carefully. If the patient is conscious he can be put in a chair and rotated over and over again. He may object, but if the family are told the importance of making the diagnosis, they will submit, and with the aid of assistants and a great deal of patience, all the tests may be applied. I have had more than one case in which the diagnosis between cerebellar and cerebral involvement was made by rotating in a Bärány chair. Dr. Beck spoke of ventricular puncture. Why it has not been more generally applied I do not know. It is of the greatest importance. If a large dural incision is followed by herniation, a ventricular puncture will reduce the herniation. I want to call attention to the fact that the direction of maximum pressure should be considered in selecting the site of the dural incision. Attention has never been called to it before; but theoretically there are points of maximum increased intracranial pressure, incision over which will be followed by herniation, and other points of minimum pressure where herniation is absent or slight. The obliteration of the lateral sinus and incision through it, although it is recorded but twice in literature, should be resorted to in every case of suspected cerebellar abscess, because of the advantages of anterior approach, the incision being in the line of minimum pressure.

## Clinical Notes, Suggestions, and New Instruments

### FORMULAS FOR USE IN STANDARDIZING AUTOGENOUS VACCINES

LEO R. TEHON, A.B., URBANA, ILL.  
Sergeant, Medical Department, U. S. Army

In the preparation of autogenous vaccines, we used, as a routine, Wright's method of counting. In so doing I have experienced some little discomfort in handling the array of figures usually employed in making the necessary computations.

As a short cut, the formulas here given have proved useful and satisfactory, it being entirely unnecessary to compute the number of organisms per cubic centimeter in the suspension. The result obtained in working out the formulas gives the number of cubic centimeters of the suspension of organisms needed to make up a desired quantity of vaccine which will contain the desired number of organisms.

#### FORMULAS

Quantity of Vaccine	Millions of Organisms per C.c.		
	1,000	500	200
10 c.c.	$1.82 \times a$	$0.909 \times a$	$0.5656 \times a$
	$b$	$b$	$b$
15 c.c.	$2.72 \times a$	$1.36 \times a$	$0.5454 \times a$
	$b$	$b$	$b$
25 c.c.	$4.54 \times a$	$2.27 \times a$	$0.909 \times a$
	$b$	$b$	$b$
50 c.c.	$9.09 \times a$	$4.54 \times a$	$1.818 \times a$
	$b$	$b$	$b$
100 c.c.	$18.18 \times a$	$9.09 \times a$	$3.64 \times a$
	$b$	$b$	$b$

In computing these formulas the number of red blood cells is arbitrarily taken to be 5.5 million per cubic millimeter; "a" is the average number of red blood cells obtained from the count, and "b" is the average number of organisms.

Suppose we wish to make up 15 c.c. of vaccine which shall contain 500 million organisms per cubic centimeter. The red blood cell count we will suppose to have been 50, and the bacterial count 75. We now substitute these numbers in the proper formula as given, and have:

$$1.36 \times 50$$

which is equal to 0.9.

This is the number of cubic centimeters of the suspension of organisms which, when made up to 15 c.c., will give a vaccine containing 500 million organisms per cubic centimeter.

When the exact content per cubic centimeter of red blood cells is known for the blood used in the comparison, the following formula may be used in any case.

Total number of organisms needed

$$\frac{b}{a} \times \text{number of r. b. c. per c.c.}$$

This gives the number of cubic centimeters of the suspension of organisms in making up a desired quantity of vaccine with a desired content of organisms.

NOTE.—Hosp. Sgt. B. H. Brown, professionally an instructor in mathematics, made, at the request of the author, the first formula used by the author in standardizing vaccines. The author extends thanks and credit.

**Treatment of Mental Disorders.**—It is decreditable to the intelligence and humanity of any community when no better provision for a delirious or frenzied sick person is made than the police station or lockup, and when no more skilled nor tender attention can be supplied than those of the constable and the poormaster. W. L. Russell, *Canadian J. Mental Hygiene* 1:162 (July) 1919.

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SATURDAY, OCTOBER 4, 1919

## TSUSUGAMUSHI DISEASE IN JAPAN

For many years, some of the river valleys of Japan have been known to harbor in endemic form a peculiar malady designated as tsusugamushi disease. The old Chinese literature makes it probable that something of a similar nature was prevalent long ago in parts of China; and recently the same disease has been observed in Formosa. The descriptions indicate its close resemblance to typhus fever and allied infections. The origin of tsusugamushi disease is attributed to the bites of certain insects found in the affected regions. As long ago as 1893, Kitasato ascribed the causation to a plasmodium-like organism which he believed he had discovered in the red corpuscles of afflicted persons. The theory of plasmodial causation has been opposed by various other Japanese investigators who were unable to find protozoa in the blood of their patients.

Of late, the study of the disease, which formed the subject of a report by the American investigators Ashburn and Craig<sup>1</sup> in the Philippine Islands in 1908, has been renewed by the experts of the Kitasato Institute for Infectious Diseases in Tokyo.<sup>2</sup> They have verified the peculiar periodicity of tsusugamushi, which occurs most frequently in the summer months, beginning with June and ending with October. This corresponds with the development of the insect "akamushi," the now assumed carrier of the Nippon "river fever."<sup>3</sup> This insect appears to be the larva of a form resembling the European *Leptus autumnalis*. The summer likewise is the season when the peasants who suffer from it enter the infected zones. The insects, which begin to attack human beings in June, are extremely prevalent until the fall months. The mortality is a variable one, but has on several occasions exceeded 50 per cent.

The close resemblance of tsusugamushi disease to typhus fever and Rocky Mountain spotted fever has

been recognized for some time. There is a similarity in the type of febrile reaction elicited; the peculiar eruptions coincident with the height of the attack are also reminiscent of those seen in the better studied typhus-like infections. Indeed, one might be inclined to suspect a complete identity of the diseases except for the recent Japanese investigations, which assert a distinction between the "river fever" and the conventional typhus fever quite as marked as that still postulated between "spotted fever" and its nearest analogues. The nonidentity is asserted primarily on the basis of immunologic investigations and the failure of infection with one type to protect against the subsequent occurrence of the other.

The rôle of the field mouse (*Microtus montabelli*), as bearer of the parasitic insects that transmit the etiologic agent to man and as host of the infectious microorganism, seems to be established. With respect to prophylaxis, it is difficult to prevent the bites of the insects under existing conditions. Excision of the area of the sting does not prevent the distribution of the virus. The best prospect of relief seems to lie at present in the eradication of the mice so far as this is practicable. Precisely what the nature of the etiologic factor is, whether it belongs to the so-called ultramicroscopic agents or some comparable group, is still to be determined. It appears to be independent of the spirochetes that have lately been reported so often in Japanese rodents. Thus far, attempts at chemotherapy with preparations of iodine, mercury, arsenic, quinin or dyes have proved unavailing.

## INFLUENZA

The suffering and loss of life that characterized the influenza epidemic of last year are still vivid in the minds of physicians and the public, and there is much speculation as to the extent to which influenza will appear during this fall and the coming winter, and what measures are of value in its prevention. In the anxiety to do everything possible to lessen the anticipated danger, it is important to maintain a judicial attitude in evaluating any proposed method of prophylaxis, and to inquire carefully into its merits before recommending it for general public use. If we may judge by the experience of the past in other epidemics of influenza, or, indeed, in epidemics in general, a considerable incidence of influenza may be anticipated during the coming fall and winter. During the past spring and summer there have been scattering cases, for the most part mild, or at least not usually complicated by the fatal bronchopneumonia of last winter. While opinion as to the degree of immunity conferred by one attack of influenza is not unanimous, there are many facts that appear to support the view that one attack does confer immunity to the disease. If this view be accepted, it may be assumed that the epidemic

1. Ashburn, P. M., and Craig, C. F.: A Comparative Study of Tsusugamushi Disease and Spotted Fever of Montana, Philippine J. Sc. 3: (B), No. 1, 1908.

2. Kitashima, T., and Miyajima, M.: Studien über die Tsusugamushikrankheit, Kitasato Arch. Exper. Med. 2: 91 (July) 1918.

3. The life cycle of this insect has been studied especially by Miyajima, M., and Okumura, T.: Kitasato Arch. Exper. Med. 1: No. 1, 1917.

of last year, which affected perhaps 30 per cent. of the population, presumably conferred an immunity on a large proportion of the susceptible persons, and that therefore a recurrence of the epidemic of the same magnitude is very unlikely. On the other hand, no doubt there are a number of persons who escaped infection last year, but who through changes in resistance, or by accident of exposure, will suffer from the disease this year. It must not be forgotten that infections resembling and possibly identical with influenza, or la grippe, are with us practically always, especially in the winter, and there is a great temptation at such times to call any sickness that has not a definite entity "influenza." Conditions that are ordinarily called "colds" are now being given the more popular name "influenza."

The practical value of vaccines in the prevention of influenza has been much debated. In one group are those who are enthusiastic over the alleged success of vaccines in the prevention of influenza, citing numbers of instances in which persons did not become ill from influenza following prophylactic injections, and in which those who did become ill suffered less severely than others not injected. In another group are those more conservative, who present carefully studied series of persons who had been vaccinated, with like numbers of unvaccinated controls, and point out that the incidence of the disease was practically the same in the vaccinated as with the unvaccinated persons. The conclusion seems unavoidable that the efficacy of vaccines in the prevention of influenza is still unproved. The virus of influenza is not as yet discovered, and thus further doubt is thrown on the probable value of vaccines whose action, if any, would be nonspecific so far as influenza itself is concerned.

How, then, shall we answer the many queries of patients as to whether they shall be injected with vaccines or what they shall do to avoid falling victims to the disease? Certainly they should not at present be led to believe that by submitting to vaccination they can hope to acquire immunity in any degree comparable to that resulting from antityphoid inoculation. Until the value of prophylactic vaccines is clearly proved, they should not be recommended to patients as a sure method for the prevention of influenza. The question as to the value of vaccines in the prevention of infectious diseases of the respiratory tract other than influenza is still under investigation. Other procedures, such as good ventilation, cleanliness and hygienic measures in general, are of value in that they contribute to good personal and home hygiene. But no one of them is all important to the exclusion of the others. There is no scientific evidence that gargles and sprays, no matter what drug may be used, are of value, except as temporary cleansers. There is one point in regard to influenza, however, on which there is general agreement: The pulmonary complica-

tions of influenza, which make it so serious a disease, may be avoided to a large extent by rest in bed at the onset of the illness. Influenza itself is not usually fatal, and general insistence on the importance of rest and warmth at the onset of illness will accomplish more than all else in preventing complications and reducing fatalities from this disease.

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#### THE LEGAL FOUNDATIONS OF PUBLIC HEALTH FUNCTIONS

Students of the history of American legal problems realize that, in harmony with the economic changes that have taken place during the past century, the interpretation of the constitutional limitations of the federal government is becoming correspondingly and progressively more liberal. Few persons interested in national welfare from the standpoint of public health are accustomed to ask themselves whence the necessary legal authority for the enforcement of hygienic measures is derived. Yet, as we are living under a constitution that permits the federal government to exercise only those powers clearly granted to it by that instrument, it is important to know the legal basis for permissible sanitary measures.

The constitution makes no direct mention of any power over the public health. In an address before a recent conference of state and provincial boards of health held at Atlantic City, President Goodnow<sup>1</sup> of Johns Hopkins University interpreted the sources whence the authority of the federal health organization may be assumed to be derived. The first great source upheld by numerous court decisions lies in the power of Congress to regulate commerce. The earlier limitations that kept this function strictly within the narrow construction of commerce with foreign nations and among the several states have been enormously extended with our national growth. The power of the national government, says Dr. Goodnow, to regulate commerce may be exercised not merely with the idea of promoting commerce from an economic point of view but also with the idea of limiting commerce in order to protect the public health or safety. It includes, therefore, the power to establish quarantines and to deny the right of entry into the country or of transportation from one state to another of objects or persons when that entry or that transportation may, in the opinion of the competent authorities of the national government, endanger the public safety.

The federal health authority is also held by Goodnow to be a function of the power to lay taxes and duties and thus provide for the common defense and general welfare of the United States. Congress may thus prevent the production and distribution of harmful substances by imposing prohibitive taxes. This is

1. Goodnow, F. J.: *Constitutional Foundations of Public Health*. Am. J. Pub. Health, 9: 561 (Aug.) 1919.

an instance of a repressive application of the power of taxation. The same privilege may be employed to promote directly the public welfare by appropriating funds designed for the establishment and activity of public health agencies.

Fortunately the federal government has rarely come into clash with the individual states in the conduct of their sanitary routine and the prosecution of their hygienic projects. The Pure Food and Drugs Act of 1906, the Child Labor Act, and the Harrison Act relating to the sale of narcotic drugs have all passed the scrutiny of the courts and found justification and legal sanction in our vaguely specific federal constitution. It is well, however, to remember the limitations of the latter and to realize that any great extension of the national health movements can be based on fundamental legal sanction only so long as the interpretation of our constitution is sufficiently liberal to meet present day needs. "Epidemics," says President Goodnow, "are not respecters of state or even national lines. A keener realization of this fact will unquestionably have the effect of causing a broader interpretation of existing powers, and may well result in constitutional amendment where such broad interpretation is not possible."

#### SOME PROPERTIES OF THE FAT-SOLUBLE VITAMIN (FAT-SOLUBLE A)

The day has passed when even the most skeptical critic of novel hypotheses can deny that certain natural fats, notably milk fat, egg-yolk fat and various tissue oils, exhibit a peculiar potency in nutrition that is not shared by many other wholesome fats which enter into the dietary. Whether the property referred to be designated as a vitamin, a food accessory substance, a food hormone or auximone is of secondary interest so long as its chemical nature and mode of action are still so obscure. The fundamental fact has been firmly established: When a suitable source of the fat-soluble vitamin as it exists either in animal fats or in green plants is lacking in the diet, nutritive disaster is certain to follow sooner or later, even when all other components of the ration are ideally adequate. We are here dealing with some as yet unidentified food factor indispensable for nutritive well-being, even though the quantity that is required may be measured with small units.

The earlier studies of the fat-soluble vitamin were largely directed to the search for its sources, so that it is now possible to catalogue a considerable list of foods of known potency with respect to the factor under discussion. The practical significance of this will be clearer to the medical practitioner when the bearing of a deficiency of the fat-soluble vitamin on the genesis of certain symptoms of malnutrition is further elucidated. A shortage of the vitamin in the human dietary has already been convincingly related to the

appearance of eye disease (xerophthalmia) in children; and English investigators are inclined to ascribe rickets to a similar deficiency factor. During the enforced food shortage of war-time days, the lack of butter, eggs and meats caused considerable concern to the food authorities. We have already pointed out that butter substitutes which are made from beef fats or oleo oils may be physiologically comparable to some extent with butter in their growth-promoting power, whereas those prepared from vegetable oils are inadequate in this respect.<sup>1</sup>

As might be expected, these pioneer studies of distribution are being followed by investigations of the properties of the unique something known as fat-soluble vitamin. It has not been identified with any of the recognized components of fats, such as glycerol, fatty acids, cholesterol, phosphatids or lipochromes. Several investigators, of whom the latest is Drummond<sup>2</sup> of the Cancer Hospital in London, have called attention to the ready destruction of the fat-soluble accessory food factor ( $\Lambda$ ) after relatively short exposure to a temperature of 100 C. (212 F.). Longer exposure at lower temperatures, for example, 37 C. (98.6 F.) may be equally detrimental. This destruction is apparently not a result of oxidation or hydrolysis. The facts just cited render it impossible at the present state of knowledge to "harden" liquid oils, as is now so commonly done in the industries, without effecting a loss of the fat-soluble vitamin which the original fats may contain. This explains, further, why it is that the popular commercial hardened oils are devoid of the vitamin, whatever their origin may have been.

The specific rôle of the fat-soluble vitamin within the organism still remains unknown. The fact that it is found in certain fat depots of the body has suggested that it may play a part in the utilization of fats. Recent observations by Drummond<sup>3</sup> indicate that this is not the case, however. A deficiency of fat-soluble  $\Lambda$  in the diet does not exert any direct influence on the absorption of fat; and animals are able to absorb large amounts of fatty acids and presumably synthesize these into fats, in the absence of the fat-soluble vitamin.<sup>4</sup> Drummond<sup>2</sup> ventures to suggest that the latter is not a clearly defined chemical substance but rather a "labile substance perhaps possessing characteristics resembling those of an enzyme." We shall await further investigations without the bias of a fixed hypothesis.

1. Osborne, T. B., and Mendel, L. B.: *J. Biol. Chem.* **20**: 379 (March) 1915. Drummond, J. C., and Halliburton, W. D.: *J. Physiol.* **51**: 235 (Sept.) 1917. Steenbock, H.; Kent, H. E., and Boutwell, P. W.: *J. Biol. Chem.* **35**: 517 (Sept.) 1918. A Problem Concerning Edible Fats, editorial, *J. A. M. A.* **69**: 1876 (Dec. 1) 1917.

2. Drummond, J. C.: *Researches on the Fat-Soluble Accessory Substance, I, Observations on Its Nature and Properties*, *Biochem. J.* **13**: 8 (May) 1919.

3. Drummond, J. C.: *Researches on the Fat-Soluble Accessory Substance, II, Observations on Its Role in Nutrition and Influence on Fat Metabolism*, *Biochem. J.* **13**: 95 (May) 1919.

4. Fatty Acids as Foods, editorial, *J. A. M. A.* **73**: 608 (Aug. 23) 1919.

## Current Comment

### ALABAMA ADOPTS THE MODEL LAW FOR VITAL STATISTICS

Alabama has adopted the model law for the registration of births and deaths, making forty-one states that have adopted this measure. Of the remaining seven states, New Mexico, in its recently adopted law, authorized the state board of health to enact regulations on this subject. Arizona, Nevada and Iowa still adhere to the obsolete method of collecting vital statistics through county clerks. In South Dakota, the secretary of the state historical society is the registrar of vital statistics. In West Virginia, the model bill has been twice introduced but has so far failed of passage. Delaware, although one of the oldest of the states, is still outside the registration area. However, the progress made in the country as a whole, since 1906, when only nine states had any adequate birth and death registration, is both remarkable and gratifying. The passage of the model law in Alabama completes the reformation in the South on this subject. Of the six states still without satisfactory laws, two (Arizona and Nevada) are Western, two (Iowa and South Dakota) are Central and two (West Virginia and Delaware) are Eastern. The passage of the model law by these states should be effected at the earliest possible moment in order that the registration area for births and deaths may be made coterminous with our national boundaries and that the energy that has been devoted to securing the passage of this law in the last fifteen years may be expended in other and greatly needed directions.

### THE CAMPAIGN TO PREVENT INFANT MORTALITY

During the first, second and third quarters of 1918, that year bade fair to prove a record one in the attempt to reduce infant mortality. Local agencies everywhere, under the inspiration of the movement initiated by the Children's Bureau, made every effort to save infant life. Large gains were being made but, unfortunately, the epidemic of influenza made its appearance in the last quarter of the year and upset the good record. The figures for Chicago and New York City well illustrate what happened. In the latter city the infant mortality rate of 1917 was 91.4 per thousand births. In 1918, the rate increased to 93.1. This is still a good rate; but what it might have been will be evident from the following comparison: In the first nine months of 1918, the infant mortality rate was only 86.6 per thousand births; the corresponding rate for 1917 was 94.6. Then came the epidemic and, in the remaining three months, the infant mortality rate went up to 115.2 per thousand births, as against 81.7 in the previous year. It was the respiratory diseases and influenza, chiefly, that were responsible; for the rate from these diseases was nearly twice that for the previous year (more than one third of all infant deaths in October, November and December, 1918, were from bronchitis, pneumonia or influenza). The rate for the congenital causes also increased, being 43 per cent. higher in the

last quarter of 1918 than in 1917. It is possible that this increase was connected with the sinister effects of influenza on pregnant women. Many physicians have noted an increase in the number of premature births during the period of the influenza epidemic, and it is very likely that this was an important factor in the larger number of deaths from congenital causes. The figures for Chicago show a similar situation. The total infant mortality rate decreased somewhat (from 105.9 in 1917 to 104.1 in 1918). But this decrease was entirely due to the record made in the first nine months of 1918. The rate for this period was 95.5 per thousand births, as against 112.6 in the previous year. In the last three months, the infant mortality rate went up to 133.2. Again, we find that the respiratory diseases and influenza were chiefly responsible. The rate was about three and one half times as high as in the last quarter of the previous year. The congenital causes were higher by 21.5 per cent. than in the last three months of the previous year. In Chicago, as in New York, the rate from diarrheal diseases was higher in the last quarter of 1918, although the rate had decreased somewhat in Chicago, and considerably in New York during the first nine months of the year. It is suggested that health officers of other populous centers analyze their infant mortality rate for 1918 along lines similar to the foregoing to determine what effect the influenza epidemic had on their campaign for the reduction of infant mortality.

### THE APPLICATION OF HEAT TO THE ABDOMEN

An old standby among our therapeutic measures is the application of heat to the abdomen. No matter what the pain or discomfort, we are likely to turn to the poultice, the compress, the hot water bottle or the electric pad. The general belief seems to be that the heat will relax spasm, aid digestion, and exert a beneficial influence generally. Can we prove experimentally the correctness of this belief, and if so, can we show how the effects are brought about? Unfortunately, the literature on the subject, though extensive, fails to afford much enlightenment. One thing seems certain, and that is that the effects are not due to an actual penetration of heat to the abdominal organs. Lüdin,<sup>1</sup> using an electropile on the stomach, found that the hottest poultice that the patient could bear, changed frequently during the course of three hours, raised the intragastric temperature at most 1 C. He fails to state whether the person experimented on was fat or thin. Stengel and Hopkins,<sup>2</sup> using a similar method, found practically no rise in temperature with hot water bottles left on for forty-five minutes. They were able to lower the temperature about 1 C. with ice-bags. Carlson,<sup>3</sup> Boring and others have reversed the process, putting ice-water into the stomach and watching the temperature of the overlying skin. They found practically no change. Others have made similar studies with fistulas, with enemas, etc., and have found, as might be expected, that local differences in temperature

1. Lüdin: *Ztschr. f. d. ges. exper. Med.*, 8: 68, 1919.  
2. Stengel and Hopkins: *Am. J. M. Sc.* 1: 52: 101, 1917.  
3. Carlson: *The Control of Hunger in Health and Disease*, University of Chicago Press, 1916, p. 110.

are promptly evened up by the circulating blood. But even if the heat should penetrate to the intestine, it is far from clear how it would act there. Those who have studied the effects of heat and cold applied more directly to the bowel are not in agreement as to the results. We often apply ice to the abdominal wall in the hope of stopping gastro-intestinal movements, quieting inflammation, restraining hemorrhage, etc., yet there is little in the extensive reports of laboratory workers to encourage us in this usage, or to help us in deciding when to use cold and when to use heat. Most of the laboratory experiments indicate that cold stimulates peristalsis. Kelling,<sup>4</sup> however, found that even when he put ice-water into the stomach he could not increase the tone of that organ enough to influence any bleeding that might be present. Apparently we must continue to be disappointed occasionally in our efforts to affect peristalsis by these measures. When we do seem to get results it may be that they are brought about by way of the nervous mechanism connecting the skin and the internal organs. We must, however, be careful how we take refuge in realms in which theory is easy and exact demonstration is difficult.

#### THE CHEMICAL EXPOSITION

During the last week in September occurred in Chicago what was probably the largest exhibition of technical chemistry ever assembled. To the physician intent on medical chemistry and *materia medica* the exhibit was a revelation. In some exhibits were long rows of by-products of oil, coal and metal trades—with strange chemical names—whose actions and uses one could hardly guess. Instead of delicate glass and porcelain apparatus, by far the largest part of the space was occupied by monster steel evaporating tanks, huge crucibles, room high suction devices, and two ton vats. And finally one came to the dye section—row on row of colors—fascinating shades exhausting all the combinations of the spectrum—dyes for cloth, for wood, for leather, for food, for every purpose imaginable. Hundreds of pamphlets told how the infant American dye industry—and the interdependent pharmaceutical trade—stimulated by the war, had already leaped to fill the gap left by the cutting off of German products. And here as a delicate reminder that the dye industry was not Germany's in the first place, one could see in a glass case a silver receptacle containing a piece of pretty mauve colored silk—a part of the goods dyed by William Perkin, of England, in 1857 with the first coal tar dye ever prepared for commercial purposes.

4. Kelling: *Ztschr. f. Biol.* 44: 245, 1903.

**Cancer Research.**—At the recent meeting of the general committee of the Imperial Cancer Research Fund, Sir William Church stated that the effect of war conditions on the cancer mortality figures for the whole country was first apparent in the national statistics for the year 1915. In that year there was apparently a great and sudden increase in the cancer death rate in males. The rate for females was unaffected, and when the necessary correction was made to allow for the withdrawal of large numbers of young males for military service the apparent rise in the death rate disappeared.—*The Medical Officer*, Aug. 30, 1919.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Personal.**—Dr. Nathaniel A. Barrett, president of the city commission of Birmingham, is convalescent after a long illness.

**Typhoid in Alabama.**—During the week ended August 30, forty-four cases of typhoid fever were reported to the state health department.

**New Hospital.**—The Elizabeth Coffee Memorial Hospital, Florence, was formally opened, August 13. The institution can care for thirty-two patients and Dr. Luther T. Young, Atlanta, will be in charge of the clinic of the institution.

**Alabama to Care for Feeble-minded.**—The house of representatives passed by a unanimous vote, Sept. 19, 1919, the Alabama Mental Deficiency Bill. This bill passed the senate, September 13. The provision is made by an appropriation of \$200,000, for the establishment of the Alabama Home for Mental Inferiors at Tuscaloosa in connection with the Bryce Hospital. A potent factor in securing this appropriation at this time in Alabama was the mental survey of the industrial schools of the state which was made in May, 1919, by Dr. William D. Partlow, Tuscaloosa, superintendent of the Alabama insane hospitals, and Dr. Thomas H. Haines, field agent of the National Committee for Mental Hygiene. This survey was a joint undertaking of the Alabama State Board of Health and the National Committee for Mental Hygiene. The survey was undertaken at the request of the Alabama Board of Economy and Control. It resulted in showing that 129 of the 654 juvenile delinquents in the four schools in Alabama are of such low mentality that they must have institution management in order to be managed for their safety and to the comfort of the community.

### GEORGIA

**Typhoid Fever.**—During the first week in September, ninety-two cases of typhoid fever were reported in the state.

**Citizens to Build Hospital.**—The citizens of Athens propose to build a new hospital, to be known as the Athens General Hospital, to cost from \$250,000 to \$300,000, and to occupy a choice 10-acre site.

**Funds for Grady Hospital.**—An extensive campaign was carried on in Atlanta, from September 10 to 30, in an endeavor to secure \$150,000 for Grady Hospital, to be used for the completion of the nurses' home and installation of the sanitary diet kitchen.

**Increased Appropriation for Medical School.**—A report states that the Georgia legislature, at its recent session, increased the appropriation for the medical department of the University of Georgia from \$30,000 to \$55,000. This includes \$20,000 for courses in public health and hygiene.

**Pass Bill for Training of Public Health Specialists.**—The senate has incorporated in the general appropriations bill an item of \$20,000 to provide for the training of public health experts. This training will be carried on at the Medical College of Georgia, Augusta, as a new department of the institution.

**Memorial Wing for County Hospital.**—The campaign to raise \$25,000 for the erection of a soldiers' memorial wing to the Thomas County Hospital, Thomasville, was opened, September 19, and continued until September 30. At present the institution can accommodate only twelve white and eight colored persons at any one time.

### ILLINOIS

**Progress of Hospital Campaign.**—The campaign to aid St. Joseph's Hospital, Bloomington, has thus far resulted in the subscription of more than \$20,000 to the hospital fund.

**State Conference of Charities.**—The Illinois State Conference of Charities and Corrections will be held in Decatur, October 24 to 26, with headquarters at the Orlando Hotel.

**Increase in Influenza.**—The official health record for Chicago, for the week ended September 27, shows a slight

increase in the number of cases of influenza. During the week fifty-seven cases were reported with two deaths.

**Service Men Welcomed.**—Will County Medical Society gave a banquet at the Woodruff Inn, Joliet, to Drs. William R. Fletcher and John W. Krohn, who have recently returned from service. Of the members of the society, eleven were in service during the war; one, Dr. William E. Harwood, Joliet, died in service, and two members are still in France.

**Illegal Practitioners Fined.**—Eva Karasck of North Chicago was arrested by the Department of Registration and Education of the State of Illinois for practicing medicine without a license and was fined \$100 and costs.—Dr. William A. Lucas of Chicago is reported to have been arrested, on complaint of the Department of Registration and Education of the State of Illinois, and fined \$25 for practicing medicine without a license.

**Personal.**—Dr. Harry A. Sullivan, Rockford, is reported to be critically ill with pneumonia.—Dr. Alice Barlow Brown, Winnetka, who has just returned after three years' service in the devastated regions in France, was given a reception by the Winnetka Women's Club, October 2.—Dr. George W. Prince, Chicago, was shot in a struggle with a burglar in a house to which the doctor had been lured in response to a professional call, September 18.

**Sanatorium Notes.**—The protest of people interested in property on the southern outskirts of Champaign over the plan of Champaign County to erect a tuberculosis sanatorium on that locality at a cost of \$75,000 resulted, September 17, in the securing of an option at \$666 an acre on a tract of 16 acres north of Urbana.—Since August, 1918, thirty-six persons have reported to the tuberculosis dispensary of Champaign for examination, and thirty-two of these have returned repeatedly for treatment.—Christian County has ordered a levy of \$60,000 for a tuberculosis fund for the county.

**New Hospital Group.**—Work is expected to commence within sixty days on the new group of hospital buildings to be erected by the state for the University of Illinois, on the site of the old Cubs ball park, Chicago. This group will cost about \$5,000,000 and shall be completed in about three years. The group includes the Illinois Charitable Eye and Ear Infirmary, the State Psychopathic Hospital, the State Surgical Institute for Children and a clinical hospital. By a joint arrangement the state department of public welfare will operate the group as to the administrative features, and the University of Illinois, College of Medicine, will undertake the medical work.

**Training School to Be Continued.**—The Chicago Training School for Home and Public Health Nursing closed its first eight weeks' term, September 30, with nearly 800 students in attendance. The interest in the school has been so great that it has been decided to conduct another eight weeks' term, beginning October 6. The course of instruction includes: bed making—medical, surgical, maternity, and fracture bed; cleansing baths; baths for reduction of temperature; hot and cold packs; maternity nursing—the care of the mother and infant; first aid, medical and surgical; poultices and stupes, and the care of the contagious disease patients. The courses are given at 1358 West Fulton Street, Chicago.

#### INDIANA

**Illegal Practitioner Fined.**—It is reported that Kate A. Braun, alias Mary A. Rose, of Peru, was indicted by the grand jury recently and fined \$150 for practicing medicine without a license. This action was taken through the Indiana State Board of Medical Registration and Examination.

**Personal.** Dr. Maurice C. McKain, Brownstown, has been appointed physician of Union County to fill the unexpired term of Dr. Fred Heller, deceased.—Dr. John N. Hurty, Indianapolis, secretary of the state board of health, who has been convalescent following a surgical operation, was so far recovered as to be able to visit his office at the State House, September 5.

**Cars Burned.**—The following is a list of physicians who lost their cars when the Horace Wood Garage, Indianapolis, burned, September 25: Carl H. McCaskey, William F. Clevenger, William S. Tomlin, Thomas B. Nolle, Albert C. Kimberlin, Joseph W. Wright, Thomas B. V. Keene, and John H. Eberwein. As a city ordinance makes it unlawful to park automobiles in down town streets for over an hour and a half at a time, this garage, being down town, was used by physicians for day storage only.

**Emergency Corps of Physicians.**—Dr. William F. King, Indianapolis, acting secretary of the board of health, announces that an emergency force of 100 physicians is to be organized in Indiana to be used in fighting the recurrence of the influenza epidemic under the direction of the United States Public Health Service and the state board of health. The members of this force will receive a salary of \$200 a month and a per diem of \$4, and the necessary transportation.

**State Association Meeting.**—The Indiana State Medical Association met at the Claypool Hotel, Indianapolis, September 24 to 26. There were more than 700 in attendance and the following officers were elected: president, Dr. Charles H. McCully, Logansport; vice presidents, Drs. Budd Van Sweringen, Fort Wayne; Samuel Hollis, Hartford City, and Charles Stoltz, South Bend; secretary-treasurer, Dr. Charles M. Combs, Terre Haute (reelected); delegates to the American Medical Association, Drs. George W. Spohn, Elkhart, and Albert E. Bulson, Fort Wayne, and alternates, Drs. Charles D. Humes, Indianapolis, and Burton D. Myers, Bloomington. The next place of meeting will be South Bend, September 23 to 25, 1920.

#### MARYLAND

**Memorial Hospital Given.**—Mrs. Caroline Pitt McCready, widow of Edward W. McCready, who was killed in a grade crossing accident near Crisfield, will give a hospital to Crisfield in memory of her husband.

**Typhoid.**—Hagerstown is facing an epidemic of typhoid fever. More than a dozen new cases have been discovered in the northern suburbs of the city and a survey by the county health officer has led to the conclusion that the outbreak is due to an infected milk supply.

**City Hospital Planned.**—A recommendation from Health Commissioner John D. Blake that Baltimore purchase the Northwestern General Hospital, for use in case of epidemics of influenza or minor infectious diseases, has been taken under consideration by the board of estimates. The buildings and grounds together with equipment can be bought for \$50,000, and the hospital can be opened for any emergency on a day's notice. The two buildings contain provision for seventy-five beds and there is, in addition, a nurses' home, with twenty beds; a surgical ward, and two dispensaries.

**Discuss Recurrence of Influenza.**—Plans for providing adequate assistance for the people of Baltimore in the event of a recurrence of an influenza epidemic were discussed at a meeting, held September 23, at the Medical and Surgical Faculty Building, Baltimore, by a number of physicians called together by Dr. John M. T. Finney and Dr. Arthur M. Shipley, the newly elected medical advisers to the emergency committee of the Baltimore Chapter, American Red Cross. A tentative program was outlined preliminary to the work to be done by physicians and Red Cross workers in mapping out complete arrangements which would enable them, should the emergency arise, to provide medical assistance, nurses, bed linen, nourishment and clothing for the sick. Home nursing courses have already been organized by the emergency committee of the local Red Cross and more than 200 students are in training for a period of seven and a half weeks, in which time fifteen home nursing lessons are given by competent teachers.

**Personal.**—Dr. John M. T. Finney has accepted the post of campaign chairman in the \$750,000 drive by the Union Protestant Infirmary, for the erection of its new hospital at Guilford, Baltimore. The campaign will commence, October 20, and close, October 27.—George Walker, Col., M. C., U. S. Army, who went overseas with the Johns Hopkins Base Hospital Unit, but was detached and placed in general charge of the principal ports of debarkation to fight social diseases, has returned to his home in Baltimore on leave.—William Michel, Capt., M. C., U. S. Army, Frostburg, has returned from France after two years' service overseas, and has resumed practice in Baltimore.—Dr. Edward N. Brush, for nearly thirty years superintendent of the Shepard and Enoch Pratt Hospital, Towson, has offered his resignation to the board of trustees, and hopes to be relieved of his responsibility as superintendent, about January 1. Dr. Brush will remain in close touch with the hospital, but will devote most of his time to his duties as managing editor of the *American Journal of Insanity* and to his many other medical interests.—Dr. Harry Friedenwald, Baltimore, has been elected vice president of the Zionists of America.—Drs. William S. Thayer and Hugh H. Young, Baltimore, have returned after a two months' trip abroad.

## NEW YORK

**Personal.**—Dr. Homer F. Smith, Norwich, has been appointed assistant surgeon to the Knapp Memorial Hospital, New York City, and has moved to New York City.—Dr. Clinton P. McCord, health director of the Albany School for seven years, has been appointed head of the newly created bureau of health of Pennsylvania.—Dr. William Hale, Jr., who has been on duty with the Canadian Battalion of the Black Watch, has returned to Utica, after more than two years' service abroad.

## New York City

**Children's Home for Bronx County.**—The Bronx County Society for the Prevention of Cruelty to Children has tentative plans for the erection of a building to be used as a children's home, which will cost \$100,000. Already many large subscriptions have been pledged.

**Maternity Centers Opened.**—The Maternity Center Association has, during the past year, opened three new maternity centers in Harlem and Yorkville. An educational campaign is being carried on in these neighborhoods to show the advantages of advice and help to mothers.

**College of Physicians and Surgeons Opens.**—The opening exercises of the College of Physicians and Surgeons were held at Columbia University, September 24. Dr. William Darrach, the newly appointed dean of the college, delivered the opening address, his subject being "Productive Medicine."

**Academy of Medicine Opens Season.**—The opening meeting of the New York Academy of Medicine for the season 1919-1920, held on October 2, was the occasion of the Carpenter Lecture. This was delivered by Sir Arthur Newsholme, late principal medical officer of the Local Government Board of England; lecturer on public health, Johns Hopkins School of Hygiene. His subject was "The Increasing Socialization of Medicine."

**Personal.**—Dr. John William Perilli has been appointed a member of the board of trustees of Bellevue and Allied Hospitals, for a full term of seven years. The board consists of six laymen and a president who is a medical man, and Dr. Perilli is the first medical man to be appointed on the board in addition to the president.—The king of Denmark has conferred the Order of Danneberg on Dr. Ejnar Hansen, who served through the world war as a captain and major in the Medical Corps of the United States Army.

**Visiting Women Physicians Entertained.**—The foreign delegates to the International Conference of Women Physicians, now in session in this city, have been invited by Mrs. Raymond Robins, president of the National Women's Trade Union League, to meet the member of the Trade Union League at a tea, on the afternoon of October 3. The conference took a recess from September 26 to October 1, during which the foreign delegates took a trip to Boston, where they visited Harvard, Radcliffe and Wellesley colleges and were entertained at a tea by Dr. Sarah Sweet Windsor, Boston, at her country home.

## NORTH CAROLINA

**Personal.**—Dr. Cyrus Thompson, Jacksonville, has been nominated as a member of the North Carolina Reconstruction Commission whose intention it is to examine the economic and military needs of the state and report with recommendations at the next session of the legislature.—Dr. Louis J. Picot, Littleton, was elected president of the Seaboard Railway Surgeons' Association at its recent annual meeting in Jacksonville.—Dr. Sidney E. Buchanan, Concord, has been elected full-time health officer for Cabarrus County.

## OHIO

**Seek Fund for Training School.**—A committee of the board of trustees of the University of Cincinnati has been appointed to confer with the citizens of Cincinnati relative to the raising of a fund of \$100,000 to be utilized in carrying on the work of the school to train physicians in the study of industrial relations between employer and employee and in sanitation and fundamentals of safety and the care for the general welfare of the worker.

**Personal.**—Dr. Louis F. Bucher, who has served for several years as medical inspector in the city schools of Dayton, has been appointed supervisor and teacher of hygiene under the board of education and will be assisted by Drs. Warren C. Breidenbach, Dayton, and Frederick J. Driscoll, Ashtabula.—Dr. Frank G. Boudreau, Columbus, after service of nearly two years with the British Forces in France and

Belgium, has resumed his duties as head of the department of communicable diseases of the state board of health.—Dr. Edward J. Schwartz, Salem, has been made supervisor of the Northeastern Ohio District of the state department of health.—Dr. Ralph W. Holmes, Chillicothe, has been elected president of the Tenth District Medical Association.—Dr. Georges Rasetti, Cincinnati, who returned to France five years ago on the occasion of the first call to arms, and served throughout the war, has decided to remain in France.

## PENNSYLVANIA

**State Medical Meeting.**—The sixty-ninth annual session of the Medical Society of the State of Pennsylvania was held at Harrisburg, September 22 to 25. At the annual business meeting the following members were elected: Dr. Henry D. Jump, Philadelphia, president-elect; vice presidents, Drs. J. Wesley Ellenberger, Harrisburg, Spencer M. Free, DuBois, Charles B. Wood, Monongahela, and Anthony F. Myers, Blooming Glen; secretary, Dr. Walter F. Donaldson, Pittsburgh; assistant secretary, Dr. Christian B. Longenecker, Philadelphia; treasurer, Dr. John L. Lowman, Johnstown; trustees, Drs. Frank C. Hammond, Philadelphia; Howard C. Frontz, Huntingdon; Theodore B. Appel, Lancaster; Donald Guthrie, Sayre; Irwin J. Moyer, Pittsburgh; G. Frank Bell, Williamsport; Harry W. Mitchell, Warren; R. G. Shumaker, Reading; Harry W. Albersohn, Scranton, and Jay B. F. Wyant, Kittanning; delegates to the American Medical Association, Drs. William F. Bacon, York; George R. S. Corson, Pottsville; Herbert B. Gibby, Wilkes-Barre; Wilmer Krusen, Philadelphia, and George G. Harman, Huntingdon. Pittsburgh was chosen as the next place of meeting.

## Philadelphia

**Occupational Therapy Needs Women Aides.**—A call for fifty women to train immediately as aides in occupational therapy was issued, September 22, by the state supervisor of occupational therapy.

**Maternity Section for Bryn Mawr Hospital.**—A drive to raise funds to build, equip and maintain a maternity section in the Bryn Mawr Hospital will begin, October 8, and last until October 18. The receipts from the Bryn Mawr horse show will go to this fund.

**University Hospital Needs Funds.**—The board of managers of the Hospital of the University of Pennsylvania has decided to ask the public for \$1,000,000, and a drive for this amount will be made during the week of October 6. Headquarters have been established at the Bellevue-Stratford and there will be 360 workers, divided into sixty teams, thirty of women and thirty of men.

**Personal.**—Dr. J. Harold Austin of the medical department of the University of Pennsylvania goes to the Rockefeller Institute, New York.—Dr. William H. F. Addison has been made a full professor of histology and embryology; Dr. Oscar H. Plant has been promoted to a full professorship in pharmacology; Dr. Byron M. Hendricks and Raymond Stehle have been promoted to assistant professorships of physiologic chemistry, medical department, the University of Pennsylvania.

**University Graduate School.**—Graduate classes in medicine, the first ever organized at the University of Pennsylvania, will open, October 6, with headquarters at the Polyclinic Hospital. This is the direct outgrowth of the merger of the University Medical School with the Medico-Chirurgical College in 1916 and with the Polyclinic in 1918. Dr. G. H. Mecker is dean of the new school. The faculty of 150, many of whom formerly were on the teaching staff of the Medico-Chirurgical College, will conduct the classes. The admission requirements prescribe graduates in medicine who have practiced.

## CANADA

**Medical Inspection of Schools in Montreal.**—The school commissioners of Montreal desire that the medical inspectors should be under the direction of the commission, but at the same time officers of the department of health.

**Personal.**—Col. Robert A. Bowie, Brockville, Ont., is still overseas. Recently he has been appointed consultant in surgery to the Canadian Headquarters in London, England. He was for a time second in command of the Ontario Military Hospital, Orpington, Kent, England.—Brig.-Gen. Arthur E. Ross, Kingston, Ont., has been sworn in as a member portfolio of the Ontario government. It is understood that when

a department of health is created in that province he will be the minister in charge.

**University News.**—The Western University, London, Ont., has been given the library of Dr. J. Davis Barnett, Stratford, Ont., a library which is especially rich in Shakespeare.—Dalhousie University, Halifax, N. S., has decided on a campaign for an increased endowment.—President Klinik of the University of British Columbia has just returned to Victoria after an extended trip East. He states that the universities are stripped of men in science and economics and he experienced extreme difficulty in getting instructors in these branches. The university this session will be greatly crowded, the total attendance running about 800, of whom 400 are freshmen.—Prof. W. S. Lindsay, from No. 13 Mobile Laboratory in France and Greenwich Hospital, has been appointed to the chair of bacteriology and pathology in the University of Saskatchewan.—Dr. John G. Fitzgerald, an associate professor in the department of hygiene in the University of Toronto, has been advanced to full professorship, taking the place vacated by Dr. John A. Amyot. Dr. Fitzgerald is also head of the Connaught Laboratories and the two offices will now be combined.—Dr. Horst Oertel has been appointed professor of pathology in McGill University, Montreal, succeeding Prof. J. George Adams.

### GENERAL

**Bids for Naval Hospital.**—Secretary of the Navy Daniels, while in Honolulu, in August, cabled the Bureau Yards and Docks to entertain bids for the construction of a large naval hospital at Pearl Harbor, Hawaii, at a cost of about \$300,000.

**Southwestern Medical Association to Meet.**—The annual meeting of the Medical Association of the Southwest will be held in Oklahoma City, October 6 to 8. The association includes the physicians of Oklahoma, Mississippi, Kansas, Arkansas and Texas.

**Child Hygiene Association Meeting.**—The annual meeting of the American Child Hygiene Association, formerly known as the American Association for the Study and Prevention of Infant Mortality, will be held at Asheville, N. C., November 11 to 13, under the presidency of Dr. S. Josephine Baker, New York.

**Millions for Medical Education.**—The newspapers report that John D. Rockefeller has given to the General Education Board, founded by him in 1902, \$20,000,000 to be used in improving medical education in the United States. The announcement states that the income and the entire principal is to be distributed within fifty years and that a preliminary survey of the medical schools will be made to determine which are worthy of being improved.

**Interallied Conference on War Disablement.**—The third interallied conference for the study of problems relating to war cripples will be held in Rome, Italy, October 12 to 17. An effort will be made at this conference to arrange for a cooperation between the various allied countries in caring for disabled soldiers so that if a wounded soldier of one nation be located in another of these countries, he would find available medical care and facilities for reeducation, etc., of which he may be in need. The Medical Department of the United States Army will be represented at this conference by Col. Nathaniel Allison and Col. Harry E. Mook. The Medical Department of the United States Navy has not announced an official representative. The United States Public Health Service will be represented by Surg. Carl Ramtus.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Woman's Hospital, Children's Hospital, Christ Home for Children, each \$20,000, and the Pennsylvania Institute for the Deaf and Dumb, Mount Airy, \$140,000, in the event of the death of his daughter without further issue, by the will of George Gilpin, Philadelphia.

Deaconess and Hospital Society of the Atlantic Conference of the Evangelical Association, \$700, by the will of Hannah Litzinger.

Kingston, Ont., General Hospital, \$100,000 for the treatment of tuberculous patients, by the will of the late Senator H. W. Richardson.

American Red Cross \$2,241.65, by the will of Oscar Hanschik, Clay County, Neb.

The library of the Georgia Medical Society, Savannah, \$1,000 for the endowment fund, by the will of Dr. J. Living Mears, who several years ago gave the society the William Mears Medical Library Foundation, collection of works on surgery.

For increasing public bathing facilities in Indianapolis, \$5,000; Indianapolis Orphan Asylum and Home for Aged and Friendless Women, Indianapolis, each \$3,000; The Deaconess Home of the Indiana Conference of the Methodist Episcopal Church, \$2,500, by the will of Dr. John T. Burford.

### FOREIGN

**Foundation of Institute for Biochemistry at Milan.**—A legacy of \$60,000 was bequeathed by the late Dr. Rizzi, physician in chief of the Ospedale Maggiore at Milan, to found an institute for the research and practice of biochemistry.

**Fiftieth Professional Anniversary of Professor Romiti.**—The University of Pisa recently organized a festal meeting to honor the fiftieth professional anniversary of Prof. G. Romiti of the chair of anatomy. A marble portrait bust was unveiled, and Romiti presented the university with his magnificent library on anatomy.

**Americans Equip Greek Orphanage.**—The Red Cross Bulletin (3:3 [Sept. 22], 1919) announces that a national orphanage home for hundreds of little Greek children has been dedicated by King Alexander and General Adossides of Macedonia. In the vestibule of the building has been erected a tablet commemorating the American Red Cross workers who equipped the institution and organized the work.

**Deaths in the Profession Abroad.**—Dr. Filiberto Mariani, professor of clinical medicine at the University of Genoa and author of important works on various phases of internal medicine and therapeutics, many of them passing through many editions, up to his latest, "Tecnica Medica." In the last few years he has devoted himself to cardiopathology, and founded in 1916 the monthly *Le Malattie del cuore e dei vasi*, which has appeared regularly ever since.—Dr. R. Raimondi, a well known pediatricist of Paris, and writer on subjects connected with his specialty.

**The Medical Journals and the Strikes.**—We mentioned recently that the Swedish Medical Association had announced that until the prevailing strike of printers was over no attempt would be made to get out the monthly, the archives and the transactions published by the Association. Our Buenos Aires and Cuban exchanges were also delayed for weeks on account of the general strike, but—judging from the appearance of the journals—the printing did not seem to have been interfered with. The *Revista Médica del Uruguay* comes delayed with an apology that the recent conflicts between the publishers and the printers had prevented the regular issues. The latest *Correspondenz-Blatt* of Basel, Switzerland, is a delayed double number with a similar notice, and the *Polichinico* of Rome has not been seen for some weeks but a notice has been received apologizing for the delay on account of the printers' strike. The *Nederlandsch Tijdschrift* of Amsterdam also arrives after some delay, merely a very thin number with few of the usual departments, and a notice to the effect that on account of the printers' strike this issue had been made up only of matter already in type. Of course no medical journals have been received from Russia since the end of 1917. France, Brazil and western South America do not seem to have suffered so far in this respect, but the *Journal de Médecine de Bordeaux* announces that after September its price will be raised by 50 per cent. except for students. The expense of publication, it states, has increased by 300 per cent. since 1914. The morning's mail (October 1) has brought the missing Stockholm and Amsterdam exchanges.

### LATIN AMERICA

**Malaria in Cuba.**—According to the director of sanitation of Cuba, the death rate from malaria in that country has dropped since 1898 from 25 per 10,000 to 1.8 in recent years. When the Americans took charge of Cuba malaria occupied the first place in the list of causes of deaths while now it occupies the sixteenth place. In the last two years, however, the mortality has been 2.7 and 2.4 per 10,000, respectively.

**Public Health in Recife.**—In a report on public health in the municipality of Recife in 1918, just presented by the director of public health of Brazil, he states that during that year there were 9,163 deaths with a mortality rate of 37.4 per thousand which was largely due to the epidemic of influenza. There were only four deaths caused by yellow fever, one by plague, twenty by leprosy and none by smallpox.

**Safeguarding Santo Domingo's Health.**—It is announced that an appropriation has been made by the American Red Cross to cover the expenses of sending a medical director to Santo Domingo to take charge of the hospital and to make a study of the general health conditions of the island. Disease is prevalent throughout the island and hospital facilities are wholly inadequate. There are only three graduate nurses in the republic, although a training school has just been opened. The military government plans to open a chain of free dispensaries.

## Government Services

### Personnel of the Medical Department

For the week ending September 26, there were 5,296 officers in the Medical Corps, a decrease of 940 from the previous week. The Medical Reserve Corps contained 3,472. The total number of physicians discharged since the beginning of the war is 26,917.

### Army Decorates Navy Officers

Secretary of War Baker, September 5, conferred the decoration of the Distinguished Service Medal on Com. John J. Snyder, M. C., U. S. Navy, a member of the staff of the C. T. and F.

### Public Health Service Changes

Sr. Surg. Joseph H. White, Memphis, Tenn., has been directed to proceed to Chicago to investigate hospital facilities in that city. Sr. Surg. Julius O. Cobb, Chicago, has been directed to act as supervisor of District No. 8, with headquarters at Chicago, succeeding Colonel Caldwell.

### Foreign Decorations for Navy Officers

The decoration of Commander of the Order of the British Empire Military Division has been awarded to Capt. Charles M. Devalin, M. C., U. S. Navy, in command of Base Hospital No. 3, Leith, Scotland, and Dr. Edwin S. Bogert, M. C., U. S. Navy, in command of Base Hospital No. 2, Strathpeffer, Scotland.

### Motor Equipment for Public Health Service

Legislation to provide automobiles for the use of the United States Public Health Service throughout the country has been introduced in both the Senate and House of Representatives. It is proposed to transfer a part of the surplus motor equipment of the War Department to the Public Health Service. The legislation has the approval of the chairmen of the military committees of both the Senate and House and favorable action is anticipated.

### School for Naval Medical Officers

A class has been organized at the Naval Medical School, composed of naval medical officers who have completed a course at sea. The school sessions began, September 9, and the course pursued is to be along the lines of the usual instruction, but with a special view of determining the capabilities of the officers in special lines of their profession. It is expected that after ten weeks it will be possible to arrange clinical courses in large medical centers where those student officers who have displayed a marked aptitude in special work may be given advanced postgraduate study.

### Army Medical Department Assignments

Brig.-Gen. Walter D. McCaw, assistant Surgeon-General of the Army, returned, July 28, from France, where he had been chief surgeon of the American Expeditionary Forces, and has resumed his duties as head of the Army Medical School, Washington, D. C.—Brig.-Gen. Robert E. Noble, assistant Surgeon-General of the Army, has been relieved from duty in Atlanta, and has reported for duty in the Surgeon-General's Office as chief of the library division, relieving Col. Francis A. Winter, formerly head of the Army Medical School, who has been made chief surgeon of the Southern Department, with station at San Antonio, Texas.

### Government Uses New York Hospitals for Injured Soldiers

The United States Public Health Service has taken over the New York Polyclinic Hospital to use exclusively for the

treatment of war risk insurance cases. Former soldiers who were injured, if ailments develop directly or indirectly from their war experience, will be treated at this hospital, which until recently was known as Debarcation Hospital No. 4. The Public Health Service took over the Hudson Street Hospital last June. There are accommodations for 450 patients at the Polyclinic and for 120 in the Hudson Street Hospital. Major James L. Robinson, M. C., U. S. Army, is in charge of the former, and Dr. Richard A. Kearney, Washington, D. C., of the latter.

### Vacancies in Army Medical Corps

A large number of vacancies occur in the lower grades in the Medical Corps of the regular army. The demand for physicians in the service is still very marked, but only a few physicians apparently now look on the army medical work as a desirable career. One difficulty is that physicians must serve as first lieutenants for five years before they can be promoted to captaincies, and the increased cost of living is cited as a most serious obstacle, the pay of these grades being insufficient. It is understood that there are about 700 vacancies in the medical corps. About seventy-five young physicians recently took the examinations for admission to the Army Medical School, October 1.

### Discussion on Establishment of Department of Tuberculosis

The United States Public Health Service has sent the following memorandum to the United States Senate in connection with a measure introduced by Senator Joseph E. Ransdell to establish a department of tuberculosis:

TREASURY DEPARTMENT,

BUREAU OF THE PUBLIC HEALTH SERVICE,

Washington, Aug. 20, 1919.

Memorandum for Senator JOSEPH E. RANSDELL.

It appears from the discussion on Aug. 18, 1919, by the Senate of the bill (S. 1660) to provide a division of tuberculosis in the Public Health Service that there was no difference of opinion as to the necessity of the Public Health Service having appropriations for the study and control of tuberculosis, but there does seem to be a difference of opinion as to the administration of such a fund.

The necessity for the Federal Government bearing its just proportion of the work of the control of tuberculosis is set forth in the report of the Surgeon General of the Public Health Service, under date of January 18, 1919. I do not feel that it is necessary to make any supplemental statement in this regard.

There seems to be no opposition to the Federal Government undertaking its share of the work, but there does seem to be some opposition to the creation of an administrative division to carry on this work. Whether such administrative division is created or not, it is obvious that additional appropriations would require some additional administrative personnel, but the amount expended for administrative personnel would be a negligible part in the expenditure of funds appropriated for the investigation of tuberculosis. Administrative personnel would not be in the nature of large increases as has been forecasted, but would be somewhat along the lines that you have indicated, i. e., the detail of an additional medical officer to the bureau to take charge of the division, and the employment of some additional office personnel which probably would not exceed six or eight assistants and clerks. It has always been the policy of this bureau to decentralize so far as possible its work, and I believe that investigation will show that it conducts its activities with a smaller overhead charge for administration than any other bureau in the Federal Government.

As to the statement that the creation of such a division would require a great building rented in the District of Columbia, I beg to assure you that there is no such intention on the part of this bureau, but a very large proportion of the sums appropriated for tuberculosis work would be expended in field investigations and demonstrations. All that would probably be necessary to house such a division in the District of Columbia would be the provision of four or five office rooms for administrative purposes and for the storing of records and correspondence. It is believed that the Treasury Department would be able to provide this space in buildings already under the control of that department.

I am glad to note in the RECORD that the Senator from Utah [Mr. Smoot] has made the following statement:

"I have no objection to the Government making appropriations for the purpose of assisting in the investigation of tuberculosis. The Senator from Louisiana is no more interested in the subject than I am. The Senator from Louisiana does not know of its ravages and what it has done to the people of the United States more than I know it."

With the above explanation that only a relatively small office force will be involved in the creation of a new division in the bureau, taken in connection with the attitude, as indicated in the above quotation

of the Senator, it is hoped that the Senator will withdraw his opposition and consent to the consideration of this bill, the enactment of which is urgently needed in order that the Federal Government may properly discharge its responsibilities to the Nation and the people.

J. C. PERRY,  
Acting Surgeon General.

A determined opposition has arisen in the Senate to the establishment of a separate division of the Public Health Service for this work. It is explained that there is no objection to a federal appropriation to fight tuberculosis, the opposition being to the additional administrative expenses which would come with the creation of the new department. A number of senators want assurance that the money will be used for preventive and combative work in the field and that it will not be used for administrative purposes in the Washington offices of Public Health Service.

**MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY**

**CALIFORNIA**  
San Diego—Kinney, L. C.  
San Jose—Hubbard, H. D.

**CONNECTICUT**  
New Haven—Russell, T. H.

**FLORIDA**  
Jacksonville—Dey, W. P.  
Pensacola—Payne, W. C.

**ILLINOIS**  
Normal—Sayers, F. E.

**INDIANA**  
Plymouth—Eley, T. C.

**IOWA**  
Griswold—Wyatt, H. L.  
Ocheyedan—Adams, B. H.

**LOUISIANA**  
New Orleans—Randall, C. C.

**MARYLAND**  
Guilford—Douglass, L. H.

**MASSACHUSETTS**  
Pittsfield—Prentice, D. D.

**MICHIGAN**  
Ithaca—McWilliams, W. B.

**MINNESOTA**  
Minneapolis—Oftedal, T.

**NEW YORK**  
Brooklyn—De Yoanna, A. A.  
New York—Kimball, C. C.  
Vaughan, R. W.

**NORTH CAROLINA**  
Charlotte—Matthews, V. M.  
Youngsville—Timberlake, C. V.

**OHIO**  
Cleveland—Bell, R. P.  
Columbus—Harlor, D. M.  
Portsmouth—McCall, D. H.

**OREGON**  
Astoria—Van Dusen, A.  
Roseburg—Wade, C. B.

**PENNSYLVANIA**  
Philadelphia—Aarnson, M. A.  
Owen, R.  
Pierston, M. J.  
Pratt, M. L.

**RIHODE ISLAND**  
Newport—Gillon, C. J. C.

**SOUTH CAROLINA**  
Trio—Register, D. W.

**TEXAS**  
Dallas—Jablow, H. B.

**VERMONT**  
Burlington—Davis, P. N.

**WEST VIRGINIA**  
McMechen—McCuskey, C. F.

**WISCONSIN**  
Athens—McNichols, L. T.

officer of Evacuation Hospital No. 7, at Chateau Montomglaust, he performed his exacting duties with unflagging energy and marked executive ability. Overcoming grave difficulties due to inadequate personnel and equipment he succeeded in receiving, treating, and evacuating a large number of wounded from the Marne offensive with notable success, thereby rendering service of the utmost value to the American Expeditionary Forces."

Major SAMUEL J. TURNBULL, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. As commanding officer of Evacuation Hospital No. 9, he performed his exacting duties with notable success. Overcoming numerous obstacles, by his keen foresight and administrative ability, he was instrumental in securing the prompt evacuation and effective treatment of a large number of sick and wounded."

**Foreign Correspondence**

**PARIS LETTER**

PARIS, Sept. 11, 1919.

**Postbellum Organization of the Medical Department of the French Army**

The cessation of hostilities does not relieve the Army Medical Corps of the obligations imposed by the war. July 10, 1919, the number of sick and wounded still amounted to 78,000, three times the number of equipped beds existing in time of peace. The task that remains to be accomplished would be impossible of performance if the special provisions adopted for the duration of the war with reference to the personnel of the Army Medical Corps and its material means of support were now to be suddenly canceled. While the normal enrolment of the Army Medical Corps during peace times consisted of 1,710, the losses of war have reduced this to 1,400, 116 of whom are in Morocco and 215 on special missions or with the Army of the Orient. It is, therefore, indispensable to keep in the ranks of the Army Medical Corps a sufficient number of active members to permit the assumption of the obligations incumbent on it until such time as medical study and the reorganization of the Ecole du Service de Santé militaire shall be definitely resumed. In view of these facts the minister of war has recently filed the following bill:

During the six months following the date fixed for the cessation of hostilities, and longer, if need be, until the ministerial order shall be issued providing for the readmission of civilian physicians to the Ecole d'application du Service de Santé militaire du Val-de-Grace, doctors of medicine, members of the reserve medical corps or of the territorial army, may be admitted to active service under the conditions established for the duration of the war by the law of Dec. 21, 1916.

The physicians, pharmacists, dentists and administration officers of the Army Medical Corps belonging to the reserve of the army in active service and to the territorial army may, during the two years following the cessation of hostilities, at their request be admitted to intensive courses of instruction with pay, the duration of which shall be definitely fixed for each applicant in accordance with the needs of the service and within the limits of the credits appropriated for such purpose.

**Transportation for Physicians in the Liberated Regions of France**

M. Doizy, member of the chamber of deputies, recently inquired of the commissioner of the liberated regions as to what measures had been taken to provide transportation for the members of the Army Medical Corps who were devoting their time to the care of the civilian population in the liberated regions, and he is now in receipt of the following reply:

Both civilian and army physicians of the liberated regions have been furnished with credentials in present to the prefects of the departments and to the heads of the transportation service in order that they may secure the needed transportation. On the other hand, the commissioner of the liberated regions has been endeavoring for some time to find a means of replacing automobiles commandeered among the civilian population of the liberated regions by the general in command and placed at the disposal of army physicians. Since March 29, negotiations with the United States Army have been pending in regard to securing for the service of the transportation department 1,500 Ford trucks provided with special sanitary equipment. The attention of the administration is likewise directed to the question of the means of transportation to be furnished civilian physicians who have become reestablished in the liberated departments. Within a short time, it will be settled what new or used automobiles shall be appropriated to this service. Automobiles so assigned may be used only by persons performing service that inures to the general welfare.

**United States Aid for France**

Being desirous of coordinating the activities of the various organizations founded especially to bring aid and succor to

**Awards of Distinguished Service Medal**  
The Distinguished Service Medal has been awarded by the commanding general, American Expeditionary Forces, by direction of the President, to the following named officers:

Col. WEBB E. COOPER, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He commanded with notable success Base Hospital No. 8, at Savenay, which under his efficient administration became the nucleus of a large hospital center, which developed into the largest classification and evacuation hospital in France for patients returning to the United States. By his marked ability in directing the numerous activities under his control he rendered services of conspicuous worth to the American Expeditionary Forces."

Col. PAUL S. HALLORAN, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He served with great credit as division surgeon of the 90th Division from the date of its organization throughout its service in the field, displaying sound judgment, marked professional skill, and untiring energy. By enforcing effective sanitary measures he maintained the combat strength of his division, and by his able direction of the medical services he was largely responsible for the proper care of the sick and wounded."

Col. CLARENCE J. MANLY, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. He organized and commanded with signal ability the Hospital Center at Beanne, taking charge of it when it was in an unfinished state and at a time when increased facilities were urgently needed. Overcoming numerous adverse conditions, he expedited its completion and rendered invaluable services in furnishing effective medical treatment for large numbers of sick and wounded of the American Expeditionary Forces."

Lieut. Col. WILLIAM H. TRFPT, Medical Corps, U. S. Army. "For exceptionally meritorious and distinguished services. As commanding

France, the Americans have organized a federation entitled the Federation of American Agencies for the Relief of France. The federation, which has as its American president Myron T. Herrick, former American ambassador at Paris, and as its French president M. Casenave, director of the French services in New York, has sent to France several representatives charged with making an inquiry on the ground, at first hand. Mr. Lawshe, one of these representatives, has arrived in Paris and has conferred with the representatives of the press in order to set before them the program of the federation.

Mr. Lawshe announced the arrival in France of two other representatives of the federation: John Moffat, vice president of the organization, and Mrs. William Astor Chanler, who have brought with them a preliminary fund amounting to several million francs, to be used in the alleviation of the most pressing needs. During their stay in France, they will proceed to make a thorough investigation and then will return to America, where a nation-wide subscription will be opened to raise the sum of \$100,000,000, which will be used not only in aid of the population of the devastated regions of France, but also to replenish the funds of various French welfare organizations.

It may also be announced in this connection that the Fonds des orphelins de guerre, which is associated with the American Red Cross, takes care of thousands of war orphans. This orphan fund has just received a check from General Pershing for 94,625 francs. This sum represents a collection taken among the officers of the general staff to which General Pershing had also contributed.

#### A French Federation of the Societies of Natural Science

The Fédération française des sociétés de sciences naturelles has been formed consisting of thirteen distinct society units: les Sociétés Zoologique, Entomologique, d'Acclimatation, de Pisciculture, l'Association des Anatomistes; les Sociétés de Botanique, de Mycologie, de Pathologie végétale; la Société de Biologie; la Société philomatique; la Société géologique; la Société des Naturalistes parisiens; la Société de Chimie biologique.

This federation has already commenced work. The chief task that it has set for itself is the creation of five categories for the purpose of bibliographic documentation: (1) botany; (2) anatomy and embryology; (3) zoology; (4) general biology; and (5) physiology. Whether this system of documentation shall be founded on an entirely new basis, or whether an adaptation of the systems as they exist at present shall result, it would seem that so vast a program could not well be realized by one nation alone. The creation by an interallied agreement of a bibliographic office would therefore be desirable.

#### Dental Attention and Gratuitous Medical Attention

Senator Henry Cheron has just introduced a bill in the senate which provides that dental attention shall be included in the law pertaining to gratuitous medical assistance.

#### MADRID LETTER

MADRID, Aug. 19, 1919.

#### Ferrán's Antituberculous Vaccination

Physicians may recall the so-called Ferrán campaign, when in 1885 at the acme of a cholera epidemic, Jaime Ferrán, a physician from Catalonia, began to make in Alcira, Valencia, injections of vaccines or dead cultures of cholera germs. On that occasion, Alcira remained free from the epidemic that played havoc with the neighboring towns, and it has always been grateful to Ferrán. In that campaign Spanish physicians were divided into two partisan groups. As soon as the epidemic was over, Ferrán isolated himself in his laboratory and began to concern himself with the prevention of tuberculosis. To this he has devoted himself since. He has now decided to submit his laboratory results to the fullest clinical investigation. To show the harmlessness of his new vaccine, he has repeatedly injected himself, his wife, his 30-month-old child, his relatives and his pupils. He has obtained a promise of the government, in which the minister of the interior, Dr. Jimeno, was his former assistant, that the authorities would not oppose his carrying out experiments on a larger scale. He decided to do this in Alcira in remembrance of his campaign there in 1885. August 7, accompanied by his wife and a number of prominent physicians from Madrid, Barcelona and Valencia, among whom were Dr. Martínez Vargas, former president of the University of Barcelona, Dr. Pastor, the president of the University of Valencia and also the president of the Medical Association of Valencia, he went to Alcira to begin

his investigation there. Dr. Pulido, the president of the board of health of Spain, acted as secretary. In this capacity Dr. Pulido stated that as this was an experimental study which presented no dangers, as shown again and again by the investigator, the sanitary authorities were interested and did not want to hamper with delays due to red tape. More than half of the total population of the town were vaccinated, the vaccinations amounting to 14,000 and the revaccinations to 500. The work yet to be done is the collection of statistics and the compilation of observations.

#### SCIENTIFIC FOUNDATION FOR FERRÁN'S ANTITUBERCULOSIS VACCINE

What is the scientific basis of Ferrán's new vaccine? I have interviewed him in order to get this information for THE JOURNAL. There are bacteria which change on growth in various nutrient mediums. Among these are the types of *B. coli*, the typhoid fever bacillus and the misnamed Pasteurella. The virulence of the different bacteria seems to depend on the medium in which they develop. When the organisms do not cause death, they become adapted to antigen immunizes against the inflammatory effects produces the syndrome of the pretuberculous state. These strains are agglutinated by antituberculous serum. In its turn, the serum obtained through the utilization of such bacteria as antigen immunizes against the inflammatory effects, produced by the albuminoid toxins of the tubercle bacillus. On the contrary, it does not exercise any apparent action against the sclerotic and caseous changes produced by the lipid toxins of the same bacillus. There are some varieties of these germs which become so naturalized in the intestine that they finally form part of our intestinal flora. When they induce acute processes they are easily isolated, but it happens otherwise in chronic cases. Ferrán insists that these germs are deeply modified by the medium in which they live for several generations. *The nontoxic strains immunize the body against the action of virulent ones.* The multiple infectious processes which they cause can be healed if they are used as a vaccine, either in the form of killed nontoxic cultures or with antitoxic serum obtained from them. The infectious produced by them are very frequent in young animals and men, because these germs, the habitat of which is the intestine, are widely disseminated in nature and because we are born without specific immunity against them. Many of these bacteria, Ferrán believes, can transform themselves into tubercle bacilli in the organism which they are infecting, thus causing the phenomenon of a change of species through sudden mutation. The effort required to accomplish this is so great that very few bacilli can perform it; for this reason, and because the bacilli thus originated are not virulent at the start, instead of causing tuberculosis they are digested and assimilated by the organism as fast as they are produced. This assimilation, he says, makes the body sensitive to tuberculin without being actually tuberculous. We become tuberculous when these mutations are frequent or the resulting tubercle bacilli are virulent. As the albuminoid toxins which are produced by the nonacid-fast bacteria confer a certain immunity against the toxins of the tubercle bacillus, when this germ appears it will find the organism more or less well immunized, and the disease will be more or less acute according to the degree of immunity thus acquired. The tubercle bacillus, grown in series in broth, retains during many generations its most typical characteristics; but after a large number of transformations it ends by losing them and becoming a nonacid-fast bacillus, i. e., what it was before it became an acid-fast bacillus. This property, therefore, constitutes an assumed character which certain nonacid-fast bacteria can use to disguise themselves.

Since tuberculosis must necessarily be preceded by an infection with nonacid-fast bacteria which are endowed with great immunizing power, it will be enough to immunize against these in order to become protected against tuberculosis and in addition against all the processes which such nonacid-fast bacteria can produce.

#### College for Physicians' Orphans

This month there has been inaugurated in Madrid a college for the needy orphans of physicians. This is an official foundation named after the Principe de Asturias, which was created by a royal decree suggested by Dr. Cortezo. Into this orphan institution, there are admitted the children of physicians who die without leaving any resources to educate their children, something which unhappily happens very often. The funds to support this asylum are furnished by the Colegios de Médicos (medical guilds) which in turn

obtain them, chiefly through the fees for the use of the so-called seal of the Colegios de Médicos, which it is necessary to attach to all official certificates signed by physicians in regard to public health matters, diseases and deaths. Thirty children have already been admitted to the college, all of whom are receiving the best of care. The board of trustees is presided over by Dr. Cortezo, and the treasurer is Dr. Isla Boromburo, dean of the provincial board of charities of Madrid.

### LONDON LETTER

LONDON, Sept. 10, 1919.

#### Women in Industry

Last September the prime minister appointed a war cabinet committee on women in industry. To the committee Dr. Janet Campbell, medical officer to the board of education, presented an able memorandum. Her conclusions are as follows: The average woman is physically weaker than the average man. She cannot compete with him satisfactorily in operations requiring considerable physical strength, while competition in operations of a less arduous but still exacting character may be detrimental to her health in that her power of endurance and her reserve energy are usually less than a man's; and she is often compelled to spend time and strength on domestic tasks which do not fall to his lot. The second fundamental physiologic difference is potential or actual motherhood. This governs to a large extent her industrial power, efficiency and value, and prevents equal competition with men in industry. The conditions under which men and women were employed before the war were not such as to enable them to develop full health and vigor. Low wages, long hours, an inadequate dietary, and lack of exercise in the open air resulted in physical and industrial inefficiency and caused too low a value to be placed on woman's strength and capability. Employment under the conditions existing in the past has probably had an injurious effect on women, though it is difficult to dissociate this from social conditions generally. The insurance act disclosed a large and unsuspected amount of sickness among employed women which compares unfavorably with men. The rise during the war of the tuberculosis death rate among urban women suggests that any considerable increase in the number of women employed and in the period of their employment may cause the female death rate to approximate that of the male. The effects of employment on motherhood are not easy to determine with exactitude. The direct result on the reproductive system is probably largely negligible, except in the case of the multipara engaged in heavy or fatiguing work. The indirect effect is considerable impairment of the general health and vitality. The increasing employment of women has probably accelerated the steady decline of the birth rate observed since 1876. The influence of employment on infant mortality is not clear. Employment of the expectant and nursing mother may react on her personal health by imposing a double burden. But employment under suitable conditions is not in itself injurious to the pregnant woman, while the money earned may enable her to be properly fed. Employment under war conditions has emphasized the importance to health of good food, clothing and domestic comfort, which can be obtained when the wages represent a reasonable recompense for labor. It has been proved that properly nourished women have a much greater reserve of energy than they have been credited with, and that they can be advantageously employed on more arduous occupations than considered desirable in the past. Direct supervision of the health of industrial workers was almost nonexistent before the war. War conditions have emphasized the need for more effective supervision and for research into the cause of industrial fatigue and the methods of preventing occupational diseases. Factory hygiene must become a part of the general system of preventive medicine, which is likely to be the most important branch of medicine of the future.

#### Demonstration of Artificial Limbs

A large audience of men disabled by the loss of limbs in the war attended a meeting convened by the British Red Cross and the London War Pensions Committee to witness a demonstration of the use of artificial limbs. Illustrations were shown by the cinematograph of the use of and proficiency in artificial limbs, and demonstrations were given by two Americans who had overcome what might have seemed insurmountable difficulties. One was Judge Corley of Texas, who had lost the right arm and shoulder and left arm below the elbow in a railway accident. Without financial resources he reeducated himself and learned a new way of earning a

living. He studied law and politics and was elected county judge. He demonstrated the mechanism of the hook attachment to the left elbow, which he had invented and perfected himself, by which he could do all the things that ordinary people could do. He could garden, play croquet, swim, and drive an automobile. He was independent of help. His trouble was that people would insist on helping. Mr. Michael Dowling, president of the Olivia State Bank, Minnesota, said that at the age of 15 he was frozen in a blizzard, resulting in the loss of both legs below the knee, the left arm below the elbow, and the fingers of the right hand, leaving only a third of the thumb—a bit of thumb which he explained was worth a million dollars. A son of Irish emigrants, he was without means and without relatives. He was boarded out at public expense for two years, but got his chance by getting two terms in a college, on which he founded his self-education and subsequent career. He is an expert motorist and can do everything that an ordinary person can do except tie a bow-tie.

#### Tuberculin Still a Doubtful Remedy

It is disappointing to find that after the immense amount of research devoted to vaccine therapy in general and tuberculin in particular the value of the latter should still remain doubtful. A report on the sanatorium and tuberculin treatments for consumption has been issued by the Medical Research Committee. It is found that sanatorium treatment does not restore the patients to the average health of the general population. As to tuberculin, many who received the treatment made good recoveries, but there are no grounds for supposing that they would not have progressed as satisfactorily had the injections been withheld. This conclusion is described as "distinctly disappointing."

Charles Arthur Mercier, M.D., F.R.C.P. (Lond.),  
F.R.C.S. (Eng.)

Dr. Mercier, the alienist and criminologist, has died in his sixty-seventh year. Like many distinguished Englishmen, he was of Huguenot stock. The son of a clergyman who died leaving the family in poor circumstances, he began life as a cabin boy and later became clerk in a London warehouse. He reached a position which enabled him to follow his bent to study medicine. He joined the London Hospital and came under the influence of Hughlings Jackson and specialized in psychology. He was appointed medical officer in two large public asylums and then resident physician in a private asylum. A logical and incisive writer and a keen controversialist, he was the foremost authority on the legal aspect of insanity. In 1909 he was awarded the quinquennial Swiney Prize by the College of Physicians for the best work on jurisprudence. This was his book on "Criminal Responsibility in the Insane." In the present year he received the same distinction for his work on "Crime and Criminals." Other works from his pen, which have all achieved fame, are "Sanity and Insanity," "The Nervous System and the Mind," "Lunacy and Law for Medical Men," "Psychology, Normal and Morbid," and "Textbook of Insanity." In 1910 he entered into another field and published his "New Logic," in which he attacked the Aristotelian logic with great vigor, though not with great success. His definition of crime as "due to temptation or opportunity, the environmental factor of stress, acting on the predisposition of the offender, the inherent or constitutional factor," may be taken as a typical example of his capacity for analysis and clear and logical thinking.

## Marriages

LEO BRISON NORRIS, Lieut. M. C. U. S. Navy, Washington, D. C., to Miss Marion Hlungertorf of Marshall, Md., September 16.

EUGENE HENRY McCAFFREY, Des Moines, Iowa, to Miss Margaret Alice Carroll of Davenport, Iowa, September 24.

ROSS RYNSOLDS MAY, Whitewright, Texas, to Miss Pauline Lenox of Pendleton, Ark., at Pine Bluff, Ark., August 27.

NATHANIEL W. WINKELMAN, Philadelphia, to Miss Lillie C. Gabel of Savannah, Ga., at Philadelphia, September 16.

SIDNEY YANKAUER, New York City, to Miss Margaret Irene Kerriss, in New York City, September 22.

ROBERT CULLEN GOOLSHY, Forsyth, Ga., to Miss Margaret Laney of Columbus, Ga., September 2.

## Deaths

**August Hoch**, Montecito, Calif., well known as a psychiatrist, died in the University Hospital, San Francisco, from nephritis, September 25. Dr. Hoch was born in Basle, Switzerland, April 20, 1868, and came to America in 1887, having had the training of the Gymnasium at Basle. He received his medical degree at the University of Maryland in 1890. Subsequent to his graduation he worked in the Johns Hopkins University from 1890 to 1893 and at the Universities of Strassburg, Leipzig and Heidelberg in 1893 and 1894. Returning to the United States he became assistant physician in the MacLean Hospital, Waverly, Mass., from 1893 to 1905, acting as instructor in neuropathology at the Tufts Medical School, Boston, during the last three years in this service. He was assistant physician to the Bloomingdale Hospital at White Plains, N. Y., for four years acting at the same time as instructor in psychiatry in the Cornell University Medical School. In 1909 he became professor in the same school, which position he held until 1917, serving also as director of the Psychiatric Institute of the New York State Hospital for the Insane at Ward's Island, N. Y. He was a member of the American Neurological Society, the American Psychological Association and the American Medical-Psychological Association. In 1917 because of ill health he went to California, continuing however, to carry on considerable literary work in his specialty. He was for a time on the editorial staffs of the *Journal of Abnormal Psychology*, *Mental Hygiene* and the *Psychiatric Bulletin*. On the foundation of the *Archives of Neurology and Psychiatry*, he became a member of the editorial board, and up to the time of his death, devoted much time and effort to work in connection with this publication. Dr. Hoch was regarded as one of our leading psychiatrists, as a man with well balanced conservatism which prevented him from being swept off his feet by the radical movements which have occurred in modern psychiatry during the last decade.

**Joseph Henry Reuss** \* Cuero, Texas; College of Physicians and Surgeons in the City of New York, 1889; aged 52; a specialist in surgery and gynecology; for many years head of the Marsalis Hospital, Dallas, Texas, and later proprietor of the Reuss Memorial Hospital, Cuero; chief surgeon of the San Antonio and Aransas Pass Railroad; formerly president of the South Texas Medical Association; a member of the Board of Medical Examiners of the State of Texas from 1901 to 1905; for several years president of the Cuero Commercial Club; died in the Rice Hotel, Houston, Texas, September 17, from acute gastritis.

**Charles Martin Troppmann**, San Francisco; California Eclectic Medical College, Los Angeles, 1897; College of Physicians and Surgeons, San Francisco, 1900; aged 56; adjunct professor of materia medica, pharmacology and prescription writing, and later professor of pediatrics in the College of Physicians and Surgeons, San Francisco; died at his home, September 20.

**Howard F. Pyfer** \* Norristown, Pa.; Jefferson Medical College, 1897; aged 47; a specialist on diseases of the eye, ear, nose and throat; otologist to the Charity Hospital, Norristown; and laryngologist and ophthalmologist to the Norristown State Hospital; also a pharmacist; died at his home, September 5, from bronchopneumonia.

**Theodore F. Brown**, Sandford, Ind.; Indiana Eclectic Medical College, Indianapolis, 1886; aged 75; a practitioner since 1865; a veteran of the Civil War during which he served in the Seventy-First Indiana Infantry, and Sixth Indiana Cavalry, and was a prisoner in Andersonville, Ga.; died at his home, September 1.

**Alexander Agnew Thomson**, Carlyle, Pa.; Jefferson Medical College, 1864; aged 78; treasurer of Cumberland County in 1875; later sheriff, deputy clerk of the courts; in 1890 appointed postmaster, and once county sealer of weights and measures; died at his home, September 15.

**William H. H. Schrock**, Stoyestown, Pa.; Eclectic Medical Institute, Cincinnati, 1908; aged 39; a member of the Medical Society of the State of Pennsylvania; died in the Johnstown Memorial Hospital, August 11, from embolism following an operation for appendicitis.

**Alexander A. McNeil**, Brooklyn; Ensworth Medical College, St. Joseph, Mo., 1898; aged 45; superintendent of the Brooklyn Gas Company; died at the home of his mother in St. Louis, September 8, from meningitis following influenza.

**Patrick James Byrne**, Cleveland; Western Reserve University, Cleveland, 1893; aged 53; coroner of Cuyahoga County, Ohio, for seven years, and a pioneer in the "safety first" movement; died at his home, September 14, from ptomaine poisoning.

**Benjamin Almerin Green**, Longmeadow, Springfield, Mass.; College of Physicians and Surgeons, Boston, 1910; aged 39; an associate Fellow of the American Medical Association; also a dentist; died at his home, September 3.

**Peter S. Clark**, Darien, Ga. (license, Georgia, 1881); aged 62; city physician of Darien, and physician of McIntosh County, Ga.; died in a hospital in Savannah, Ga., September 12, after an operation for appendicitis.

**Hartley Ames Reed**, Fort Ritner, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1904; aged 47; while returning from Albuquerque, N. M.; died on a Santa Fe train, near Chicago, September 11.

**Charles W. Laciari**, South Bethlehem, Pa.; College of Physicians and Surgeons, Baltimore, 1894; aged 48; proprietor of the Bethlehem Bill Posting Company; died at his home, September 9, from heart disease.

**George Davis Swett**, Albany, Ohio; Eclectic Medical Institute, Cincinnati, 1897; aged 48; a member of the Ohio State Medical Association; died at his home, September 14, from heart disease.

**Hamilton Price Duffield** \* Marshalltown, Iowa; Rush Medical College, 1870; aged 74; for many years chief surgeon of the Iowa Soldiers' Home, Marshalltown; died in Omaha, September 7.

**James A. Dickey**, Bristol, Tenn.; American Medical College, St. Louis, 1889; aged 69; a practitioner for nearly half a century; died at his home, September 4, from cerebral hemorrhage.

**Felix B. Hunter**, Falkville, Ala.; Vanderbilt University, Nashville, Tenn., 1881; aged 59; a member of the Medical Association of the State of Alabama; died at his home, August 31.

**Alonzo Maywood Forsythe** \* Maynard, Ohio; Ohio Medical University, Columbus, 1903; aged 51; a specialist in obstetrics; died in Corry, Pa., August 29, from cerebral hemorrhage.

**Charles William Noble**, Dallas, Iowa; St. Louis College of Physicians and Surgeons, 1893; aged 57; also a druggist; was found dead in his office, September 10, from cerebral hemorrhage.

**James Townsend Wolfe**, New Orleans; Tulane University, New Orleans, 1901; a member of the Louisiana State Medical Association; was shot and killed by his wife, September 5.

**Francis M. Smiley** \* Kewanee, Ill.; Rush Medical College, 1879; aged 60; a specialist in diseases of the eye and ear; died in his office, September 15, from cerebral hemorrhage.

**Brinsley Collins Graves**, Cisco, Ill.; Missouri Medical College, St. Louis, 1885; aged 67; died at the home of his brother in Sturgeon, Mo., September 8, from cerebral hemorrhage.

**Francis Marion Smith** \* Refugio, Texas; Memphis (Tenn.) Hospital Medical College, 1902; aged 44; died in the Victoria (Texas) Hospital, September 6, from cerebral abscess.

**William H. H. Roberts**, Grovania, Ga.; Jefferson Medical College, 1860; aged 80; captain in the Confederate service during the Civil War; died at his home, August 28.

**James Hays**, Dayton, Ohio (license, Ohio, 1896); aged 82; a surgeon of U. S. Volunteers during the Civil War; died at the home of his son in Evanston, Ill., September 15.

**Abraham L. Hoover**, Denver; College of Physicians and Surgeons, Keokuk, Iowa 1873; aged 77; died at his home, September 11, from carcinoma of the rectum.

**James W. Good** \* Paden City, W. Va.; University of Louisville, Ky., 1894; aged 61; was killed in a runaway accident near Sistersville, W. Va., September 7.

**Stanley L. Baird**, Phoenix, Ala.; Homeopathic Medical College of Missouri, St. Louis, 1903; aged 43; died at his home, August 26, from pneumonia.

**Charles O. Arnold**, Osage City, Kan.; Chicago Physio-Medical Institute, 1887; aged 62; died at his home, August 31, from cerebral hemorrhage.

**John P. Burford**, Indianapolis; Medical College of Indiana, Indianapolis, 1879; aged 71; died at the home of his brother in Indianapolis, September 13.

**Joseph Vincent Antill**, Philadelphia; Jefferson Medical College, 1889; aged 66; died at his home, September 9, from angina pectoris.

\* Indicates "Fellow" of the American Medical Association.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### FORMALDEHYDE LOZENGES

#### Report of the Council on Pharmacy and Chemistry

The Council has voted Hex-Iodin (Daggett and Miller Co., Inc., Providence, R. I.), Formitol Tablets (E. L. Patch Co., Boston), and Cin-U-Form Lozenges (McKesson and Robbins, New York City) inadmissible to New and Nonofficial Remedies, and authorized publication of the report which appears below.

W. A. PUCKNER, Secretary.

Some years ago, the Council published (THE JOURNAL A. M. A., Aug. 28, 1915, p. 816) a report on Formamint, a proprietary medicine widely exploited as a peculiar chemical compound of sugar of milk and formaldehyde. The formaldehyde was said to be liberated slowly by the action of the saliva, and because of this liberation of formaldehyde, Formamint was claimed to be a powerful germicide. Extravagant claims were made for its curative and prophylactic effects. The Council found that the therapeutic claims were grossly unwarranted and that its exploitation to the public was a public danger.

During the recent epidemic of influenza, a variety of tablets or lozenges were advertised, and are still being advertised, having formaldehyde, in some form or other, as the nucleus around which revolve the therapeutic claims. In some cases, the advertising clearly indicates the character of the formaldehyde compound that is claimed to be present; in others the statements are vague and indefinite or misleading.

It is hardly necessary to remind physicians that the use of tablets containing hexamethylenamin or other formaldehyde compounds can neither cure respiratory infections, nor even confer protection against such infections. To be effective, formaldehyde would need to be supplied to the entire respiratory tract continuously for some time or else in concentrations that would be distinctly irritant and damaging to the tissues. Saliva-dissolved tablets, obviously cannot reach the nasal or tracheal mucosae directly; and the application of quickly acting concentrations of formaldehyde is out of the question. This altogether aside from the fact that hexamethylenamin, the basis of some of these tablets, does not liberate formaldehyde in the mouth, and for this reason alone would be quite useless for this purpose! (See Handlik and Collins, *Archives of Internal Medicine*, November, 1913.)

An inefficient antiseptic is more than merely useless; it is a menace to public safety, in that it tends to lead to the neglect of rational and effective protective measures. It therefore seems advisable for the Council again to call the attention of physicians to the subject. Accordingly, three specimens of these products were purchased and examined in the Association's Chemical Laboratory.

#### Hex-Iodin

Hex-Iodin (Hexamethylenetetramine and Iodum) Lozenges are manufactured by Daggett and Miller Company, Inc., Providence, R. I. They weigh 15½ grs. each, are sweetened and are flavored with mint or menthol. The package and circulars do not contain a definite statement of composition. The rather indefinite synonyms "Hexameth. and Iodine Comp." and "Hexamethylenetetramine and Iodum" suggest that the lozenges contain hexamethylenamin and free iodine. The further statement that they "contain the combined medicinal antiseptic and prophylactic properties of Hexamethylenetetramine and Iodum" is also rather indefinite. The therapeutic action claimed for the lozenges, however, could

only be produced by free iodine and by liberated formaldehyde.

It is unnecessary to discuss in detail the extravagant claims made for these lozenges. The inefficiency of hexamethylenamin has already been referred to; the limitations of iodine, free or combined, in lozenge form, need not be discussed because the examination made in the A. M. A. Chemical Laboratory showed that Hex-Iodin lozenges contained no free iodine, and only traces of combined iodine. Neither formaldehyde nor paraformaldehyde was present; hexamethylenamin was present but, the lozenges being neutral no formaldehyde is generated in contact with water or with the alkaline saliva.

Thus Hex-Iodin is shown to be worthless for the purpose for which it is advertised. Of the two important ingredients said to be present, iodine and hexamethylenamin, only traces could be found of the former while the latter, as has been shown, is incapable of exerting any effect when used as the manufacturers direct.

#### Formitol Tablets

These tablets are prepared by the E. L. Patch Co., Boston. Each tablet weighs 13¼ grs. They have the odor of thymol or menthol and an acid taste and reaction. They are, according to the label:

"For the throat and mouth. Soothing, Astringent, Antiseptic. Rapidly destroys germs of infection, preventing and relieving sore throat and mouth."

In a circular, it is stated, that one of the qualities of Formitol:

"... is the generation of formaldehyde when in contact with water or the saliva."

"Besides generating formaldehyde, Formitol, Patch contains astringent, demulcent and soothing ingredients which render the combination unusually effective."

A bacteriologic report is given in this circular in which it is stated that, in 2½ minutes one Formitol Tablet rendered sterile a plate culture of a "characteristic throat micrococcus." The instructions are to dissolve a tablet in the mouth, slowly, once an hour or a half-tablet every half hour.

The A. M. A. Chemical Laboratory reported that Formitol Tablets contained formaldehyde (or paraformaldehyde), an ammonium compound, and some hexamethylenamin. It is probable that the formaldehyde (or paraformaldehyde) was produced by the decomposition of hexamethylenamin originally present in the tablets but decomposed by long contact with the acid.

These tablets differ from Hex-Iodin in that they really contain active formaldehyde and, therefore, possibly produce antiseptic effect in test-tube cultures. The conditions in the mouth, however, are very different from those in the test-tube, since in the mouth the formaldehyde would be immediately "bound" or absorbed. The claimed absence of irritation indicates sufficiently the absence of efficient quantities of formaldehyde under clinical conditions.

#### Cin-U-Form Lozenges

Cin-U-Form Lozenges, manufactured by McKesson and Robbins, New York City, are marketed in bottles of 24 or 25 cents. They have a strong odor of cinnamon, weigh 15½ grs. each, and are acid in taste and reaction. The label states that they contain:

"Cinnamon, Eucalyptus, Formaldehyde and Menthol—all powerful germicides against influenza bacilli, but not injurious to the system in this palatable form."

A circular contains the same statement as to composition and claims further that they:

"... help to prevent the infection of Spanish Influenza, Pneumonia, Grip Colds and to guard against Sore Throat, Tonsillitis, Pharyngitis, etc."

The A. M. A. Chemical Laboratory reported that Cin-U-Form Lozenges contained some formaldehyde (or paraformaldehyde) and no hexamethylenamin. It is obvious that the mouth and throat cannot be "disinfected" by these lozenges. They would be totally ineffective against bacteria that enter through the nose; they cannot prevent influenza, pneumonia, etc.

## Correspondence

### SPOILED CANNED FOODS AND BOTULISM

To the Editor:—In the *Journal of Medical Research* for January, 1919, there appeared an article, "The Bacteriology of Canned Foods," by Dr. John Weinzirl; and an abstract was printed in *THE JOURNAL*, April 5. This paper is a report on the bacteriologic findings in 1,018 samples of factory canned foods. The salient features in the summary to the paper are as follows:

1. About 17 per cent. of the cans examined were spoiled and 6 per cent. underprocessed, the balance being normal edible cans of food.

2. Viable bacteria, bacterial spores, yeasts and molds, representing thirty-eight species, were found in the spoiled and underprocessed cans and in 23 per cent. of the normal cans.

3. The organisms recovered from the cans were obligate anaerobes, obligate aerobes and facultative anaerobes.

4. The organisms found in the unspoiled cans were practically all spore-bearing obligate aerobes.

5. The organisms found in the spoiled and underprocessed cans included both spore bearers and nonspore bearers. The spoilage of cans of fruits and vegetables is attributed to yeasts and anaerobes. Spoilage of the sardines is considered as due to facultative anaerobes of the colon group which enter the cans in the intestine of the fish.

6. It is stated by the author that cans containing anaerobes are likely to spoil before leaving the packer, owing to the favorable anaerobic conditions present in a perfectly sealed can, and that, therefore, such cans would rarely reach the market. Anaerobes are also "apt to decompose food and cause putrid odors."

7. Aerobic organisms are not considered a source of spoilage except in the case of sardines, because they consist mainly of spore-bearing obligate aerobes and, while the spores are not killed by the processing, growth is prevented by the anaerobic conditions prevailing in the cans.

8. The presence of living organisms in the cans is due to insufficient sterilization rather than to leakage.

9. Members of the paratyphoid-enteritidis group and *B. botulinus* were not found in the cans examined.

Dr. Weinzirl draws the following conclusions as the result of his work:

"1. Commercial canned goods as found in the markets are not always sterile, but may contain viable spores of bacteria.

"2. The living spores found in commercial canned goods are unable to grow in the food due to the absence of oxygen.

"3. The vacuum is essential to the preservation of canned food under present methods of processing.

"4. Food poisoning organisms, such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned foods."

From the standpoint of the consumer, the paper is open to a number of criticisms. Perhaps the most fundamental one is in regard to the restricted and therefore misleading use of the term "commercial." To the lay mind the term commercial canned is synonymous with factory canned foods as opposed to home canned foods. But Dr. Weinzirl restricts the term to refer to those factory canned goods in which no spoilage has been detected and which are still being offered for sale. As soon as spoilage is detected and the can removed from the stock or returned by the purchaser, it automatically ceases to be a "commercial" can and becomes a spoiled sample. He admits, however, that spoilage is not always detected and that some spoiled cans remain on the market as commercial cans. Three such spoiled cans are included among the "commercial" or unspoiled cans which he examined. But for some unexplained reason he made bacteriologic examinations of only two of these cans, while the third can, which was the only one suggesting botulinus spoilage was not examined. This is unfortunate in view of the conclusions he derives from his work.

The point that I wish to make clear is that when Dr. Weinzirl says that "*B. botulinus* is not found in commercial

canned food," he means that it is not found in unspoiled factory canned foods. The consumer is likely to draw the conclusion that *B. botulinus* is never found in factory canned foods. A miner or engineer buying a large stock of canned foods to be used months hence would be lured into a false sense of security as regards factory canned foods.

We might just as readily and with as much safety to the consumer divide home canned foods into two groups similar to the "commercial" and "spoiled" samples of Dr. Weinzirl's, and draw the same conclusions concerning them. This would, however, be most misleading and dangerous to the public. There is no sharp line of demarcation between the spoiled and the unspoiled. There is a period during the spoiling process when food is only slightly suspicious, and whether it is eaten or not depends entirely on the alertness of the consumer. A number of women have died of botulism because they tasted canned food to see if it was spoiled, and others have died because the cook failed to detect the spoilage.

Unless the canners can show that no spoilage from *B. botulinus* occurs in factory canned foods, the consumer of such products is no more safe from botulism than the person who eats home canned foods. For it can be said of home canned foods, quite as truly as of commercial canned foods, that *B. botulinus* has never been found in normal cans showing no signs of spoilage. The occurrence of botulism from the eating of slightly spoiled home canned foods was established by examination of necropsy material and of cans showing signs of botulinus spoilage, and not from an examination of normal cans selected at random.

A second criticism of the paper concerns Dr. Weinzirl's justification for the statement that *B. botulinus* is not found in unspoiled factory canned goods.

The total number of "commercial samples" examined was 782 out of a total pack estimated by Dr. Weinzirl as 250,000,000 cases, or more than a billion cans. This is too small a percentage on which to base a conclusion in regard to so vital a subject as food poisoning.

The technic used is open to criticism. The result would be more convincing if the author had made tests for the specific botulinus toxin to substantiate his bacteriologic findings. The most reliable method of demonstrating the presence of *B. botulinus* is to test both the contents of the can and the cultures made from the contents of the can for the specific toxin, rather than to depend entirely on the isolation of the organism. In our own experience we have been able to demonstrate the presence of *B. botulinus* toxin in jars of home canned food from which we failed to isolate the organism. Also the author does not state how long he incubated his cultures before reporting negative findings. In examining recently processed cans it would be necessary to take into account the inhibiting effect of heat on the development of the spores of *B. botulinus*.

No data are given by Dr. Weinzirl as to the length of the periods that had elapsed between the processing of the cans and the making of the bacteriologic examinations. This point is important since it might be assumed that anaerobes if present would develop quickly, owing to the excellent anaerobic conditions present in sealed cans. In tests made to determine the resistance to heat of the spores of *B. botulinus* (*THE JOURNAL*, Jan. 11, 1919, p. 88), it has been shown that development of the spores is inhibited in direct proportion to the length of exposure and intensity of the heat. After exposure to steam at a pressure of 10 pounds for twenty minutes and 15 pounds for ten minutes, the spores of the most resistant strains of *B. botulinus* in my collection remain dormant for fifty and fifty-three days, respectively, at 28 C., and then develop quickly and normally and produce toxin. Strains which are killed by lower temperatures do not lie dormant for so long a period when injured by heat. Fifty days, therefore, represents approximately the limit of heat inhibition. Allowing a month for signs of spoilage to become apparent in the cans, it is evident that at ordinary summer temperatures the bulk of cans containing *B. botulinus* will show signs of spoilage within three months after being processed. If a canner's pack is kept three months and then a few of the unspoiled cans are examined, there will be small chance of isolating *B. botulinus*. On the other hand, if

unspoiled cans are examined before the end of two months and, in incubating, allowance is not made for the inhibitory action of heat, there will be small chance of isolating the organism. Such examinations cannot serve as an adequate basis for drawing conclusions as to the presence or absence of *B. botulinus* in factory canned foods. Dr. Weinzirl gives no data as to the age of his "commercial" samples. He lists three spoiled "commercial" samples, but does not give a bacteriologic examination of the most suspicious one of them.

From a consideration of the foregoing, I am of the opinion that Dr. Weinzirl furnishes very unsatisfactory evidence on which to base his conclusion that food poisoning organisms, such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned goods.

I believe we are justified in assuming, until it has been proved otherwise, that *B. botulinus* will occasionally be present in factory canned foods for the following reasons:

1. It frequently occurs in the garden, and there is no reason for assuming that it is not carried into the cans along with the other bacteria (Burke, G. S.: Occurrence of *B. Botulinus* in Nature, *J. Bacteriol.*, September, 1919).

2. The spores of *B. botulinus* are highly resistant to heat, and the canning processes are not sufficient to destroy them. There is nothing inherent in the factory methods of canning to make these products less subject to contamination with *B. botulinus* than home canned foods.

3. The spores of *B. botulinus* are inhibited by heat, and cans that are put on the market in less than two months may contain such spores. While the bulk of spoilage is probably apparent within three months after processing if the cans are kept at a temperature of 22 C. or above, there may be other inhibiting factors not yet determined which would still further delay development. If the cans are kept at a low temperature, as in cold climates, development will be delayed indefinitely.

4. Cans containing organisms which later cause their spoilage do get on the market, as is evident by frequent lawsuits over the spoilage of goods. Also such spoiled "commercial" cans are responsible for cases of food poisoning, although Dr. Weinzirl states that "although the public press in America has reported cases of food poisoning attributed to canned goods, it may be stated at the outset that this is mere assumption which has never been established by scientific research." This is not altogether true. The syndrome in cases of botulism in human beings and in chickens is well established, and the connection of the disease with spoiled canned fruit and vegetables has been demonstrated beyond all question in outbreaks caused by home canned goods. In regard to outbreaks of food poisoning from factory canned foods to which, of course, Dr. Weinzirl refers although he uses the general term "canned foods," I should like to describe a case of which I have personal knowledge:

In San Rafael, Calif., in April, 1918, a woman and several chickens developed typical symptoms of botulism three days after eating factory canned corn. This corn had been slightly warmed and did not taste foul. The woman recovered slowly, but two of the chickens died on the fourth day. One of these was sent to me for examination. An examination of the crop and gizzard contents was negative for *B. botulinus*. In view of the typical clinical picture in both the woman and the chickens and the record of spoiled canned food being eaten three days before the onset of the disease, this negative finding, although very disappointing, cannot be looked on as casting doubt on the physician's diagnosis.

In many cases of food poisoning similar in every respect to the San Rafael case except that the poisonous food was home canned instead of factory canned, *B. botulinus* has been isolated from the crops and gizzards of the dead chickens and from spoiled cans of the same pack. I have not always been successful in isolating the organism from all the dead chickens. In one case the organism was isolated from seven out of ten chickens, but in another case from only one out of twelve chickens. Obviously, the negative finding in the San Rafael chicken means little. In the case of factory canned goods it is impossible to trace other cans of the same pack.

The San Rafael case was reported as botulism by the physician in charge to the state board of health and to the

U. S. Bureau of Chemistry, and the stocks of the local grocer were searched for other suspicious cans. It seems unfortunate that an expert working for the National Camers Association should not have heard of this case or, having heard of it, should ignore it.

With our present knowledge we must assume that there is a decided possibility of *B. botulinus* being present in factory canned products, and that some of these cans will reach the consumer.

The time is ripe for a thorough investigation of spoilage in factory canned foods to determine if *B. botulinus* is ever present. This will determine the advisability of requiring canners to keep their products at a favorable temperature for three months before placing them on the market.

It is also essential that all cases of food poisoning attributed to factory canned products be investigated with the object of proving conclusively that the poisoning is due to the toxin of *B. botulinus*, or if not to the toxin of *B. botulinus*, to some other definite substance. Physicians, health officers and veterinarians throughout the country can make this possible by familiarizing themselves with the clinical features of botulism (Monograph 8, Rockefeller Institute) and reporting all such cases to the U. S. Department of Agriculture, Bureau of Chemistry, at Washington, D. C., or to Stanford University, Calif., or to other investigators working on the problem. Samples of the spoiled food, dead chickens or necropsy material should be sent to these laboratories together with a full report of the clinical history of the case, brand and condition of the food eaten. It is only by cooperation between the physicians and health officers and the laboratories that the question can be quickly and satisfactorily cleared up. I consider it only a question of time until the connection of botulism with factory canned products is fully and satisfactorily established.

Dr. Weinzirl's paper is important in that it indicates very clearly that factory canning processes are not sufficient to sterilize the contents of the cans, and that therefore spores which are highly resistant to heat, such as the spores of *B. botulinus*, may survive the processing.

I do not wish to minimize the efforts which first class canners are making to put out a good and safe product, nor do I wish to exaggerate the danger of spoiled foods reaching the consumer. Botulism is of comparatively rare occurrence, even from home canned foods, because most people are critical of their food.

The canners and their bacteriologists, however, are not justified in denying the occurrence of botulism from commercially canned foods until they have proved that spoilage from *B. botulinus* never occurs in factory canned foods, and until they have given some other adequate explanation of the cases of food poisoning attributed to factory canned products which are to all clinical appearances botulism.

GEORGINA S. BURKE, Stanford University, Calif.

#### AN AMPLIFICATION OF YOUNG'S RULE

*To the Editor*—The inadequacy of Young's rule when it is desirable to determine the dosage of medicines for infants not exactly 1 year or 2 years of age is felt by most physicians. The difficulty is met by each in his own way, usually entailing the memorizing of doses given by some authority for the different ages.

I wish to submit a modification or amplification of this rule by which the dosage can be calculated for any age in months with the same degree of accuracy as with years.

Take the age of the infant in months and add 144 instead of 12, proceeding as with the old rule. For example, the dosage at five months is thus obtained:

$$5+144=149 \div 5=30 \text{ approximately, or } \frac{1}{10} \text{ of the adult dose.}$$

For a baby of 16 months:

$$16+144=160; 160 \div 10 = 16 \text{ of adult dose.}$$

This operates exactly as Young's rule and is, of course, subject to the same limitations. The possibilities for much more extensive application, however, are obvious.

R. E. CLONN, M.D., Ensley, Birmingham, Ala.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### TEMPERATURE OF AN ENEMA

To the Editor:—In Osler's Practice of Medicine, Ed. 6, 1906, page 702, under the treatment of uremia, in the seventh line, I find: "Grandin states that irrigation of the bowel with water at a temperature from 120 degrees to 150 degrees is most useful." Is that a safe temperature to recommend? I believe it was a Fahrenheit thermometer that was used to test the heat of the scalding bath at a slaughter shop where I saw hogs scalded at a temperature of 140 degrees. Since that time I have scalded a chicken in half a minute in water at 144 F. With this knowledge I have consulted two other editions of this work, the editions of 1903 and 1917, to see if it might be a misprint; but both have the same statement. I believe that such a treatment could not help but scald the membranous coat of the bowels into blisters. What explanation could you give for Dr. Osler to include such a recommendation to be followed by some man who is at his wits' end as to what next to try and who may not have any idea what a temperature of 140 F. will do? J. E. HOSSETTER, M.D., Gap, Pa.

ANSWER.—The subject of enterocolitis, in all its phases, is discussed at length by Robert Coleman Kemp in the Reference Handbook of the Medical Sciences, 4:40, 1914. The highest temperature of an enema mentioned by him is 120 F.; in fact, water at that temperature is favored in the prevention and treatment of shock from any cause, but especially shock due to hemorrhage. It is possible, however, that the statement by Grandin, quoted by Osler, has reference to the temperature of the water in the container, before it reaches the bowel. Kemp publishes a table, in connection with his discussion of proctocolitis, showing that when the temperature of the water in the container is 190 F., the final temperature of the water in the rectum is only 115 F., the difference in temperature being dependent on the number of drops entering the bowel per minute and the length of the rubber tubing. Water at a temperature of 115 F. in the container will enter the rectum at the same temperature when flowing at the rate of 200 drops a minute.

### REGULATIONS FOR PRESCRIBING ALCOHOL

To the Editor:—Kindly advise me whether special blanks are necessary in prescribing absolute alcohol. F. E. D., Chicago.

ANSWER.—No. Instructions to collectors of internal revenue, issued by commissioner of internal revenue, June 30, 1919, regarding the enforcement of the war prohibition law, direct, under the head of medical uses of wines and spirits, that physicians may prescribe wines and liquors for internal use or alcohol for external uses, but such prescriptions shall be in duplicate, both copies to be signed in the physician's handwriting, the quantity prescribed for a single patient at a given time not to exceed 1 quart, and no alcoholic liquors to be prescribed unless the patient is under the constant personal supervision of the physician. Prescriptions must indicate clearly the name and address of the patient, including street and apartment number if any, date when written, condition or illness for which prescribed, and the name of the pharmacist to whom the prescription is to be presented for filling. The physician must keep a record in which a separate page shall be allotted to each patient. The record must show under the patient's name and address the date of each prescription, the amount and kind of liquors dispensed, and the name of the pharmacist filling the prescription.

### ABBREVIATION IN PRESCRIPTION FOR PAREGORIC

To the Editor:—I write for information. I wrote a prescription and in it I wrote "Tinct. Camp. Co." I was corrected and was asked to write "Tinct. Opii Camphorata." Please tell me whether I was correct in writing it as I did.

ESTHER GUNSON, M.D., Wisconsin Veterans' Home, Waupaca, Wis.

ANSWER.—It depends on what you meant by "Tinct. Camp. Co." "Compound Tincture of Camphor" is official in the British Pharmacopoeia with "Paregoric" as a synonym. "Tinct. Camp. Co." might be interpreted as an abbreviation for this preparation. However, the British "paregoric" differs from the U. S. P. "paregoric" (camphorated tincture of opium) in containing 25 per cent. more opium, 25 per cent. more benzoic acid and about 13 per cent. more alcohol. Further, it contains only 75 per cent. as much camphor and oil of anise as the U. S. P. paregoric. Unless you wished to prescribe the B. P. preparation, you should have written the prescription according to the correction suggested.

## Medical Education, Registration and Hospital Service

### COMING EXAMINATIONS

- ARIZONA: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Gedrich Bldg., Phoenix.
- ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Elective Board, Dr. Claude E. Laws, 803 1/2 Garrison Ave., Fort Smith.
- CALIFORNIA: Sacramento, Oct. 20-23. Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.
- COLORADO: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
- CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Elective Board, Dr. James E. Hair, 730 State St., Bridgeport.
- DISTRICT OF COLUMBIA: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
- GEORGIA: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.
- IDAHO: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.
- KANSAS: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.
- LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenshew, 702 Maclean Bldg., New Orleans.
- MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
- MICHIGAN: Lansing, Oct. 14-16. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.
- MINNESOTA: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
- MISSOURI: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
- MONTANA: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
- NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.
- NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.
- NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAuliffe, State House, Trenton.
- NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.
- OKLAHOMA: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.
- SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
- TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.
- UTAH: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.
- WEST VIRGINIA: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
- WYOMING: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

### REGULATION OF HOSPITALS IN OHIO

Hospitals in Ohio are now subject to regulation by the commissioner of health in accordance with the following law which was passed by the last general assembly of Ohio. The new act amends, supplements and repeals sections of the General Code relative to classification and inspection of hospitals. It states:

Sec. 1.—That sections 1352, 6259 and 6262 be amended and supplementary section 1236-6 of the General Code be added to read as follows:

Sec. 1236-6. The Commissioner of Health shall have power to define and classify hospitals and dispensaries. Within thirty days after the taking effect of this act, and annually thereafter, every hospital and dispensary, public or private, shall register with, and report to, the State Department of Health, on forms furnished by the Commissioner of Health, such information as he may prescribe.

Sec. 1352. The Board of State Charities shall investigate by report, responsibility and inspection the system, condition and management of the public and private benevolent and correctional institutions of the state and county, and municipal jails, workhouses, infirmaries and children's homes as well as all institutions whether incorporated, private, or otherwise, which receive and care for children. Officers in charge of such institutions or responsible for the administration of public funds used for the relief and maintenance of the poor shall furnish the board or its secretary such information as it requires. The board may prescribe such forms of report and registration as it deems necessary. For the purpose of such investigation and to carry out the provisions of this chapter it shall employ such visitors as may be necessary, who shall, in addition to other duties, investigate the care and disposition of children made by institutions for receiving children, and by all institutions including within their objects the placing of children in private homes, and, when they deem it desirable, they shall visit such children in such homes, and report the result of such inspection to the board. The members of the board and such of its executive force as it shall designate may attend state and national conferences for the discussion of questions pertinent to their duties, and to carry out the provisions so incurred by the members and such of its executive force it shall designate shall be paid as provided by Section 1351 of the General Code.

Sec. 6259. The Commissioner of Health may grant licenses to maintain maternity hospitals or homes, lying-in hospitals, or places where women are received and cared for during parturition. An application therefor shall first be approved by the Board of Health of the city, village or township in which such maternity hospital or home, lying-in hospital, or place where women are received and cared for during par-

tion is to be maintained. A record of the license so issued shall be kept by the State Department of Health, which shall forthwith give notice to the Board of Health of the city, village or township in which the licensee resides, of the granting of such license and of the terms thereof.

Sec. 6262. The Commissioner of Health and the Boards of Health of cities, villages or townships shall annually, and may, at any time, visit and inspect, or designate a person to visit and inspect the system, condition and management of the institutions and premises so licensed.

Sec. 2. That original sections 1352, 6259 and 6262, and sections 6257 and 6258 of the General Code be, and the same are hereby repealed.

Passed March 11, 1919. Approved March 27, 1919.

**Iowa June Examination**

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 12-14, 1919. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 7 passed and 2 failed. Sixteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University	.....	(1917)	83.7
University of Illinois	.....	(1918)	87.2
State University of Iowa Coll. of H. med.	.....	(1919)	82.8
University of Kansas School of Medicine	.....	(1919)	80
St. Louis University	.....	(1919)	87.2
Washington University Medical School	.....	(1919)	87.8
University of Pennsylvania	.....	(1918)	86.6

College	FAILED	Year Grad.	Per Cent.
Hospital College of Medicine, Louisville	.....	(1907)	67.2
Eclectic Medical College of the City of N. Y.	.....	(1878)	.....

College	LICENSED THROUGH RECIPROCIITY	Year Grad.	Reciprocity with
Hahnemann M. Col., Chicago (1886) Mich.	.....	(1916),	(1911)
Bennett Medical College	.....	(1914)	Illinois
Northwestern University	.....	(1910)	Illinois
University of Illinois	.....	(1915)	Illinois, Nebraska,
Medical School of Maine	.....	(1912), 2)	(1915), 2)
John A. Creighton Medical College	.....	(1912)	Nebraska
University of Michigan Homeo. Med. School	.....	(1917)	Michigan
St. Louis University	.....	(1904)	Illinois
Western University	.....	(1906)	Nebraska

\* Did not complete examination.

**June Missouri Examination**

Dr. George H. Jones, secretary of Missouri State Board of Health, reports the oral and written examination held at St. Louis, June 17-19, 1919. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 93 candidates examined, 92 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas	.....	(1901)	79.9
Howard University	.....	(1916)	82.8
Loyola University (1918) 75.7, 77.1, 81.7	.....	.....	.....
Rush Medical College	.....	(1919)	82
University of Kansas School of Medicine	.....	(1919) 82.5, 84.5, 87.1	88.2
Tulane University	.....	(1911)	85.9
Johns Hopkins University	.....	(1917) 87.1, (1919)	84.2
Barnes Medical College	.....	(1904)	76.4
Leumont Hospital Medical College	.....	(1893)	81.5
St. Louis College of Physicians and Surgeons	.....	(1918) 77.2, 84.6	.....
St. Louis University School of Medicine (1905) 75, (1919) 80.1, 80.1, 80.2, 80.3, 81.1, 81.1, 81.1, 81.8, 82.1, 82.1, 82.4, 82.7, 83.1, 83.1, 83.1, 83.1, 84.1, 84.2, 84.7, 84.8T, 84.9, 85.1, 85.1, 85.1, 85.4, 85.3, 85.4, 85.6, 85.7, 86.1, 86.4, 86.5, 86.8, 86.8, 87.1, 87.1, 87.4, 88.5, 91.4,	.....	.....	.....
Washington University (1885) 76.1, (1917) 82.7, 83.7, (1919) 81.1, 82.1, 82.7, 82.6, 82.7, 82.1, 83.2, 83.6, 83.9, 84.4, 85, 85, 85.1, 85.1, 85.1, 85.1, 85.3, 85.5, 85.6, 85.6, 85.7, 86.1, 86.1, 86.7, 86.1, 88.7, 88.8, 90.1, 90.6,	.....	.....	.....
University of Nebraska	.....	(1919)	82.1
Frederic Medical Institute	.....	(1883)	75
Kings Queens College of Physicians Dublin	.....	(1884)	77.1

College	FAILED	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons	.....	(1918)	69.1

Dr. Jones also reports that 42 candidates were licensed through reciprocity since Feb. 7, 1919. The following colleges were represented:

College	LICENSED THROUGH RECIPROCIITY	Year Grad.	Reciprocity with
University of Colorado	.....	(1913)	Colorado
Howard University	.....	(1905),	(1915)
Emory University	.....	(1912)	Georgia
Chicago College of Medicine and Surgery	.....	(1914)	Iowa
Hering Medical College, Chicago	.....	(1916)	Oklahoma,
Rush Medical College	.....	(1912)	Kansas
Rush Medical College	.....	(1917)	Illinois

University of Illinois	.....	(1915), (1917)	Illinois
Medical College of Indiana	.....	(1880)	Indiana
Drake University College of Medicine	.....	(1910)	Iowa
Kansas Medical College	.....	(1907)	Kansas
University of Kansas (1906), (1913), (1915, 2), (1916) (1918), Kansas,	.....	.....	(1917, 3),
Louisville Medical College	.....	(1888)	Indiana
University of Louisville	.....	(1910)	Kentucky
Tulane University	.....	(1917)	Louisiana, (1918)
University of Maryland	.....	(1908)	Maryland
Harvard University	.....	(1916)	Nebraska
Mississippi Medical College	.....	(1912)	Mississippi
Ernsworth Medical College	.....	(1909, 2)	Kansas
St. Louis University School of Medicine	.....	(1910)	Illinois
University Medical College of Kansas City (1909), (1913)	.....	.....	Kansas
John A. Creighton Medical College	.....	(1905)	Nebraska
University of Pennsylvania	.....	(1908)	Penn.
Western Pennsylvania Medical College	.....	(1902)	Penna.
Lincoln Memorial University	.....	(1911)	Tennessee
Meharry Medical College	.....	(1913)	Kansas
Vanderbilt University	.....	(1916)	Tennessee
University of Toronto	.....	(1910)	N. Dakota

**Book Notices**

**THE PERITONEUM.** By Arthur E. Hertzler, M.D., F.A.C.S., Surgeon to the Halstead Hospital, Halstead, Kansas. Two Volumes. Cloth. Price, \$10. Pp. 870, with 230 illustrations. St. Louis: C. V. Mosby Company, 1919.

This is a study of the peritoneum in health and in disease, from the standpoint of the clinician as distinguished from that of the pathologist, the physiologist or the anatomist, so that although the anatomy, physiology and pathology of the peritoneum are given careful attention, we are never allowed to forget that the chief value of the known facts concerning each lies in their clinical application. The first volume deals largely with the abstract problems of the peritoneum; perhaps the most interesting chapters are those from V to IX on wound healing (the formation of fibrous tissue), the nature and genesis of peritoneal adhesions, the prevention of adhesions, changes in the circulation, and inflammatory reaction of the peritoneum—interesting, perhaps, because in them is presented, in clinical language, a summary of what might be termed general pathology of the peritoneum, a subject with which most men are not particularly familiar and which, unfortunately, is not so widely discussed as are the subjects of peritoneal anatomy and, to a lesser extent, physiology. The second volume deals with the diseases of the peritoneum. The subjects are well arranged, the treatment is thorough, and the opinions expressed are, for the most part, orthodox. Interspersed here and there are interesting bits of advice gleaned from experience in the art of the practice rather than the science of medicine—hints which, properly digested and applied, may carry the physician around more than one sharp corner which otherwise might be extremely hard to negotiate. There is one sentence in this volume which every surgeon, particularly he who is inclined to operate with one eye on the clock, should read and ponder: "Quickness is not measured by the clock, but by the degree of traumatism inflicted." Appreciation of the thought expressed here might lengthen a surgeon's operating time, but it might also decrease postoperative morbidity among his patients.

**COLLOID CHEMISTRY: AN INTRODUCTION, WITH SOME PRACTICAL APPLICATIONS.** By Jerome Alexander, M.Sc., Chairman, Special Committee on Colloids, Division of Chemistry and Chemical Technology, National Research Council. Cloth. Price, \$1.50. Pp. 99, with illustrations. New York: D. Van Nostrand Company, 1919.

In this little book—it contains only eighty-three pages of text—the author presents in a simple and terse manner the fundamental facts about colloids. It is delightful to read because it leads one through the rather complicated phases of colloidal chemistry, giving such a scientist as the physician an adequate view of the subject and yet obviating the more involved academic considerations. The important practical applications of this fascinating "twilight zone between physics and chemistry" increases one's interest in this study. The chapter on medicine happily contains no such unscientific statements or proprietary boasts as that of the English "Report on Colloid Chemistry" by the British Association for the Advancement of Science.

## Social Medicine, Medical Economics and Miscellany

### THE COST OF FOOD OF DIABETICS IN HOSPITAL\*

ALICE N. DIKE

Assistant Professor of Cookery, Simmons College  
BOSTON

This investigation was undertaken to find out whether diabetic patients cost the hospital more for their food than other patients, or whether the diabetics were right when on "fasting" days they remarked, "The hospital is making money on us."

Three hospitals, treating relatively large numbers of diabetics, were visited to find where a study could best be made. The New England Deaconess Hospital was selected because there a group of twelve or fourteen patients were in a separate cottage, though, unfortunately for the purposes of the study, about half as many more other patients were in the same house.

The cost of food for one week was estimated roughly, and the result was so startling that it was decided to figure the cost of another week more carefully. This was a matter of a good deal of difficulty because some of the food of the diabetics and most of the food of the other patients was sent over cooked from the main hospital, often in one container for both sets of patients. Some left over food was

#### ESTIMATED COST OF EACH FOOD GROUP PER PATIENT PER DAY

Food Groups	Estimated Cost
Dairy products	\$0.118
Groceries (except canned vegetables)	.063
Canned vegetables, 0.150; fresh vegetables, 0.158 (all vegetables)	.308
Fruits	.059
Fish, 0.084; Meat, 0.398 (all meat and fish)	.482
Miscellaneous (agar, whisky, liquid petrolatum, bran, saccharin)	.055
Total	\$1.085

returned to the hospital and therefore had to be accounted for. The following results, while carefully determined by weighing whenever possible, are not strictly accurate in all cases, though with the possible exception of the meats they are, at least, as accurate as ordinary hospital estimates of food costs. All foods used were of the first quality, some even of fancy grade.

During the week June 23 to 30, 1919, for which the food was carefully estimated, there were nineteen different diabetic patients in the hospital, making an average of 13½ patients a day. Of these ten were severe cases, six moderately severe, and three, mild. Several patients fasted one or more days each; but as they were given broth, tea, coffee, and cocoa shells they were certainly costing the hospital as much as postoperative surgical or some medical cases.

At the same time that the study in diabetic food costs was being made, the hospital dietitian, Miss Ruth M. Wallace, estimated the cost of food of all nondiabetic patients. Results showed that the diabetics were costing 29 per cent. more than other patients. This should not be considered surprising when it is remembered that the diet requirements for diabetics in severe cases eliminate practically all the cheap carbohydrate foods, such as bread, breakfast cereals, and potatoes.

Since this study, although not claiming to be strictly accurate, was carried on at the same time that the estimate of the cost of nondiabetic patients was being made, and the two were done by two trained persons working together, it seems fair to conclude that the hospital diabetic is costing at least one fourth more for raw food materials than other patients. It is also clear to any one who has watched the preparation and serving of the food with its "thrice-washed"

vegetables and weighed portions, that the labor cost is also high. For a complete comparison of the cost of the two groups it would be necessary to know the laboratory cost and the nursing cost of each.

The investigation brought out a few other points of interest: Of dairy products, eggs are by far the most expensive item, and it seems unwise to limit their use; milk, butter and cream (20 per cent.) are used in such small quantities that their cost is unimportant. For the strictest economy, butter substitutes may be used in place of other fats. Of groceries, aside from canned goods, coffee and gelatin are the most expensive; cocoa shells when purchased wholesale make a cheap drink. Almost no vegetables outside the 5 per cent. group were used during the week; of these, tomatoes and spinach were the cheapest of the canned vegetables, and cabbage, lettuce, and cucumbers of the fresh vegetables. Fruits are used in small quantities, and even at present prices are an inconsiderable item. Some kinds of fish were cheaper than meat with us in Boston. Cod, haddock, and flounder may be used in place of chicken in cases in which the proportion of fat must be kept low. Of meats, bacon and fowl, both of which were freely used and were of excellent quality, were expensive. During the week of the study, only carefully trimmed expensive kinds of meat were served, as had been the practice of the hospital. If carefully cooked cheap cuts of meat were served, and possibly some cheese, the cost of this large item would be reduced substantially. Broth is a very expensive item, especially if much chicken broth is used, as has been the custom. Only one squab was served, our preliminary study having shown this to be extravagant for all except patients in higher-priced private rooms.

In the group of miscellaneous items, some might possibly be classified as medicines, though all were served with the food. Agar-agar, which is used in the highly prized bran muffins, is expensive; but as it makes possible the one article which in any way resembles bread, and helps to give bulk to the diet, the outlay seems legitimate. The use of saccharin is unlimited but not encouraged; an average of only five one-fourth grain tablets per patient per day was used. The liquid petrolatum included here was used in cooking, and makes possible fried eggs and some other foods.

In spite of the fact that the diabetic diet must be relatively expensive, its cost may be substantially reduced by economy in the use of meats and vegetables. For the strictest economy, tea and cocoa shells should be used in place of coffee; gelatin and agar-agar used sparingly or omitted; butter substitutes used in place of cream and bacon; the cheapest vegetables, canned and fresh, selected; broth omitted, and the cheapest fish and meat used.

### REPORT OF CONNECTICUT SOCIAL INSURANCE COMMISSION

The Connecticut Commission on Public Welfare, appointed by the legislature in 1917, has submitted a report covering health insurance, hours of labor, minimum wage, old age and mothers' pensions, and occupational diseases. Its principal recommendation is the postponement of any further consideration of social insurance until the changes resulting from the war have been fully readjusted. The commission was impressed with the lack of interest in this subject in Connecticut. The state federation of labor in 1918 adopted resolutions favoring health insurance, old age pensions and a minimum wage, but the commission was unable to determine whether the vague expression of opinion implied support of compulsory insurance or not. All of the employers of labor who appeared before the commission agreed that compulsory health insurance at the present time would be unwise. The physicians of the state showed little interest in the subject. A questionnaire sent out by the commission to physicians elicited only about 30 per cent. of replies. To

1. The vegetables in the 5 per cent. group are: lettuce, cucumbers, spinach, rhubarb, endive, marrow, sorrel, sauerkraut, tomatoes, Brussels sprouts, watercress, sea kale, okra, cauliflower, egg plant, cabbage, ananas, beet greens, dandelion greens, Swiss chard, celery, radishes, leeks, string beans, broccoli and peppers.

2. Nearly one-half the weight of the bacon was returned to the hospital and allowed for in figuring the cost.

\* From the Diabetic Clinic of the New England Deaconess Hospital.

the question, "What suggestions have you to make as to how the problem of adequate medical service can best be handled to serve the interest of the state, the physician and the sick of limited means?" only half of those who replied, or about 15 per cent. of the profession of the state, expressed any opinion. "The replies of not a few," says the report, "indicate that they did not look beyond their own immediate practice; a small number favored a better medical organization and suggested an extension of hospital service. Not more than a dozen took sides for or against compulsory health insurance." Physicians who appeared before the commission strongly deprecated any action on health insurance at the present time, declaring that it was a matter to which a great deal more thought and study should be given and that those of their number who were best informed were either in the military service or so much absorbed in duties incident to the war that they could not give the commission the benefit of their knowledge. The opponents of compulsory health insurance in Connecticut prepared for legislative consideration a substitute providing for an elaborate organization and administration of a department of health, on the ground that the enlargement of state health activities was less expensive, less socialistic and paternalistic and would be more effective than compulsory health insurance. The commission is of the opinion that either of these plans would prove more of a burden than the state would care to assume at present. The commission was impressed with some of the arguments in favor of compulsory health insurance for humane reasons, and is convinced that the state should do more to improve living conditions and prevent disease, but is not convinced that any of the measures thus far presented should be enacted. It feels that Connecticut should not be the first state to experiment with such a plan, but should gradually improve and extend its department of public health.

Regarding old age pensions, the commission after considering the arguments and objections pro and con did not regard the situation in Connecticut as sufficiently acute to justify the experiment. Regarding mothers' pensions, it is recommended that Connecticut might well follow the other thirty-six states which have enacted mothers' pension laws and either make provisions directly for such allowances at the cost of the state or confer on the towns the necessary power and authority to make them. The commission also believes that any disease arising out of or in the course of employment should be included within the provisions of the workmen's compensation law and should receive benefits the same as occupational injuries.

### MARRIAGE AND THE UNFIT

Adolf Meyer, director of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, in the July number of the *Canadian Journal of Mental Hygiene*, asks: "Why should we not, in the [marriage] ceremony itself, put the proper emphasis on the real issue of marriage? Why not replace the much discussed question of obedience by the question, put to both parties to the life contract: Do you want this man (or this woman) and no other to be the father (or mother) of your children?" He says, "not until some question as pointed as this is in all cases expected and squarely asked and squarely answered as a matter of general and frank concern as soon as marriage is considered, will the rank and file of people realize the needed obligation to deal fairly with the problem of health and parental responsibility before the knot is tied." Discussing the influence of heredity, Meyer reports the study of a community in which there were four interrelated family groups, represented by thirty-five children at the public school, fourteen of whom were defective, and says in his analysis that the defects were clearly traceable to the influence of parental taint and heredity. He is skeptical of the value of legal restriction on marrying of the unfit, such as was attempted in Wisconsin, and thinks the restraining force should come from education and social pressure. Persons with taint, as distinguished from those with true defects, should not be denied wedlock, but should be permitted to marry only on condition of mating themselves with individuals of better stock than their own.

## Medicolegal

### Privilege Is That of Patient and Not of Physician

(*Markham v. Hipke (Wis.)*, 171 N. W. R. 300)

The Supreme Court of Wisconsin, in affirming an order adjudging the defendant, a physician, guilty of contempt, in refusing to answer in an adverse party examination, says that the action was for malpractice. The defendant was being examined adversely before trial, under Section 4096 of the Wisconsin statutes, and refused to disclose information received by him while treating the plaintiff as a patient, and which was necessary to enable him to prescribe, although the plaintiff expressly waived the statutory privilege of secrecy and he was ordered by the court to answer. For this refusal he was adjudged guilty of contempt, and appealed.

The sole question presented was whether the privilege granted by Section 4075 of the statutes is the privilege of the patient or of the physician. The supreme court thinks it is unquestionably the privilege of the patient. This was so held in *Boyle v. Association*, 95 Wis. 312, 70 N. W. 351, when the statute provided that no physician should be "compelled" to disclose such information. By Chapter 322 of the Session Laws of 1911, the section was amended by the substitution of the word "permitted" for the word "compelled," and by the addition of a provision allowing the information to be disclosed by the physician as a witness in his own behalf in a civil action for malpractice and in a criminal action therefor, when the patient or his legal representatives shall have first given evidence relating thereto. It was not entirely easy to construe the word "compelled" as giving the privilege to the patient, as may be seen by examination of the opinion in the Boyle case; but it is very easy so to construe the word "permitted." The latter word means practically the same as "allowed," which is the word used in Sections 4074 and 4076, protecting communications made to clergymen and attorneys, respectively, and the latter word has generally, if not uniformly, been construed as granting the privilege to the penitent or the client. Cases decided in this court since the last-named change was made inferentially, if not directly, sustain this view.

### Privilege—Compensation for Sufferings

(*Fisleigh v. Detroit United Ry. (Mich.)*, 171 N. W. R. 549)

The Supreme Court of Michigan, in affirming a judgment for \$23,000 in favor of the plaintiff for damages for personal injuries, says that a physician who was called as a witness by the defendant was asked the question whether, without mentioning any names, he ever treated any immediate member of the plaintiff's family for diabetes. During the discussion that followed an objection, it was stated by the defendant's counsel that the question referred to a brother or a sister. The trial court sustained the objection on the ground that the evidence could not be received on the question of heredity, it not being the father or the mother that was referred to. But the supreme court need not consider the reason assigned by the lower court for its ruling, as the supreme court is satisfied that the physician was prohibited by Section 12550, Compiled Laws of Michigan of 1915, from testifying to what he learned in his professional capacity, while treating, and for the purpose of treating, the brother or sister. The privilege was the privilege of the patient, who was not a party to this suit; and there was no claim that the privilege had been waived by the patient.

It was insisted by the defendant that the verdict was excessive. But the supreme court does not think that it should treat it as excessive. When the cars collided the plaintiff was thrown forward, her knee or knees striking the seat in front; on the recoil she struck the back of the seat, which broke, either as the result of her body's striking against it or from others falling on it, and she was struck by the broken seat or a piece of it, an iron rod along with the wood, across the lower part of the back. Some months

afterward she was operated on, and a portion of the coccyx was removed, and later her right ovary was removed. From a robust, cheerful, vigorous woman, a wage-earner, weighing about 150 pounds, she had in twenty-two months' time wasted to a helpless cripple, weighing 98½ pounds, while her sufferings had been great and would so continue. In personal injury cases the amount of damages is not subject to exact mathematical calculation. Primarily the question is for the jury; and the supreme court cannot arbitrarily substitute its judgment for that of the triers of the facts. By the use of the mortality tables the plaintiff's loss of past and prospective earnings could be computed with reasonable accuracy. But there is no market place where pain is bought and sold. Compensation for sufferings must primarily be fixed by the jury with an honest judgment, based on the evidence as their guide. If grossly excessive, if the result of prejudice, or passion, or influence other than the evidence in the case, their determination cannot stand in the reviewing court. But that court must find something more tangible than a difference of opinion as to amount before it should vacate a verdict which has the approval of the trial court.

### The Kind of Insanity That Is a Defense to Crime

(*People v. Morisawa (Calif.)*, 179 Pac. R. 888)

The Supreme Court of California, in affirming a conviction of murder in the first degree, says that the killing was admitted, and the defense was insanity. Complaint was made of the instructions given to the jury as to the test of insanity; but on this matter they were in accord with the well-settled law of California, being substantially to the effect that insanity interposed as a defense in a criminal prosecution means such a diseased and deranged condition of the mental faculties as to render the person incapable of distinguishing between right and wrong, in relation to the act with which he is charged; that in order to establish the defense, it must be proved by a preponderance of evidence that, at the time of committing the act, the party accused was laboring under such a defect of reason, from disease of the mind, temporary or otherwise, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong; that if the defendant at the time he fired the shot at the deceased, if he did so fire, understood the nature of his act, and knew it was wrong and deserved punishment, he was legally responsible for his act, if committed as charged in the information; that the true test of insanity was whether at the time of committing the crime he was conscious that he was doing what he ought not to do; and that if the defendant was in that mental situation in which he did not appreciate the act he was committing, and he did not know it wrong to do it, that, of course, would be a legal defense. Counsel for the defendant contended that the instructions were erroneous in not including, in addition to the elements stated, the element of "power" on the part of the defendant "to adhere to the right and avoid the wrong," "the power to govern his body." But it is now so firmly settled in California as not to require discussion that an irresistible impulse on the part of a person to commit an act which he knows is wrong or unlawful does not constitute the insanity which is a legal defense.

### Privilege Not Waived

(*Arizona Eastern R. Co. v. Mathews (Ariz.)*, 180 Pac. R. 159)

The Supreme Court of Arizona says that in this personal injury case the defendant offered as witnesses two physicians who rendered professional services to the plaintiff, and wanted to prove by them what they discovered or learned of his condition, insisting that he had raised the ban of secrecy because in a previous trial he had examined one of the witnesses in regard to the same subject-matter and had permitted the other to testify without objection. This offered testimony, on objection that it was confidential, was rejected; and the court does not consider that this ruling was erroneous. In *Arizona & New Mexico Ry. Co. v. Clark*, 235 U. S. 669, 35 Sup. Ct. 210, it is said that the statute con-

templates that the patient may testify with reference to what was communicated by him to the physician, and in that event only it permits the physician to testify without the patient's consent. The act gives him the option of excluding the physician's evidence entirely by himself refraining from testifying voluntarily as to that respecting which alone their knowledge is equal, namely, what the patient told the physician with reference to the ailment. It did not appear that the plaintiff, in the former trial or in the present one, testified voluntarily as to what he "told the physician with reference to his ailment." It seems, under the Arizona statute and the construction given it in the Clark case, that the patient can object to the physician's testifying as to what he may have learned in his professional capacity unless the patient has himself "testified to the communications he made to the physician." It not appearing that the plaintiff testified to any communication made by him to the physicians, he did not waive his right to object to their testifying at the second trial, even though they did at some previous trial testify as to knowledge obtained by personal examination.

## Society Proceedings

### COMING MEETINGS

American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.  
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.  
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.  
American Public Health Assn., New Orleans, Oct. 27-30.  
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.  
Colorado State Medical Society, Denver, Oct. 7-9.  
Delaware State Medical Society, Dover, Oct. 13-14.  
Medical Assn. of the Southwest, Oklahoma City, Oct. 6-8.  
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.  
Southern Medical Association, Asheville, N. C., Nov. 12-13.  
Vermont State Medical Society, Burlington, Oct. 9-10.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Physiology, Baltimore

Sept. 1, 1919, 49, No. 4

- Quantitative Study of Effects Produced by Salts of Sodium, Potassium, Rubidium and Calcium on Motor Nerve of Frog. E. Greisheimer, Chicago.—p. 497.  
Practicability of Feeding a Scientifically Balanced Ration in Army Camps. R. J. Anderson, U. S. Army.—p. 523.  
Average Food Consumption in Training Camps of U. S. Army. J. R. Murlin and F. M. Hildebrandt, U. S. Army.—p. 531.  
Variations in Strength and in Consumption of Food by Recruits and Seasoned Troops. P. E. Howe, C. C. Mason and S. C. Dinsmore, U. S. Army.—p. 557.  
Acid Base Balance of Army Rations. N. R. Blatherwick, U. S. Army.—p. 567.  
Dried Vegetables for Army Use. S. C. Prescott, U. S. Army.—p. 573.  
American Military Hospital Diets. R. G. Hoskins, U. S. Army.—p. 578.

### Archives of Internal Medicine, Chicago

Sept. 15, 1919, 24, No. 3

- \*Studies on Epinephrin. I. Effects of Injection of Epinephrin in Soldiers with "Irritable Heart." J. T. Wear, Charlotte, N. C., and C. C. Sturgis, Pendleton, Ore.—p. 247.  
\*Studies on Epinephrin. II. Effects of Epinephrin on Basal Metabolism in Soldiers with "Irritable Heart," in Hyperthyroidism and in Normal Men. E. H. Tompkins, Cambridge, Mass., C. C. Sturgis, Pendleton, Ore., and J. T. Wear, Charlotte, N. C.—p. 269.  
\*Studies on Epinephrin. III. Effect of Epinephrin on the Electrocardiograms of Patients with "Irritable Heart." II. D. Clough, Providence, R. I.—p. 284.  
\*Experimental Endothelial Leukocytosis in Guinea Pigs. F. A. McJunkin and A. G. Charlton, Milwaukee.—p. 295.  
Necropsy Studies at a Hospital Center. M. Barron, St. Paul.—p. 302.  
Possibilities of Physical Development in Cases of Effort Syndrome by Means of Graded Exercises. B. Smith, Los Angeles.—p. 321.  
\*Experimental Emphysema. S. R. Kelman, Iowa City.—p. 332.  
\*Preliminary Survey of Thyroid Among Twenty-One Thousand One Hundred and Eighty-Two Recruits at Camp Lewis, Washington. W. J. Kerr, San Francisco.—p. 347.

**Effect of Epinephrin on "Irritable Hearts."**—The reaction to the intramuscular injection of a small dose (0.5 c.c. of a 1:1,000 solution) of epinephrin was studied by Wearn and Sturgis in normal soldiers, and in a group of soldiers showing symptoms of so-called "irritable heart." Of twenty-six normal soldiers, who had gone through the grill of army training in its severest form for fourteen months, not one gave a positive reaction as judged by observation of pulse rate, blood pressure, objective signs or subjective symptoms. Seventy-three patients with symptoms of "irritable heart" were studied. Their symptoms were of long duration and for the most part antedated their entrance into military life. Of this group about 60 per cent. gave a reaction which definitely indicated a hypersensitiveness to epinephrin. Epinephrin has a selective action on the sympathetic autonomic nervous system, therefore, it may be assumed that the symptoms and signs induced in the positive cases are the result of a hypersensitive sympathetic autonomic nervous system. A careful clinical analysis, however, of the patients showing positive and negative reactions has revealed no essential clinical differences between the two groups. Although all efforts were made to improve the physical condition of these men, not one of those who gave a positive reaction, and only three who gave negative reactions were able to go to full duty.

**Effect of Epinephrin on Basal Metabolism.**—Tompkins and his associates found that intramuscular injection of epinephrin causes an increase in total gaseous metabolism in normal men, patients with "irritable heart" and in hyperthyroidism. The increase in metabolism is greater in cases showing a "positive" reaction to the epinephrin than in those showing no characteristic reaction, and it is parallel to the pulse, blood pressure and symptomatic changes. There is an increase in the minute volume of air breathed under the effects of epinephrin, and of either respiratory rate or depth, or both. After intramuscular injection of epinephrin, there is very frequently an elevation of respiratory quotient. The maximum of this elevation ordinarily precedes that of the metabolic increase. The increase in metabolism is due to some factor other than the excitement attendant on injection or the stimulation to heart and respiratory muscles resulting from injection. The increase in metabolism may be due to increased muscular tonus or to hyperglycemia. It may be that these factors are only partial expressions of a general indirect stimulus to the metabolism from the epinephrin by its action on some system capable of direct metabolic activation. As epinephrin is a stimulant to the sympathetic autonomic nervous system, the differences in reaction and metabolic response in the negative and positive cases are probably due to differences in that system.

**Effect of Epinephrin on Electrocardiogram of "Irritable Heart."**—The effect of epinephrin was observed by Clough in normal individuals and in a number of patients with the symptoms of "irritable heart." All of the latter were hypersensitive to epinephrin in the sense that they gave a much more pronounced reaction to a small dose of the drug than do normal individuals. In some cases gross abnormalities of the electrocardiographic record were observed. The most important deviations from the normal were changes in conduction (delayed conduction, partial heart block) and the production of ventricular extrasystoles. Special studies were made of the effect of epinephrin on the conduction time, length of systole and height of the T wave in twelve epinephrin hypersensitive patients with "irritable heart" and in twelve normal men. No changes were found in the conduction time or the length of systole in either type. In both at the height of the reaction there was a decrease in the height of the T wave. An attempt was made to correlate the symptoms complained of by the patients with "irritable heart" at the height of the reaction with abnormalities of the electrocardiogram, but no definite association could be made.

**Experimental Leukocytosis.**—Although there are few endothelial leukocytes normally present in the peripheral blood as compared with the neutrophils or lymphocytes, the percentage may be increased regularly by experimental procedures as was shown by the authors. It appears after an

examination of the usual textbooks and a cursory examination of the literature that a characteristic increase in number in human blood of this variety of leukocyte has not been noted in generalized military or other forms of tuberculosis. Such a leukocytosis was noted by McJunkin and Charlton in the later stages of the usual experimental tuberculosis of guinea-pigs.

**Thyroid Enlargement in Recruits.**—A survey of 21,182 troops coming to Camp Lewis, Washington, from eleven states, comprising an area of approximately one third of the United States, showed a high incidence of simple goiter, in Washington, Oregon, California and Nevada. Twenty-one per cent. of all troops examined showed a definite enlargement of the thyroid. Of these 27 per cent. showed a large or moderately enlarged thyroid, and 73 per cent. were classified as "small." The enlargement of the thyroid was noted as diffuse in 38 per cent. of the cases; isthmus, in 52 per cent., right lobe, in 5 per cent., and left lobe in 4 per cent. Such physical signs as tremor, tachycardia, vasomotor instability of the hands and curved nails were noted, and were found in a larger percentage of men with thyroid enlargement than in those without demonstrable changes in the thyroid.

### Boston Medical and Surgical Journal

Sept. 18, 1919, 181, No. 12

- Administration of Arspheamin. A. S. Hyman, Boston.—p. 353.  
Torsion of Omentum: Report of Case. E. H. Risley, Boston.—p. 362.  
Surgical Treatment to Prevent and Minimize Permanent Disabilities. F. D. Donoghue, Boston.—p. 364.  
\*Case of Associated Pains in Knee and Penis Due to Obturator Hernia. H. W. Marshall, Boston.—p. 367.  
\*Gaseous Exchange with Unpracticed Subjects and Two Respiratory Apparatuses Employing Three Breathing Appliances. M. F. Hendby, T. M. Carpenter and L. E. Emmes, Boston.—p. 368. Conc'n.

**Associated Pains in Knee and Penis.**—Marshall cites the case of a man who suffered from pain along the course and distribution of the internal pudic and obturator nerves. A diagnosis was made of reducible obturator hernia which pulled or pressed at times on the obturator and internal pudic nerves of the left side. Relief is obtained when it does not descend into the hernial sac.

**Gaseous Exchange with Unpracticed Subjects.**—The respiratory exchange of seventeen untrained medical students was measured by Hendby, Carpenter and Emmes with each of three breathing appliances, namely, mouthpiece, nosepieces and mask, on two different respiration apparatus, the Benedict portable apparatus and a respiratory valve apparatus. The results show that there are no marked differences in the respiratory exchange when the breathing appliance alone is considered. The breathing is slightly more normal with the mask. The oxygen consumption is practically the same regardless of the breathing appliance or respiration apparatus used. The general trend of the oxygen consumption for twelve periods, considered from the standpoint of time, indicates that there is practically no difference from period to period between 8:30 a. m. and 12:30 p. m. The general tendency for the metabolism to remain stationary is confirmed by the course of the pulse rate. There is a slight tendency for the carbon dioxide elimination to be higher with the portable respiration apparatus than with the respiratory valve apparatus. This is due primarily to a tendency to a slightly greater ventilation of the lungs. The average respiratory quotient with the portable apparatus is slightly higher than that with the respiratory valve apparatus, and the lowest with the mask as compared with the mouthpiece and nosepieces. The general level of the respiratory quotient throughout twelve periods of measurement from 8:30 a. m. to 12:30 p. m. remains practically constant. When the measurement of the oxygen consumption alone is desired, the authors found the Benedict portable respiration apparatus the best apparatus for short-period measurement. When more data are desired, such as total ventilation, respiratory quotient, and mechanics of breathing, the respiratory valve apparatus is better. For continued experimenting from period to period without interruption, the mask is preferable to the other two breathing appliances. The detailed data on these experiments are given in full.

## Bulletin of Johns Hopkins Hospital, Baltimore

September, 1919, 30, 343

- \*Insusceptibility of Man to Inoculation with Blood from Measles Patients. A. W. Sellards, U. S. Army.—p. 257.  
 Role of Roentgen Ray in Diagnosis of Unostanding Renal Tuberculosis. J. A. C. Colton and C. A. Waters, Baltimore.—p. 268.  
 Reminiscences of Two Epochs: Esthesia and Asepsis. S. Smith, New York.—p. 273.  
 Effort Syndrome. E. W. Bridgman, Baltimore.—p. 279.

**Insusceptibility of Man to Inoculation with Blood from Measles Patients.**—Sellards reports the results of the study in human volunteers of the question of prophylactic inoculation against measles. For these inoculations, blood was taken from a moderately severe case of measles twelve hours after the first appearance of the rash. At this time the Koplik spots had already disappeared, the eruption was profuse over the face, back and chest, less intense over the abdomen and only a few scattered spots had appeared on the thighs. Immediately after collection, one portion of the blood was defibrinated and centrifuged for the collection of serum. Part of this serum was mixed with an equal volume of fresh serum obtained from a typical case of measles ten days after the temperature had returned to normal. Another portion of the original serum was diluted with nine parts of physiologic sodium chlorid solution; one portion of the diluted serum was kept at room temperature for a control and the remainder was heavily inoculated with *B. prodigiosus* and passed through a Berkefeld filter (so-called N). Three susceptibles and one immune who had had measles twenty-eight years previously were injected with diluted serum, filtered serum, a mixture of equal parts of patient's and convalescent's serums and defibrinated patient's blood, respectively. None of these four individuals developed any symptoms of measles. Sellards says that while the delay of one hour before injecting this serum and also the absence of red cells might be regarded as factors contributing toward the negative result, it would appear from previous work that the blood retains its infectivity *in vitro* for at least a day. After an interval of one month, a second intravenous injection was given the immune consisting of serum collected from a patient fifteen hours after the appearance of the rash. No symptoms of any kind resulted.

The remainder of the work with susceptible individuals was restricted to an attempt to transmit measles by the injection of patient's blood. Defibrinated blood was injected subcutaneously into two men. Cultures of patient's blood in ascitic broth were inoculated in two other men. None of these four subjects developed measles; neither did any symptoms appear that could definitely be attributed to the injections. After an interval of thirty-five days one of the men injected with defibrinated blood and another injected with blood incubated in broth were reinoculated by smearing the mucous membranes of the eyes, nose and throat with freshly excised morbillous skin lesions. No definite symptoms developed. Two susceptibles were inoculated on two successive days with blood taken before and after the appearance of the eruption. Control inoculations were made simultaneously into two immunes. Blood for these injections was secured from two patients; specimens were obtained from one patient thirty hours and again six hours before the appearance of the rash and from the other six hours before and eighteen hours after the rash appeared. None of these four subjects developed any symptoms of measles. Of the two susceptibles selected for these injections, one gave unusually good evidence that he had never contracted measles. Two susceptibles and two immunes, one of whom had not previously received any injections were inoculated on the mucous membranes of the eyes and nose with the lacrimal secretions and also on the nose and throat with the nasal secretions of a patient, on the day of the preeruptive rise in temperature, i. e., twelve days after exposure and four days before the eruption. A similar inoculation was made on the day before the eruption, i. e., on the fifteenth day after exposure. On this occasion, in addition to duplicating the previous inoculations, the buccal secretions were thoroughly rubbed over the mucous membranes of the throat and mouth of the four subjects. On both occasions the four subjects were in the same room with the patient. One more susceptible was inoculated intravenously

with measles blood taken within from six to ten hours after the appearance of the rash. The blood was injected immediately after withdrawal before it had time to clot. Neither the intravenous injection of blood nor the inoculations of the secretion produced, in these five subjects, any respiratory symptoms or any rash. Only insignificant fluctuations occurred in the temperature and in the leukocyte count.

Sellards points out that in drawing conclusions concerning these inoculations of blood and mucous secretions in these susceptible men, two unknown factors are to be determined, namely, (1) whether the individuals in question at the conclusion of the inoculations were immune and if so (2) whether the immunity was conferred by the injection of blood or acquired possibly through a previous attack of measles. The results of the susceptibility tests leave little doubt that these men were immune. Sellards emphasizes further that conclusive demonstration of the noninfectivity of measles blood on injection into a susceptible individual would still fail to prove the absence of the virus of the disease in the circulating blood. It is very doubtful, for example, whether a susceptible human being would be infected by the injection of a moderate amount of blood of a typhoid patient taken during the stage of bacteremia. It is a theoretical possibility that the blood of a measles patient might reproduce the disease when inoculated on the mucous membranes though not on injection into the body tissues. Sellards points out, further, that there is a striking discrepancy between the negative results following these inoculations of measles blood and the successful experiments previously reported under essentially similar conditions. A careful examination of the data recorded by Sellards has failed to suggest any correlation of these diametrically opposite results.

## Canadian Medical Association Journal, Toronto

September, 1919, 9, No. 9

- Laënnec: One Hundred Years After. W. S. Thayer, Baltimore.—p. 769.  
 Sanitation In War. J. W. S. McCullough.—p. 783.  
 Physical Census. J. G. Adams, Montreal.—p. 794.  
 Provincial Ministry of Health. W. F. Roberts, St. John, N. B.—p. 817.  
 Antituberculosis Leagues in the Districts of Sanitary Inspection. E. M. Savard, Quebec.—p. 823.  
 Tuberculosis Hospitals and Dispensaries. H. A. Farris, St. John, N. B.—p. 830.  
 Some Danger Signals in Cardiovascular Disease. J. Third, Kingston, Ont.—p. 835.

Indiana State Medical Association Journal,  
Fort Wayne

Sept. 15, 1919, 12, No. 9

- \*War Wounds of Abdomen. H. O. Bruggeman, Ft. Wayne.—p. 225.  
 \*Case of Appendiceal Abscess Discharging Through Vagina. M. E. Porter, Ft. Wayne.—p. 228.  
 Foreign Bodies In Bladder and Cystoscope as an Aid in Their Removal. W. N. Wishard, Indianapolis.—p. 229.  
 Lobectomy vs. Ligation of Vessels in Toxic Goiter. T. B. Noble, Indianapolis.—p. 230.

**War Wounds of Abdomen.**—Bruggeman says that taken as a whole the treatment of gunshot wounds of the abdomen was about the most unsatisfactory work of any phase of war surgery. The responsibility was great and the mortality high. It had none of the red fire features of chest surgery, and it lacked the many novel experiences that accompanied the operative treatment of battle injuries of the brain.

**Appendiceal Abscess.**—Porter's patient was only 9 years of age, she had had influenza followed by pain all over the abdomen, finally localizing in the left side of the pelvis. About a week later there was a copious discharge of pus from the vagina, with relief of symptoms. She remained well for about five months when she began to complain of gastric pain, pain in the right lower quadrant and vomiting. A diagnosis of appendicitis was made, operation being performed thirty-six hours after the onset of this attack. Adhesions were found involving the cecum, ileum and broad ligament, and extending down into the pelvis. During the separation of the adhesions, several abscess cavities were opened. The appendix was found perforated near the cecal end. The patient's progress was satisfactory for about eight days, when she began to complain of back pain and frequent desire to empty the rectum and bladder. The drainage from

the wound had been quite copious until within a few hours of the onset of these symptoms. Rectal examination disclosed a very tender but nonfluctuating mass in the pelvis. The lower end of the original wound was opened and the finger introduced into the pelvis without opening the general peritoneal cavity and without discovering any pus. A drain was placed and a dressing applied. There was a copious serous discharge for two or three days, which finally subsided and the drain was removed. Following this last operation, there was considerable mucopurulent discharge from both the vagina and rectum. The rectal discharge continued for a few days and then stopped. The vaginal discharge diminished but is still present and amounts to a mild leukorrhea. Immediate relief followed the operation, and it has continued.

**Journal of Biological Chemistry, Baltimore**

August, 1919, 39, No. 1

\*Biochemistry of *Bacillus Acetoethylicum* with Reference to Formation of Acetone. J. H. Northrop, L. H. Ashe and J. K. Senior, New York.—p. 1.

Determination of Beta Hydroxybutyric Acid, Acetoacetic Acid, and Acetone in Blood. D. D. Van Slyke and R. Fitz, New York.—p. 23.

\*Studies of Gastric Residuum. III. Amino Acid Nitrogen. R. Cessna and N. C. Fowler, Ames, Iowa.—p. 25.

Critical Factors in Plant Tissues. II. Distribution of Water-Soluble Vitamin. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 29.

\*Preparation of Protein Free from Water-Soluble Vitamin. T. B. Osborne, A. J. Wakeman and E. L. Ferry, New Haven, Conn.—p. 35.

\*Nonprotein Nitrogenous Constituents of Human Milk. W. Denis, F. B. Tabot and A. S. Minot, Boston.—p. 47.

\*Efficiency of Oat Protein in Adult Human Nutrition. II. C. Sherman, J. C. Winters and V. Phillips, New York.—p. 53.

\*Vitamin Studies. IV. Antineuritic Properties of Certain Physiologic Stimulants. R. A. Dutcher, St. Paul.—p. 63.

Epichitosamin and Epichitose. P. A. Levene, New York.—p. 69.

Cytidine Phosphoric Acid. P. A. Levene, New York.—p. 77.

Lipids of Heart Muscle. P. A. Levene and S. Komatsu, New York. 85.

Cephalin. VI. Bearing of Cochin on Structure of Cephalin. P. A. Levene and S. Komatsu, New York.—p. 91.

d-Chondrosamin and d-Chitosaminohexonic Acids. P. A. Levene and I. Matsuo, New York.—p. 105.

\*Lewis-Benedict Method of Blood Sugar Determination. S. Morgulis and H. M. Jahr, Omaha.—p. 119.

\*Isolation of Iodin Compound which Occurs in Thyroid. E. C. Kendall, Rochester, Minn.—p. 125.

Studies on Behavior of Inulin in Animal Body. II. Inulin in Alimentary Canal. R. Okey, Urbana, Ill.—p. 149.

Hemato-Respiratory Functions. II. W. Haggard and Y. Henderson, New Haven, Conn.—p. 163.

**Biochemistry of *Bacillus Acetoethylicum*.**—Several microorganisms have been described as forming more or less acetone, and at least two have been used on a commercial scale. Of these organisms, *Bacillus maccranns* was used by Northrup and his associates in this work, inasmuch as it forms ethyl alcohol as a by-product. Since it was not possible to obtain a culture of the organism in this country, the bacillus was isolated from potatoes. The optimum conditions of temperature, reaction of the medium, physiologic state of the culture, size of inoculation, air supply and nitrogen supply have been determined by the authors and are described.

**Studies of Gastric Residuum.**—The average amino-acid nitrogen found by Cessna and Fowler in twenty-six normal cases of gastric residuum was 36.4 mg. per hundred cubic centimeters. The amount of amino-acid nitrogen apparently bears no relationship to acidity or pepsin or trypsin content. In view of these data the authors believe that the high amino nitrogen value of the contents of the fasting stomach appears not to be significant in gastric carcinoma.

**Preparation of Protein Free from Water Soluble Vitamin.**—From the experiments described in this paper it is evident that the commercial cornstarch, which the authors used, contained no appreciable quantity of the water soluble vitamin; for even though this starch constituted about 50 per cent. of the diets the rats died after a short period. That starch furnishes carbohydrate in a form adequate for the normal nutrition of rats has been demonstrated by many experiments made by the authors, which fact, in connection with the ease with which the commercial starch, practically free from water soluble vitamin, can be obtained, makes this an excellent source of carbohydrate for vitamin free diets.

**Nonprotein Nitrogenous Constituents of Human Milk.**—The authors report the results of a series of observations made on the milk of normal women in which they made determinations of total nonprotein nitrogen, urea, uric acid, creatin and creatinin, in an effort to obtain data regarding the relative quantities of these substances present under normal conditions. It is apparent that while there are slight variations in the amount of the various extractive substances present in samples of milk drawn at different periods throughout the day, these variations are relatively small, and could not be considered of importance in the interpretation of results. There is also no apparent uniformity in the slight variations noted, in some cases for instance the highest value for urea was found in the samples drawn during the forenoon, in others a maximum was attained in the late afternoon or evening. The results of the examination of seventy-one samples of milk may be summarized as follows:

	Minimum.	Maximum.
	mg.	mg.
Total nonprotein nitrogen	20.0	37.0
Urea nitrogen	8.3	16.0
Amino nitrogen	3.0	8.9
Preformed creatinin	1.0	1.6
Creatin	1.9	3.9
Uric acid	1.7	4.4

**Oat Protein in Human Nutrition.**—Sherman's experiments indicate that for the purposes of practical dietics equal weights of oat and maize proteins may be regarded as essentially equal in value, and that even the minimum amount of milk which can possibly be regarded as permissible in the light of our present knowledge of nutrition, will apparently so supplement the proteins of either the maize or oat kernel as to make them function with an efficiency comparable with that of the average protein of mixed diet in the maintenance metabolism of man.

**Vitamin Studies.**—The substances used by Dutcher, i. e., thyroxin, desiccated thyroid, pilocarpin and tethelin, apparently produced definite relief in certain acute cases of avian polyneuritis. However, in none of the cases described did he obtain the almost immediate response that is usually observed when vitamin preparations are fed. Pigeons have been relieved of the paralytic symptoms, in avian polyneuritis, by means of thyroxin, desiccated thyroid gland, pilocarpin hydrochlorid and tethelin. The work is being continued along the lines indicated by the above observations.

**Blood Sugar Determination.**—Reviewing all their data Morgulis and Jahr are convinced that the presence of creatin increases the blood sugar value as determined by the Lewis-Benedict method. It is true that concentrations less than 2 mg. of creatin per hundred cubic centimeter have no effect on the accuracy of the reaction, but with greater concentrations the error in the sugar analysis increases progressively. It is probable, therefore, that the Lewis-Benedict method is applicable to normal bloods where the creatin concentration is from 1 to 3 mg. per hundred cubic centimeter, but under pathologic conditions when the creatin level may rise to 10 to 40 mg. per hundred cubic centimeters the sugar analysis by the Lewis-Benedict method loses its value as a quantitative procedure.

**Iodin Compound in Thyroid.**—Kendall's paper consists mainly of detailed descriptions of methods used to isolate this iodine compound—thyroxin—from the compound.

September, 1919, 39, No. 2

Impairment of Accurate and Quantitative Measurements in Experimental Work on Nutrition and Accessory Food Factors. II. Chick and E. M. Hunt, London.—p. 203.

Maintenance and Reproduction with Grain and Grain Products as the Sole Dietary. E. B. Hart and H. Stenblad, Madison, Wis.—p. 209.

Vitamin Requirements of Certain Yeasts. F. M. Baehman, Madison, Wis.—p. 235.

Determination of Ammonia in Blood. O. Lolo, Boston.—p. 259.

Studies of Acidosis. XVI. Determinations of Bicarbonate in Blood Plasma of Different Species by Titration and Carbon Dioxide Capacity Method. E. Sillman, New York.—p. 244.

Concentration of Ammonia in Blood. Comparison with Concentration of Ammonia in Different Secretions and Tissues, Especially Muscle Tissue. K. L. Gad Anderson, Copenhagen, Denmark.—p. 267.

\*Action of Pityalin. II. McLaughlin, Chicago.—p. 273.

\*Micro Determination of Nitrogen by Direct Nesslerization and of Total Solids, in Drop Quantities of Human Blood. A. W. Peters, Omaha.—p. 285.

Relation of Plant Carotenoids to Growth, Fecundity and Reproduction of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 299.

Physiologic Relation Between Fecundity and Natural Yellow Pigmentation of Certain Breeds of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 313.

Influence of Specific Feeds and Certain Pigments on Color of Egg Yolk and Body Fat of Fowls. L. S. Palmer and H. L. Kempster, Columbia, Mo.—p. 331.

Effect of High Protein Acid Forming Diets on Excretion of Ammonia by Rabbits. J. F. Lyman and B. Raymond, Columbus, Ohio.—p. 339.

Acid Fermentation of Xylose. E. B. Fred, W. H. Peterson and A. Davenport, Madison, Wis.—p. 347.

Action of Salts on Metabolism of Nerves. L. K. Riggs, Chicago.—p. 385.

Altered Relation of Catalase to Animal Oxidations. R. L. Sieble, Philadelphia.—p. 403.

**Action of Ptyalin.**—Evidence is presented by McGuigan in favor of the view that ptyalin unites with the starch during digestion, and exerts a force which causes hydrolysis.

**Nitrogen and Solids in Blood.**—A method is described by Peters for the determination of total and nonprotein nitrogen and of total solids in from fifteen to thirty drop quantities of human blood so that frequent or serial determinations at short intervals can be made conveniently on the same individual. The use of a single fixed color standard has been developed for the measurements of the Nesslerized nitrogen solutions. The conditions of accuracy have been tested and the quantitative evaluation of the colorimetric results has been adjusted to variations of analytical conditions so that the variability and certainty of the results lie within a few thousandths of a milligram of nitrogen. A procedure for determining the dry weight of a few drops of blood is also described which obviates incomplete or unequal drying.

### Journal of Cutaneous Diseases, Chicago

July, 1919, 37, No. 7

\*Etiology of Molluscum Contagiosum. Preliminary Report of Experimental Study. U. J. Wile and L. B. Kingery, Ann Arbor.—p. 431.

\*Serologic Reactions in Case of Rhinoscleroma. C. H. Bailey, New York.—p. 447.

Skin Diseases at Army Camp. M. B. Hutchins, Atlanta.—p. 456.

**Etiology of Molluscum Contagiosum.**—Wile and Kingery believe that molluscum contagiosum can be produced experimentally in the human being from the sterile filtrate of typical lesions. The incubation period of experimental lesions probably depends on a number of conditions, among which surely individual predisposition or susceptibility must play a rôle. In the authors' first case an incubation of fourteen days occurred; in the second case, in which injection was made at the same time and under like conditions, lesions clinically diagnosable appeared in about twenty-five days, but were microscopically established only fifty-five days after infection. The authors believe that the so-called molluscum bodies require a longer time for their development than is required for the development of macroscopic lesions; that is to say, that the molluscum body represents a degeneration stage in the evolution of the molluscum tumor, not coincident in time with its early development. It is submitted that molluscum contagiosum is caused by a filtrable virus.

**Serologic Reactions of Rhinoscleroma.**—The blood serum from a case of rhinoscleroma studied by Bailey contained complement-fixing antibodies for its own and one other strain of rhinoscleroma bacillus in very large and similar amounts. Power to fix complement with other species of gram-negative encapsulated bacilli from the respiratory tract, including two strains of *Bacillus lactis-aerogenes* was high, but less high than with the rhinoscleroma bacillus. Complement fixation with two strains of *B. lactis-aerogenes* from the intestinal tract was practically absent. Coincident with clinical improvement under roentgen-ray and radium treatment, there was a diminution in the complement fixing power. The rhinoscleroma bacillus, because of its cultural characteristics and immunologic reaction, recorded here and by other authors, would seem to be as much entitled to recognition as a species distinct from, but closely related to, other members of the group as are others now generally so recognized; and the results of the complement fixation tests favor the view that the rhinoscleroma bacillus is the etiologic factor in this disease.

August, 1919, 37, No. 8

- \*Epidermophyton Infection. C. J. White, Cambridge, Mass.—p. 501.  
 Transverse Hyperpigmented Lines of Thorax and Abdomen of a Negro Infant. E. D. Weidman, Philadelphia.—p. 517.  
 \*Dermatitis Exfoliativa; Report of Fatal Case. J. B. Ludy, L. Cogswell and E. L. Hunt, Camp Hancock, Ga.—p. 524.

**Epidermophyton Infection.**—According to White's observations, the epidermophyton is capable of infecting singly the thighs and adjacent skin, the toes and feet, the fingers and hands, the axillae, the bends of the elbows and of the knees, the flat surfaces of the trunk and extremities and the scalp, or conjointly any combination of the above regions. White describes scariatin disease as he has observed it in each of these various regions (192 cases in ten years) and the treatment which he found to be most effective in each group.

**Dermatitis Exfoliativa.**—The case cited by Ludy and others presents a diffuse generalized desquamative skin inflammation associated with general hyperplasia of the lymphatic glands and with melanosis, complicated by acute diffuse nephritis, passive congestion and edema of the lungs with pneumonitis, acute peribronchial and focal infection; macular hyperemic eruptive lesions of the small intestine; passive congestion and parenchymatous degeneration of the liver; passive congestion of the spleen; passive congestion and cell exhaustion of the suprarenals.

### Journal of Laboratory and Clinical Medicine, St. Louis

February, 1919, 4, No. 5

- Lesions of Respiratory and Gastrointestinal Tracts Produced by Mustard Gas (Dichloroethyl-Sulphid). A. S. Warthin, Ann Arbor.—p. 229.  
 General Pathology of Mustard Gas (Dichloroethyl-Sulphid) Poisoning. A. S. Warthin and C. V. Weller, Ann Arbor.—p. 265.

March, 1919, 4, No. 6

- Diagnosis of Acidosis. Review and Criticism of Methods at Present in Use. J. J. R. MacLeod, Toronto.—p. 315.  
 Epidemic of Influenza at Camp Devens, Mass. P. G. Woolley, Cincinnati.—p. 330.  
 Nature of Lymphocytosis of Acute Infectious Diseases. W. E. Sanders, Des Moines, Iowa.—p. 344.  
 Notes Concerning Hemolytic Streptococcus Infection. M. S. Fleisher, and C. D. Hamilton, U. S. Army.—p. 347.

May, 1919, 4, No. 8

- Fragility of Erythrocytes. H. Z. Giffin and A. H. Sanford, Rochester, Minn.—p. 465.  
 Studies in Plasmogenesis. A. L. Herrera, Mexico City, Mex.—p. 479.  
 Types of Pneumococcus in Lobar Pneumonia. R. Richardson, Philadelphia.—p. 484.

### Journal of Nervous and Mental Diseases, Lancaster, Pa.

July, 1919, 50, No. 1

- \*Phenomena of Neurobiotaxis as Demonstrated by the Position of the Motor Nuclei of the Oblongata. C. U. Ariens Kappers, Amsterdam, Holland.—p. 1.  
 \*Essential Myoclonia. L. P. Clark, New York.—p. 17.  
 Uniform Statistical Reports of Insanity now Assured. Official Classification of Psychoses. J. V. May, Boston.—p. 42.

**Phenomena of Neurobiotaxis.**—A study of the displacements of the nerve cells in the direction of the place of stimulation and a comparison with the other phylogenetic changes in the oblongata and midbrain, have given Kappers the conviction that these shifting are caused by the difference in stimulation, i. e., the difference of development to their corresponding posterior roots and the difference in the sensory, optic, vestibular, acoustic, and other reflexes that influence other functions. At the same time changes in the muscular system complicate these factors. The nuclei appear to shift in the direction of the place whence the majority of the stimuli come to them.

**Essential Myoclonia.**—Aside from myoclonia being the symptomatic accompaniment of various organic diseases more or less pronounced, Clark says it appears to exist solely in an ultramicroscopic lesion in the brain per se. An atrophy of the neostriatum or lenticular region between the corpus striatum and the globus pallidus is the most probable seat of the lesion in which the tonic function of the neostriatum is affected.

**Journal of Orthopedic Surgery, Lincoln, Neb.**

September, 1919, 1, No. 9

- Infected Wounds of Ankle. P. Chutro, Paris.—p. 521.
- Nonunion Following Corrective Osteotomy of Tibia. E. S. Geist, Minneapolis.—p. 527.
- Lengthening Quadriceps Tendon. G. E. Bennett, Baltimore.—p. 530.
- Self-Correcting Brace for Lateral Curvature of Spine. W. Truslow, Brooklyn.—p. 547.
- Treatment of Ununited Fractures. F. C. Kidner, Detroit.—p. 549.
- Pedal Groups. W. J. Merrill, Philadelphia.—p. 562.

**Lengthening of Quadriceps Tendon.**—Loss of flexion as the result of fractures of the lower third of the thigh, which require plating or long immobilization because of slow union, Bennett feels is due to shortening and adhesions between the deep central fibers of the quadriceps (particularly the crureus vastus internus and vastus externus). He describes an operation which overcomes this shortening. It consists in severing the central section of the tendon at the point of adhesions, splitting the vastus internus and vastus externus free, and separating the attachment of these muscles from the patella, leaving the central section with a broad attachment to the patella, forcibly flexing the knee, and pulling down the section dissected. The next step is the sewing up of the structures in such a way as to give the greatest amount of strength. The vastus internus and vastus externus are firmly united to the patellar tendon, the sections immediately above are sewed together with either strong silk, kangaroo tendon or chromicized catgut, the leg is then fixed in a flexion position of about 80 degrees for a period of three weeks. At the end of this time the plaster is removed, and the leg allowed to be extended fully, giving passive motion each second day.

**Journal of Pharmacology and Experimental Therapeutics, Baltimore**

September, 1919, 14, No. 1

- Relation Between Tonus and Smooth Muscle in Terrapin Heart. C. D. Snyder and E. C. Andrus, Baltimore.—p. 1.
- Action of Epinephrin on Heart. I. Action on Turtle Heart. W. J. R. Heinekamp, Chicago.—p. 17.
- Salicylates. XI. Stability and Destruction of Salicyl Group Under Biologic Conditions. P. J. Hanzlik and N. C. Wetzel, Cleveland.—p. 25.
- Salicylates. XII. Excretion of Salicyl After Administration of Methyl Salicylate to Animals. P. J. Hanzlik and N. C. Wetzel, Cleveland.—p. 43.
- Effects of Chlorin on Isolated Bronchi and Pulmonary Vessels. H. G. Barbour and H. W. Williams, New Haven, Conn.—p. 47.
- Drugs After Chlorin Gassing. I. Influence of Morphine on Fatality of Chlorin Poisoning. H. G. Barbour, A. M. Hjort and F. A. Taylor, New Haven, Conn.—p. 55.
- Drugs After Chlorin Gassing. II. Treatment of Gassed Dogs with Circulatory Stimulants. H. G. Barbour, New Haven, Conn.—p. 61.
- Effects of Chlorin on Body Temperature. H. G. Barbour, New Haven.—p. 65.

**Stability and Destruction of Salicyl Group.**—According to Hanzlik and Wetzel, solutions of sodium salicylate gradually deteriorate on standing, the loss being greater with weaker solutions. The destruction is due to some form of living matter such as fungi, since solutions containing a preservative (chloroform), and free from fungi, do not deteriorate. Yeast solutions salicylate, but not nearly as much as the fungus which naturally grows in salicylate solutions. Treatment of salicylate with hashed animal organs results in considerable loss of the drug, which in part, at least, is due to destruction of salicyl. There is no difference between the action of liver and other organs. About 20 per cent. of salicylate administered to normal human individuals is destroyed, since the loss cannot be accounted for in sweat and feces or by retention. The destruction in animals (dog and cat) is even greater, amounting to about one half of the salicyl administered. The destruction of salicylate is markedly increased (about 40 per cent.) in febrile conditions of man, drug habits (alcohol and morphine), nephritis of both man and dog, and in exophthalmic goiter. The destruction does not appear to be the special function of a given organ such as the liver, since the excretion in certain diseases of the liver in man in hepatic degeneration in animals was within the normal range. The increased capacity for destruction, therefore, may be ascribed to the general increase in metabolism (catabolism) of febrile conditions and exophthalmic goiter;

to retention with prolonged exposure to the destructive action of the tissues in nephritis.

**Excretion of Salicyl.**—The excretion of salicyl by animals (dog and cat) after the administration of methyl salicylate Hanzlik and Wetzel claim is much less (25 per cent.) than after sodium salicylate. After gastric administration the free ester was found in urine in concentrations of from 0.2 per cent. to 0.52 per cent., and 14.4 per cent. after intramuscular injection. This may be of importance in explaining the greater analgesic properties and toxicity possessed by methyl salicylate, and in urinary and systemic antiseptics.

**Effects of Chlorin on Bronchi.**—The presence of even small concentrations of chlorin Barbour and Williams state leads to a slight relaxation of pulmonary vessels. When a concentration approximating 250 mg. of chlorin to 1 liter of Locke's solution is attained the same response occurs but is soon succeeded by a slow and prolonged contraction of the muscle. High concentrations, 620 mg. per liter, produce no relaxation but a rapid and extensive contraction. These vascular rings will, however, relax again if the solution be replaced by one which is chlorin free. The bronchial musculature yields similar responses to chlorin but the relaxation occurs with less constancy. It was marked however in one case where the concentration was as high as 680 mg. being succeeded by the usual constriction produced by such amounts. Another difference between vessels and bronchi lies in the fact that for the latter the minimal constricting concentration is much lower than for the former, less than 200 mg. per liter sufficing to contract the bronchial rings.

**Morphin After Chlorin Gassing.** Barbour and his associates claim that subcutaneous doses of morphin as large as 10 mg. per kilogram (given twice daily) exert, if anything, an unfavorable effect on chlorin gassed dogs. Smaller doses (3 to 5 mg. per kilogram) do not appear to influence significantly the fatality percentage. It would appear that morphin may safely be used in gassed individuals, for its analgesic effect, if the size and frequency of the doses are limited.

**Epinephrin After Chlorin Gassing.**—Barbour says that it is improbable that either epinephrin or ouabain can be made to exert a favorable influence on chlorin poisoned dogs.

**Effects of Chlorin on Body Temperature.**—In the treatment of gassed patients it is suggested by Barbour that an excessively warm environment may be as dangerous as one which is too cold.

**Kansas Medical Society Journal, Topeka**

September, 1919, 19, No. 9

- Differential Diagnosis of Mental Diseases. M. L. Perry, Topeka.—p. 205.
- My Experience at the Front. J. G. Missildine, Parsons.—p. 209.
- General Psychiatry for General Practitioner. K. A. Menninger, Topeka.—p. 212.

**Kentucky Medical Journal, Bowling Green**

September, 1919, 17, No. 9

- Empyema Treated by Injection of Bismuth Paste. H. R. Nusz, Cecilia.—p. 364.
- Urgent Need of Better Health Work. J. F. Dunn, Arlington.—p. 365.
- Eclampsia: An Hypothesis. L. K. H. Blauf, Louisville.—p. 367.
- Summer Diarrheas of Children. W. J. Sha klet, Cincinnati.—p. 368.
- Diagnosis. M. M. Robinson, and A. B. Berg, B. p. p. p. 370.
- Hygiene of Nose and Throat. R. Leubhart, Oberlin.—p. 372.
- Symptoms and Treatment of Arterio Sclerosis. H. A. Gilliam, Milburn.—p. 378.

**Medical Record, New York**

Sept. 9, 1919, 96, No. 12

- Therapeutics and Gastro Intestinal Disorders. D. Vanderhoof, Richmond, Va.—p. 487.
- Peripheral Irritations and their Remote Consequences. R. T. Morris, New York.—p. 491.
- Malaria. E. H. Williams and G. G. Hunter, Los Angeles.—p. 492.
- Hay Fever and Asthma. W. Scheppercell, New Orleans.—p. 491.
- Pseudotumor's Disease; Angiospasm of Internal Auditory Artery. A. Leprince, Nice, France.—p. 496.
- Laboratory Service in American Expeditionary Forces. R. G. Stillman, New York.—p. 500.
- Observations on Empyema Thoracis in Camp Hospital No. 26, 1918-1919. S. S. Rosenfeld, U. S. Army.—p. 505.

**Causes of Indigestion.**—Vanderhoof has tabulated the clinical diagnoses in 2,000 consecutive cases of chronic or recur-

ring indigestion. The series embraced only those patients whose chief complaint was attributed to some disturbance of digestion, such as "stomach trouble," dyspepsia, abdominal pain, flatulence, vomiting, etc., and entirely excluded patients complaining of other symptoms who were found on examination to have some lesion of the gastro-intestinal tract. Each patient received thorough study embracing a careful history, complete physical examination, and the necessary laboratory analyses, including as a routine one or more gastric analyses, uric examination, and differential blood count, with hemoglobin determination. In the second 1000 cases the fractional method of gastric analysis was employed and routine Wassermann tests of the blood serum have been done. Advantage has been taken of roentgen-ray studies, and much helpful advice has been secured by Vanderhoof in consultations with surgical colleagues. The result was as follows: chronic appendicitis, 436 cases, 21.8 per cent.; chronic cholecystitis, 224 cases, 11.2 per cent.; neuroses, 218 cases, 10.9 per cent.; peptic ulcer, 206 cases, 10.3 per cent.; affections of kidneys, 137 cases, 6.8 per cent.; achylia gastrica (uncomplicated), 81 cases, 4.0 per cent.; visceroperitonitis, 69 cases, 3.4 per cent.; affections of lungs, 60 cases, 3.0 per cent.; affections of heart, 50 cases, 2.5 per cent.; cancer of stomach, 46 cases, 2.3 per cent.; affections of blood and ductless glands, 44 cases, 2.2 per cent.; enterospasm (mucoous colitis), 40 cases, 2.0 per cent.; peritoneal adhesions, 38 cases, 1.9 per cent.; affections of female pelvic organs, 35 cases, 1.7 per cent.; affections of eyes, 32 cases, 1.6 per cent.; migraine, 26 cases, 1.3 per cent.; organic disease of central nervous system, 22 cases, 1.1 per cent.; cancer of intestine, 21 cases, 1.0 per cent.; infectious diseases, 19 cases, 0.9 per cent.; affections of liver, 18 cases, 0.9 per cent.; affections of ears, 16 cases, 0.8 per cent.; enterogenous toxemia, 11 cases, 0.5 per cent.; miscellaneous conditions, 114 cases, 5.7 per cent.; diagnosis not made, 37 cases, 1.8 per cent.

### Mental Hygiene, Concord, N. H.

July, 1919, 3, No. 3

- \*Mental and Nervous Changes in the School Children of Trier, Germany, Caused by Malnutrition. S. Blanton, U. S. Army.—p. 343.
- Success and Failure as Conditions of Mental Health. W. H. Burnham.—p. 397.
- Education and Mental Hygiene. C. M. Campbell, Baltimore.—p. 398.
- Special Preparation of Psychiatric Social Worker. B. Glueck.—p. 409.
- Individual Versus the Family as Unit of Interest in Social Work. E. E. Southard, Boston.—p. 436.
- \*Mediopsychologic Study of Delinquents. W. Healy and A. G. Bronner, Boston.—p. 445.
- Better Statistics in Criminology. H. M. Pollock.—p. 453.

**Mental Changes in Children Due to Malnutrition.**—Blanton reports the results of a study of the changes occurring in the schoolchildren of Trier, Germany, due to malnutrition caused by war conditions. It was found that at least 40 per cent. of the children, were suffering from malnutrition to such a degree as to cause a loss of nervous energy. There was no increase in the percentage of cases normally found of neuroses, psychoses, abnormal "nervousness," organic nervous diseases, tics or conduct disorders. There was, however, an increase of the number of borderline defectives totaling not more than 1 per cent. of the total school population. There was no increase in the percentage of speech defects, especially stuttering, normally found; but there was a marked increase in poor, lisping, slurring speech due to the retardation or interference of the fine coordinations, necessary for good speech, caused chiefly by malnutrition. The percentage of children failing to pass grades increased from an average of 8 per cent. in prewar years to 15 per cent. in 1917 and 1918. It is estimated that about half of this 7 per cent. increase in retardation is due to malnutrition, the other half to war conditions. The specific changes noted in the children caused by malnutrition were a lack of nervous and physical energy; inattention during school hours; poor and slow comprehension for school tasks; poor memory for school work; general nervous restlessness while in school.

**Caring for Delinquents.**—Healy and Bronner point out that a rational method of meeting the needs of the youthful offender, which indirectly affords, of course, the greatest protection to society by thwarting his prospective career, is

only to be developed by utilizing the facts acquired through a good technic of mediopsychology. This procedure, carried out with sympathy and thoroughness, will contribute greatly to the effectiveness of courts and of other human agencies which attempt some solution of the problems of delinquency. Many of the huge number of failures which occur under the ordinary system it will be possible to avoid. Moreover, evaluating any method or régime as conducted under court or institutional auspices is rationally possible only when the essential facts of causation and potentialities of the human material handled form the basis of judgment.

### Nebraska State Medical Journal, Norfolk

July, 1919, 4, No. 7

- Hospital Standardization and Medical Efficiency. J. S. Welch, Lincoln.—p. 193.
- Postoperative Care of Surgical Patients—Lesson Learned from Army Methods. A. J. Brown, Omaha.—p. 197.
- Evolution of Suprapubic Operation of Prostatectomy, and Its Late Status. J. E. Summers, Omaha.—p. 202.
- Diverticulitis and Peridiverticulitis. M. Emmert, Omaha.—p. 208.
- Herniotomy Under Local and Spinal Anesthesia. H. B. Boyden, Grand Island.—p. 210.
- Heat and Cold in Surgery. C. H. Breuer, Lincoln.—p. 212.
- Roentgen-Ray Diagnosis of Kidney Lesions. R. L. Smith, Lincoln.—p. 216.
- Lip Reading: Aid to Hard of Hearing Adults. E. B. Kessler, Omaha.—p. 217.
- Tetanus: F. A. Dorsey, Hartington.—p. 218.

### New Orleans Medical and Surgical Journal

September, 1919, 72, No. 3

- Plea for More Careful Examination of Urine in Suspected Urinologic Conditions. H. W. E. Walker, New Orleans.—p. 105.
- Pneumonia Therapy, with Special Reference to Influential Bronchopneumonia. A. A. Herold, Shreveport, La.—p. 108.
- Epidemic Meningitis from a Control Standpoint. W. H. Seemann, New Orleans.—p. 112.
- Parham-Martin Band in Oblique Fractures of Long Bones. H. B. Gessner, New Orleans.—p. 116.
- Acute Mastoid Antrum Infection in Infants. H. Dupuy, New Orleans.—p. 120.
- Lessons Learned and Results Accomplished During Influenza Epidemics. G. C. Chandler, Shreveport.—p. 124.
- Bone Grafting for Nonunion of Fractures: Discussion of Albee's Saw. E. L. Sanderson, Shreveport.—p. 130.
- Interlobar Pleurisy. M. S. Picard, Shreveport.—p. 132.
- Mechanical Treatment of Nosebleed. D. T. Atkinson, San Antonio.—p. 135.
- Elixir Trichlorethiden Propenyl Ether in Obstetrics. J. W. Lamon, Donner, La.—p. 137.

### New York Medical Journal

Sept. 20, 1919, 110, No. 12

- Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y.—p. 485.
- Relative Importance of Different Symptoms and Signs in Clinical Study of Cardiac Diseases. G. Wilson, Baltimore.—p. 488.
- Dementia Praecox. J. F. W. Meagher, Brooklyn.—p. 490.
- One Year (1918) of Urology at Brooklyn Hospital. N. P. Rathbun, Brooklyn.—p. 495.
- Pneumoperitoneum, Roentgenologic Findings, and Observations on Intraabdominal Pressure. J. Rosenblatt, Bedford Hills, N. Y.—p. 501.
- Hepatic Spasm and Hyperscretion. A. H. May, Buffalo.—p. 503.
- Case of Multiple Visceral Sarcoma. Z. I. Sabshin, Stapleton, N. Y.—p. 504.

### Oklahoma State Medical Assn. Journal, Muskogee

June, 1919, 12, No. 6

- Studies in Pycelography. J. H. Hays, Enid.—p. 148.
- Control of Venereal Disease. F. W. Ewing, Muskogee.—p. 155.
- Syphilis and Its Relation to Diseases of Eye. R. O. Early, Ardmore.—p. 157.
- July, 1919, 12, No. 7
- Cancer of Cervix; Plea for Early Diagnosis. G. A. Wall, Tulsa.—p. 187.
- Prevention of Cancer. W. F. Dutton, Tulsa.—p. 187.
- Suggestions on Cause of Cancer. A. W. White, Oklahoma City.—p. 189.
- Malignant Disease of Large Intestine. L. Long, Oklahoma City.—p. 191.
- Diagnosis of Cancer; Plea for Greater Care in Examination. B. H. Brown, Muskogee.—p. 197.
- Clinical Report of Operation on Indescent Testes. F. S. Clinton, Tulsa.—p. 198.

August, 1919, 12, No. 8

- Preparation and Use of Surgical Solution of Chlorinated Soda. M. Smith, Oklahoma City.—p. 215.
- Ovarian Function. J. S. Hartford, Oklahoma City.—p. 224.
- Blood Transfusion. F. L. Carson, Shawnee.—p. 228.

Clinical Report of Operation on Fracture of Patella. F. S. Clinton, Tulsa.—p. 231.

September, 1919, 12, No. 9

Syphilis: Social Problem of Today. M. H. Foster, U. S. Army. 239.

Syphilis; Primary Sore. J. F. Gorrell, Tulsa.—p. 245.

Skin Manifestations of Syphilis. C. R. Day, Oklahoma City.—p. 247.

Syphilis and Mental Psychosis. D. W. Griffin, Norman.—p. 248.

Methods for Treatment of Syphilis. W. J. Wallace, Oklahoma City.—p. 251.

Treatment of Syphilis. J. W. Rogers, Tulsa.—p. 254.

Curability of Syphilis. E. H. Martin and E. A. Purdum, Hot Springs, Ark.—p. 256.

Clinical Report of Mastitis. F. S. Clinton, Tulsa.—p. 261.

FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

Summer Number, 1919, 36, No. 136

Systematic Examination of Abdomen. R. G. P. Lansdown.—p. 33.

Postgraduate Study. J. M. Fortescue-Brickdale.—p. 48.

Operative Findings in Thirty Cases of Gunshot Injury of Nerves. C. A. Morton.—p. 55.

Canadian Medical Quarterly, Toronto

September, 1919, 2, No. 1

Shakespeare As a Guide in Art and Practice of Medicine. St. C. Thomson, London, England.—p. 362.

Disability Pensions. J. L. Biggar.—p. 374.

Etiology and Operative Treatment of Acquired Oblique Inguinal Hernia. E. R. Secord, Brantford, Canada.—p. 383.

Rehabilitation of Cardiac Cases. C. S. McVigar, Orpington, England.—p. 387.

Diseases of Respiratory System as Medical Problems in Rehabilitation. J. H. Elliott.—p. 392.

Medical Problems Relating to Rehabilitation of Functional Neuroses of War. G. F. Boyer.—p. 402.

Treatment of Puerperal Sepsis. A Special Consideration of Intravenous Sterilization with Chlorazene and Eusol. G. G. Copeland.—p. 407.

Glasgow Medical Journal

September, 1919, 10, No. 3

\*Resection in Sliding Hernia. H. Rutherford.—p. 113.

Gunshot Wounds with Deaths and Disabilities Resulting Therefrom, As Seen In a Home Hospital. J. A. Wilson.—p. 119.

Case of Spasmodic Stricture of Urethra. H. E. Jones.—p. 128.

Phenomena of "Serum Disease": Relation Between Its Various Forms and Proteins of Horse-Serum. W. T. G. Davidson.—p. 129. To be Contd.

**Resection in Sliding Hernia.**—Rutherford reports two cases, one of irreducible sliding hernia of the sigmoid and one of sliding hernia of the cecum and a portion of the ileum with two retrograde loops of the latter. In the second case there was also a twisting and strangulation of the cecum, which was gangrenous and gangrene of the two loops inside the abdomen and of one of the three external loops.

Indian Medical Gazette, Calcutta

August, 1919, 54, No. 8

Pandemic of Influenza (La Grippe) in Province of Coorg During 1918. E. H. Wright.—p. 281.

Treatment of Syphilis; Wassermann Reaction Thereafter. E. E. Waters.—p. 290.

Sclerochoroal Trephining by Elliot's Method. A. E. J. Liser.—p. 294.

\*Case of Parenchymatous Nephritis. D. McCay.—p. 297.

\*Treatment of Cholera. M. P. Chacko.—p. 299.

**Increased Protein Diet in Parenchymatous Nephritis.**—McCay reports a case of nephritis with edema all over the body, in which a cure was finally obtained by increasing the protein in the diet. McCay calls attention to the fact shown by Epstein that when the protein of the blood is very much reduced the osmotic tension falls and fluid passes out into the tissue spaces, and will be retained there unless and until the blood recovers its protein element. Hence, the rational treatment of these cases is to increase the protein of the blood, which is safely done by increasing the protein of the diet. The carbohydrate protein of the diet should be reduced, because one of the main products of its metabolism is water. The protein in the case cited was increased up to 165 gm. per day and this raised the total nitrogen of the patient's blood to 2.03 per cent, which was quite enough to maintain the

equilibrium between the blood fluid and the fluid in the spaces. The patient now takes from 40 to 50 ounces of water every day, and passes the whole quantity out with his urine, whereas before almost every drop of fluid he took used to pass out into the tissue spaces and collect there; and no measures—medicinal or otherwise—could make that water pass out of his body.

**Treatment of Cholera.**—Chacko records cases of cholera treated successfully by the intravenous injection of hypertonic sodium chlorid solution as suggested by Sir Leonard Rogers.

Japan Medical World, Tokyo

Aug. 17, 1919, No. 296

\*Autogenous Serum Therapy of Smallpox. K. Hata.

Efficacy of Chlorate of Chinine Against Surgical Tuberculosis. T. Matsunaga.

Chlorate of Eucetin in Pulmonary Distomatiasis. T. Saiki.

Inhibitory Influence of Linosol and Other Cresotic Derivatives Against Growth of Tubercle Bacillus. S. Takenaka.

Comparative Study of Excretion of Calcium Salts by Either Internal or Intravenous Administration. K. Shigetomi.

**Autogenous Serum Therapy of Smallpox.**—Hata carried out some clinical observations. In nonhemorrhagic smallpox no death occurred among those who had been treated with autogenous serum. In hemorrhagic cases, it produced 16 per cent. less mortality than the symptomatic treatment. In all the cases of smallpox combined the mortality was 8.6 per cent. less than with the ordinary treatment. The entire course of the illness was made strikingly short. Reconvalescent serum seems to have some therapeutic efficacy. Normal serum (human) seems to have no therapeutic efficacy against smallpox.

Journal of Laryngology, Rhinology and Otolaryngology, London

September, 1919, 34, No. 9

\*Method of Treating Atrophic Rhinitis with Osmena Based on an Alteration in Composition and Reaction of Substrate on Which the Bacterial Ferments are Acting. T. H. C. Benians, and C. H. Hayton.—p. 325.

Gunshot Wounds of Nasal Accessory Sinuses. J. F. O'Malley.—p. 333.

Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 336.

**Method of Treating Atrophic Rhinitis.**—The treatment discussed by Benians and Hayton is described as a glycoliphic method of bacterial selection, and is directed primarily against the fetor of the disease. The substances used thus far in this method of treatment are glycerin and liquid glucose. These substances are applied copiously to the mucous membrane of the nose in a mixture consisting of pure glycerin with the addition of 25 per cent. liquid glucose. Several applications a day are made with a cotton-wool applicator, the whole of the nasal cavity being gone over and the crusts rubbed off as far as possible. From time to time the flora of the nose is examined to note the cultural properties of the bacteria present and to determine whether or not they are of the strain to ferment the culture medium supplied. Glycerin, though less satisfactory from a theoretical point of view, since it is less easily broken up by bacteria, has some advantages over glucose on account of its physical properties. In some cases where a spray or irrigation is required a mixture of the two substances has been used in a 10 per cent. aqueous solution. The authors emphasize that the whole secret of the success in this method of treatment lies in the fact that the solution must be applied thoroughly to every part of the mucous membrane infected at least four or five times daily at first. As improvement is noted, it will not be necessary to paint so often.

Journal of Tropical Medicine and Hygiene, London

Aug. 15, 1919, 22, No. 16

Lichen Scrofulosorum in Sudan. A. J. Chalmers, and A. Innes.—p. 153.

Lancet, London

Sept. 6, 1919, 2, No. 5101

Hygiene in Egypt. A. Balfour.—p. 417.

\*Carcinoma of Rectum; Choice of Operation. I. Esak.—p. 421.

\*Significance of Tubercle Bacilli In Sputum. J. G. Greenfield and J. Anderson.—p. 423.

- Case of Lymphadenoma With Periodic Pyrexia ("Pet Eelstein Disease").  
A. Abrahamson.—p. 424.
- \*Relation of Exophthalmic Goiter to Diabetes and Glycosuria. R. T. Williamson.—p. 425.
- Cholera of Sheep. (Jaundice; Yellows or Yellowings; Headgrit or Plocach). J. P. McGowan.—p. 426.
- Aural Suppuration in Early Childhood. Prevention and Treatment. D. Guthrie.—p. 429.
- Trophoblastic Quin in Malaria. A. H. Gosse.—p. 431.
- Koestgen Rays in Treatment of Certain Forms of Dysmenorrhea: Plea for Their More Extensive Use. F. Herniman-Johnson.—p. 432.
- \*Iodids and The Thyroid. F. Ransom.—p. 433.

**Operation for Carcinoma of Rectum.**—Buck claims that only 30 per cent. of cases of carcinoma of the rectum admit of radical operation when first seen. He insists that when radical operation is impossible, a hypogastric colostomy should be done at once. Radical operations which aim at retaining the anal canal, he says, are pathologically unsound. The only sound radical operations in his opinion are: (1) the two stage operation (colostomy and intraperitoneal excision by the perineal route later); and (2) the combined abdomino-perineal operation. Of these, the former is the better, except in the case of a growth situated at the junction of the sigmoid and the rectum.

**Sedimentation of Tubercle Bacilli in Sputum.**—In the method described by Greenfield and Anderson 5 c.c. of sputum are mixed with twice their volume of sodium carbonate (crystals) 1, phenol 1 and water 100, in a centrifuge tube; the tube is then covered with a rubber cap, shaken for a few minutes and put in the incubator for from twelve to twenty-four hours. At the end of this time the tube is centrifuged for about fifteen minutes, the supernatant fluid poured off, and films made from two to four loopfuls of the deposit are stained in the usual way.

**Relation of Exophthalmic Goiter to Diabetes and Glycosuria.**—Cases are reported by Williamson to illustrate that a relationship exists between exophthalmic goiter to diabetes mellitus and glycosuria.

**Iodids and Thyroid.**—The action of iodids in relieving a condition in which the thyroid secretion is deficient, Ransom says, is due to two facts: (1) Iodin is specifically absorbed by the gland; (2) the iodine in the gland in saturating the unsaturated fatty acids of the blood supply favors the auto-lysis by which the active principle of the gland is produced. Ransom states further that the efficacy of iodids in tertiary syphilis may be explained on these lines, and it is anticipated that tertiary syphilis may be treated successfully with thyroid.

### Medical Journal of Australia, Sydney

Aug. 9, 1919, 2, No. 6

- Radical Cure of Pelvic Deformity. H. Jellett.—p. 102.
- \*Outbreak of Scorbout at Kew, Victoria. W. A. T. Lind.—p. 107.
- Clinical Diagnosis of Spanish Influenza. D. P. O'Brien.—p. 108.

Aug. 16, 1919, 2, No. 7

- Nationalization of Medicine. J. H. L. Cumpston.—p. 125.
- Sixty Cases of Pneumonic Influenza Treated with Mackinnon-Ray Vaccine. A. Grieves.—p. 128.
- Tendon Transplantation for Dorsal Intersosseous Paralysis. L. G. Tece.—p. 131.

**Etiology of Scurvy.**—Lind records twelve cases of scurvy from the Idiot Cottages at Kew, Victoria, which showed some interesting features concerning the etiology of this disease. The disease affected the inmates of three cottages only. One of the buildings is situated several hundred yards from the other two buildings, which are about 50 yards from each other, but patients are frequently transferred from one to the other of these buildings. Investigations showed that all the patients affected were crippled and confined to bed or chair. The disease attacked both sexes with the same intensity and frequency. There has been no alteration in the dietary of the patients for years. Other patients suffering from the same crippled conditions and with the same food were unaffected. All the milk used in the institution is boiled before the patients consume it. The food given to these hand fed patients contains excess of carbohydrates over the proteins and it is all cooked. The timing of the onset in each ward suggested a contagious disease. The scurvy cleared up in

the majority of the cases shortly after the patients received a special dietary, consisting of raw eggs, lime water, lemon juice and raw milk. A more liberal supply of vegetables, porridge and beef tea was given to all patients receiving invalid diet. Those patients who died were examined post-mortem and showed extensive hemorrhage under the periosteum of the long bones and separation of the epiphyses. It is suggested that in addition to the lack of certain vitamins, there may be a contagious infection present. The evening temperature of the patients was usually about 38 C.

### Practitioner, London

September, 1919, 103, No. 3

- Some General Principles of Therapeutics. R. Hutchison.—p. 161.
- Pulmonary Tuberculosis. Sir T. Horder.—p. 176.
- Early Diagnosis of Intestinal Obstruction. R. Warren.—p. 182.
- Operative Treatment of Peptic Ulcer. J. Taylor.—p. 194.
- Review of Recent Work on Nervous Diseases. H. C. Thomson.—p. 203.
- John Hunter's Influence on Genito-Urinary Surgery. H. Litt.—p. 213.
- Fractured Lumbar Laminectomy. R. E. Smith.—p. 229.
- Reflex Uterine Dyspepsia. T. G. Moorhead.—p. 231.
- Historical Notes on Poison Gas. H. W. Spaight.—p. 233.

### Annales de Médecine, Paris

August, 1919, 6, No. 3

- Conditions and Mechanism of Artificial Nystagmus of Rotatory and Vertical Types. L. Bard.—p. 165.
- \*Congenital Disease of the Heart. E. Lenoble.—p. 185.
- \*The Alleged Allergic Relations between the Skin Tuberculin and Luetin Reactions. C. Blechmann.—p. 200.
- \*Pancreatic Diabetes. M. Labbé.—p. 204.
- \*Acute Larynx Paralysis after Vaccination against Typhoid. G. Guilain and J. A. Barré.—p. 218.
- \*Some Tuberculosis Statistics. P. J. Ménard.—p. 223.
- Slow Endocarditis in Man of Fifty-Two. A. Cain and J. Paraf.—p. 234.

**Congenital Disease of the Heart.**—Lenoble analyzes the necropsy findings in two additional cases of congenital disease of the heart which had caused no serious symptoms during the thirty-five years of life. He describes further the clinical findings in three other similar cases, this report supplementing three previous articles in the *Annales*. In less than three years he has encountered (in Bretagne) thirteen cases of these congenital heart lesions. The diversity of the clinical types was extreme.

**Relations Between Luetin and Tuberculin Skin Reactions.**—Blechmann has been comparing the responses to the luetin skin and the Pirquet tuberculin skin tests in eighty children. He obtained a positive luetin reaction in from 30 to 35 per cent. of the children with inherited syphilis, but he also obtained a positive reaction in 40 per cent. of the children free from inherited syphilis. This suggests that the luetin reaction is not specific. His study of the subject seems to indicate that the luetin reaction is quite independent of that to tuberculin, and is rarely so well defined as the Pirquet reaction.

**Pancreatic Diabetes.**—Labbé comments on the invariably grave nature of pancreatic diabetes, as digestive disturbances from the lack of pancreas functioning are superposed on the symptoms from the diabetes. The pancreas should be suspected and investigated in every case of diabetes; if found at fault, pancreatic opotherapy should be instituted in addition to the treatment of the hyperglycemia and acidosis of the diabetes. The pancreas opotherapy should aim to substitute the lacking pancreatic digestive juice, and also to stimulate the internal secretion. Improvement by this means has been realized in some cases but not in all. In his experience, the symptoms from the diabetes were not modified by it in any way but, on the contrary, there was always an important though transient increase in the glycosuria at first, as if the pancreatic opotherapy had suddenly mobilized an increased amount of sugar substances. He analyzes six cases to show the necessity for distinguishing the symptoms for which the pancreas is responsible from those due to the diabetes. He also traces the evolution of the conception of pancreatic diabetes, the "thin type," the digestive disturbances from the insufficiency of the pancreas causing more or less loss of weight. He has examined the pancreas in 19 diabetic cadavers and in 37 nondiabetics. No connection

between the lesions in the pancreas and the intensity of the diabetes was apparent, and sometimes the pancreas seemed absolutely sound in the graver cases of diabetes. But as a general thing many of the islands of Langerhans were pathologic, and transitional states from islands to acini were frequent, while the reverse was rare. In 30 of the 37 non-diabetic cadavers the pancreas was as pathologic as in many of the diabetics, and the lesions were of the same type in both, but in none was there such extreme sclerosis as was found in some of the diabetic cases. Thus neither histology nor pathologic anatomy reveals the secret of the diabetic process. There is no specific diabetic lesion in the pancreas, and we may well be guarded in our interpretation of the physiology of pancreatic lesions. In some of the six cases described, the previously obese patients grew more and more emaciated in spite of their enormous appetite which they were never able to satisfy. In one case the pancreatitis was probably of syphilitic origin.

**Landry's Paralysis After Vaccination Against Typhoid.**—Guillain and Barré are convinced of the causal connection between the antityphoid vaccination of the brigadier of 31, formerly a farmer, and the fatal acute ascending paralysis. He had been given three injections of the vaccine in 1915 and was in good health a year later, when 1.5 c.c. of the current vaccine from the laboratory of the military school at Val-de-Grâce was injected in the shoulder. That evening and the next day he complained of stiffness and numbness in the legs and hands, and by the third day he found he was unable to whistle. The symptoms progressed to paralysis, fatal the tenth day. There had been no preceding infectious disease, and the man had not been bitten by any animal. There was no history of syphilis or alcoholism, and he had three children.

**Some Statistics of Tuberculosis.**—Ménard deduces from his prolonged study of 225 tuberculous soldiers that the onset of tuberculosis may present a wide variety of types. The first sign that anything is wrong may be an *embarras gastrique*, neuralgic or rheumatic pains, functional heart disturbance, "colds," bronchitis, febrile painful lassitude, etc. The remarkable fact is that having begun insidiously with symptoms of a certain order, it persists in exhibiting this same set of symptoms all through the other symptoms which may develop *en route*. There is then a long latent interval—six months, twenty months, thirty-eight months—after the appearance of the first symptoms before the disease manifests itself. Then it throws off its mask and develops openly. What are the reasons for this sudden transformation from the insidious form to this open manifestation? He suggests that this may represent the true problem of pulmonary tuberculosis.

**Archives Mens. d'Obstétrique et de Gynécologie, Paris**

March, 1919, 8, No. 3

\*Nonpuerperal Abscess of the Ovary. E. Chomé.—p. 113.

**Nonpuerperal Abscesses of the Ovary.**—Chomé found that the abscesses were in the corpora lutea in all of his seventeen cases of this kind. The secreting elements of the ovary are on the outside, and when it opens to expel the ovule, this opening may give entrance to germs, and an abscess may develop at the entering point. No inflammatory phenomena have ever been detected in the rest of the ovary, while the abscesses in the corpora lutea always corresponded to an adjacent septic focus in or near the intestines, etc., in the small pelvis. The micro-organisms corresponded likewise, and the functional disturbances were those to be anticipated with disease in the corpora lutea. Menstruation was always profoundly modified, as also the cycle of cholesterolemia.

**Bulletins de la Société Médicale des Hôpitaux, Paris**

July 11, 1919, 43, No. 24

Case of Pulmonary Valvular Lesion plus Mitral Stenosis. C. Gandy.—p. 691.

\*Amelie Liver Abscess. A. Chauffard and F. Françon.—p. 698.

\*Sporadic Hemophilia with Myxedema. R. Renard.—p. 702.

The Arterial Pressure with Disordered Heart Action. Laubry and Lecoq.—p. 709.

Bacillary Dysentery and Malaria. E. Job and L. Hirtzmann.—p. 714.

**Amelie Liver Abscess.**—Chauffard and Françon report the case of a young man with an acute abscess in the liver, as large as a mandarin orange, following symptoms of amebic dysentery. They administered emetin and neo-arsphenamin, and recovery was soon complete with merely these medical measures. The Bordet-Wassermann reaction was positive at first, but veered to negative under the first injection of emetin. They know of ten similar cases in which an acute amebic abscess in the liver retrogressed completely under the emetin and neo-arsphenamin without the knife. In any event, the medicinal treatment should precede the operation.

**Hemophilia with Myxedema.**—Renard found marked improvement in both the tendency to hemorrhages and the myxedema under thyroid treatment of the young man in the case described.

**Journal de Médecine de Bordeaux**

Aug. 10, 1919, 90, No. 15

Luxation of Meniscus. J. Brau-Tapie.—p. 303.

\*Kidney Symptoms in Prisoners of War. H. Mallié.—p. 304.

Abscess in Front of Kidney Due to Guinea-Worm. J. Peyrot.—p. 308.

General Anesthesia in America. H. Wilderman (Philadelphia).—p. 310.

Study of Pupillary Accommodation and Convergence Reflexes. Cabannes.—p. 314.

The Administrative Control of Tuberculosis at New York.—B. L. Wyatt.—p. 316.

**War Nephritis.**—Mallié states that during his stay at the prison camp of Altengrabow in Prussia, where there were 12,000 Russian and 12,000 French and Belgian war prisoners stationed, he took notes of 404 cases of kidney disturbance among the men. The actual number was much larger than this. The only explanation possible for the facts observed, he says, is to assume a toxic action from spoiled meat and spoiled canned goods. The cooking killed the germs, but did not destroy their toxic products.

**Presse Médicale, Paris**

Aug. 14, 1919, 27, No. 45

\*The Lessons of the War. Sir A. E. Wright.—p. 445.

**The Lessons of the War and the New Views on Therapeutic Immunization.**—Sir Almroth Wright asserts that the war has added two new facts to our knowledge of immunization. We have learned that when the necessary conditions have been provided in an infected wound, that is, when all the devitalized tissues have been excised, the wound can be sutured and the protective forces of the body will suppress the infection except when there is no capacity for reaction, and there are streptococci present. The second fact is that the natural resistance to typhoid fever can be powerfully reinforced by inoculation with typhoid vaccine. If we merely apply these facts in practice this will be some gain, but nothing in comparison to what we can obtain by mastering the principles involved, and by applying them to solve other problems in the treatment of bacterial infections. He apologizes for coining new terms to express the elements involved, saying that the reserves of short and simple words have long been exhausted, and that almost all Latin words have already been incorporated in our language, as well as all the simple Greek words. There is nothing left to draw on but long and compound Greek words. To define a man or an idea, some name has to be used, and a new technical term is the missionary of the idea. Among the new terms he advocates are "phylactic power," for the defense against infection; "kataphylaxis," the mobilization and transportation of the phylactic forces to the seat of the infection; "ec-phylaxis," a region in which the defensive elements of the blood have been rendered powerless or are unable to gain access to the region. Each colony of living bacteria is thus the center of an ec-phylactic focus. His other term, "epiphylaxis" represents the reserves of defensive forces that can be brought up; "apophylaxis" is his new term for what he formerly called the "negative phase" following antityphoid vaccination, for instance.

He reiterates that we must cast aside our old belief that every immunization has to be specific. We must call to our aid collateral immunization, especially in old tuberculous or streptococcus infections in which the power to react to the

specific germs has become exhausted. The best vaccine to use is the one that gives the best immunizing reaction to the micro-organism which we are combating. He shows how this can be determined *in vitro*, and how transfusion of blood can be done with blood which has been rendered more bactericidal in the interval after it is drawn, before it is injected into the patient. A case is described in which this "immuno-transfusion" was done, with an immediate change for the better and recovery. The streptococcus infection of the extensive wound in the sacrum and ilium had previously been growing progressively worse even with repeated radical operative measures.

Aug. 21, 1919, 27, No. 46

- \*Nitrous Oxid Anesthesia. Desmarest and Amiot.—p. 457.
- \*Gangrene from Malaria. II. Alamartine.—p. 459.
- \*Acute Adenoiditis. R. Ramondi.—p. 461.
- \*The Oculocardiac Reflex. L. Binet.—p. 462.

**Malarial Gangrene.**—Alamartine reports three cases of obliterating endarteritis, with gangrene, all evidently of malarial origin. The patients were soldiers in the *armée d'Orient* and two recovered after amputation of the leg involved. The amputation came too late to save the third. In this latter case alone the malaria was the primary invasion. These cases teach the necessity for suspecting malaria in cases of extensive gangrene which otherwise might be classed as the work of syphilis or old aec. He knows of a total of fifteen cases of the kind at the Macedonian front. The gangrene may be dry and slowly progressive or it may develop rapidly, with grave toxic infectious phenomena, or it may resemble Raynaud's disease and be mistaken for trench foot. In this latter form quinin may cure, but in the other forms quinin seems powerless, and no time should be wasted on it. Armed expectancy is justified in the slow, dry gangrene cases, but immediate amputation is demanded with grave toxic-infectious manifestations. All in this group died when amputation was deferred, while one patient with an extremely grave clinical picture recovered after the prompt, high amputation, pushing quinin at the same time.

**Acute Adenoiditis.**—Raimondi describes the various affections for which acute inflammation of adenoids is liable to be mistaken. If the adenoiditis recurs, he endorses their removal, even in infants.

**The Oculocardiac Reflex.**—Binet asserts that compression of the eyeball modifies not only the heart but also respiratory and motor functioning so that besides the oculocardiac there are oculorespiratory and oculomotor reactions. Among the practical applications of this method of research, he suggests having it used during auscultation of the heart in dubious cases. With an extracardiac murmur there is generally tachycardia. On compression of the eye the heart beat drops from 100 to 60 or 40, and the murmurs disappear, while an organic murmur becomes stronger and more distinct on compression of the eye. Compression of the eyeball may arrest a spasm of paroxysmal tachycardia. Its action on the vasoconstrictors is evident even in the brain; the headache after trephining becomes transiently reduced as the eyeballs are compressed. This may likewise arrest for half a minute respiration in inspiration, or it may slow the respiration, reducing the rhythm but increasing the amplitude. This explains the favorable action on asthma and on hiccup. The inhibiting effect on hiccup is particularly distinct, and Binet commends it for current practice. The oculomotor reflex is particularly pronounced in the shaking with a chill, as compression of the eyeball arrests the muscular contractions. Dulac's recent Paris thesis was devoted to the biologic effects and therapeutic action of compression of the eyeballs. Binet gives the tracings from a case of exophthalmic goiter showing the marked effect on the tremor of compression of the eyeballs. The tremor nearly stopped completely, and it did not resume its original amplitude for some time. In a case of atetosis, likewise, the inhibiting influence of compression of the eyes was marked, and Voisin has recently called attention anew to the arrest by it of neuropathic epileptiform seizures. Baillaert has applied the method further to determine the arterial pressure in the branches of the central artery of the retina, as Binet describes.

## Revue Médicale de la Suisse Romande, Geneva

June, 1919, 39, No. 6

- Morphology of Influenza Bacillus Cultivated on Levinthal's Agar Medium. B. Galli Valerio.—p. 265.
- \*Technic for Blocking Intercostal Nerves. A. Jentzer.—p. 271.
- \*Sclerosis of Coronary Arteries in Switzerland. A. Orliansky.—p. 276.
- \*Congenital Occlusion of Nasal Fossae. Barraud.—p. 286.

**Paravertebral Anesthesia.**—Jentzer has been making a special study of the exact points most favorable for blocking the nerves as they emerge from the spine. This paravertebral anesthesia materially reduces operative shock, even with extensive operations such as resection of the stomach. Much debilitated patients may be able to stand a major operation with this technic. The patient recuperates readily, and in Jentzer's thirty-two cases there was no vomiting although in a very few there was some nausea. In seventeen the anesthesia was quite satisfactory; in the others a few whiffs of ether were required. He gives a table showing that the lower part of the first dorsal apophysis or spinous process corresponds to the second intercostal nerve and the second space between the transverse processes; of the second, to the third nerve and third interspace; of the fourth spinous process, to the fifth nerve and the sixth costovertebral articulation; of the fifth, to the sixth nerve and seventh articulation; of the sixth, to the seventh nerve and eighth articulation; seventh, to the eighth nerve and ninth articulation; of the eighth, to the ninth nerve and ninth interspace; the ninth, to the tenth nerve and tenth interspace; the tenth, to the eleventh nerve and eleventh interspace. There is no nerve at the eleventh apophysis, corresponding to the twelfth articulation, but the twelfth apophysis is the *point de repère* for the twelfth intercostal nerve corresponding to the twelfth interspace.

The subject seated and bending far forward, to throw the spinous processes into relief, the skin is touched with iodine at the lower margin of the first dorsal and the first lumbar spinous process. A horizontal line is then drawn through each of the iodine dots. A point is then marked on the upper line, 4.5 cm. from the spine of the dorsal apophysis, and a second, similar point is marked on the lower line, 2.5 cm. from the spine of the lumbar apophysis. A straight line is drawn between these two points, and the injections are made along this line to block the nerves beneath. The needle is pointed a little toward the median line, and the tip is moved to and fro a trifle to be sure the anesthetic laves the sympathetic nerve and the posterior and anterior roots of the spinal nerve. As far down as the eighth dorsal spinous process, he makes the injection at a depth of 3 cm. From the eighth to the eleventh, at 3.5 cm., and at the twelfth, 4.5 cm. To reach the abdomino-genital nerves at the first lumbar spinous process, the depth must be 5 cm.; at the second lumbar, to act on the femoral and genitocrural, 6 cm., and at the third and fourth lumbar apophyses, 7 cm.

**Sclerosis of Coronary Arteries in Switzerland.**—Orliansky remarks that the numerous deaths from influenza last year enabled remarkably comprehensive postmortem study of the arterial system in robust young people. He sought especially for sclerosis of the coronary arteries, but found evidence of it or of fatty degeneration only in 23 per cent. between 18 and 20; from 21 to 30 the proportion was about the same as that reported from Germany, namely, about 46 per cent. in men and 17 per cent. in women. It has been said that in Germany no coronaries are ever found intact after 40, but at Geneva he found 12.8 per cent. intact in the fifties and 20 per cent. in the sixties.

**Imperforate Nasal Fossae.**—Barraud urges physicians to test the permeability of the nasal fossae as a routine measure in infants, as partial or complete occlusion is not so rare as generally assumed. He reports two cases of bilateral imperforate fossae in a newly born child and a girl of 13, both requiring an artificial opening, which was a simple matter.

## Correspondenz-Blatt für Schweizer Aerzte, Basel

July 17, 1919, 49, No. 29

- \*Rachitis and Osteomalacia. E. Looser.—p. 1065.
- \*Bill to Legalize Abortion in Switzerland. A. Labhardt.—p. 1078.
- \*Influence of Local Heat on Stomach. M. Ludin.—p. 1085.
- Transfusion of Detoxicated Autoblood. O. Vogeli.—p. 1088.

**Rachitis and Osteomalacia.**—Looser argues that tardy rachitis is the link between rachitis and osteomalacia. This assertion is based on 15 cases of severe tardy rachitis and 10 typical cases of osteomalacia, with 2 of a transitional form. All were examined repeatedly with the roentgen rays. The rachitis in some of the youths had dragged along from childhood. In others it was true tardy rachitis; the ages were from 12 to 20, the majority between 17 and 20; and all were infantile in their aspect, with pronounced backward development of the secondary sexual characters in both sexes. The thyroid was enlarged in some. The arrest in the growth and development is scarcely noticed until the attention is attracted to the early fatigue in walking and standing, and pains in the knees and ankles. They are generally ascribed to rheumatism, but the typical rachitic deformities soon appear, with thickening of the ends of the ribs and cartilage and of the epiphyses, and a tendency to scoliosis, genu valgum or varum and, generally, flatfoot. In florid cases the bones are apt to be tender but this tendency disappears when recuperation begins, and it is thus a good index of the stage of the disease process, and the only clinical symptom of it. The roentgen findings are always less pronounced than the reality.

Under phosphorus, 2 or 3 mg. daily, kept up for months, the pains subsided and the gain improved rapidly and permanently and the roentgen findings promptly changed to approximate the normal in all but one case. This was a girl of 20 with such a tendency to diarrhea that the treatment could not be kept up regularly. He gave the phosphorus in oil emulsion in the proportion of 0.02 or 0.03 c.c. to the 100 c.c. of oil emulsion, with one drop cinnamon oil and 0.01 c.c. saccharin. Cod liver oil was so hard to procure that he gave oil emulsion instead, and could not distinguish any difference in the outcome, while the patients were more inclined to keep up the treatment than with the unpalatable cod liver oil. His experience shows that tardy rachitis is more common than generally assumed. The so-called growing pains, rheumatic pains in young adults, are manifestations of tardy rachitis, and this is the same thing, he affirms, as osteomalacia. The differences between them are merely the different physiologic behavior of the bones in these different periods of life. In some of his cases he followed the development of the process from the fifteenth to the twenty-ninth year, and it was always a continuance, never any definite limit between the tardy rachitis and the osteomalacia. In his ten cases of osteomalacia only one of the patients was a man; in 4 of the women there was no connection between the osteomalacia and a pregnancy, but in the others there was an unmistakable aggravating influence from pregnancies. Benefit invariably followed administration of phosphorus in the oil emulsion, in the maximal daily dose of 3 mg. without other change in the mode of life. The earning capacity was restored in three months in the male case of osteomalacia, after four years of inability to do more than the lightest work.

**Bill to Legalize Abortion in Basel.**—Lahhardt relates that the supreme council of the canton of Basel is now considering a law which removes the legal ban against induced abortion provided it is done by a registered physician and with the consent of both husband and wife or of the pregnant unmarried woman, and provided the pregnancy is of not more than three months' duration. No other restrictions or discriminations are made. Lahhardt protests most emphatically against the proposed measure, presenting a number of obvious reasons why it would be physically dangerous for the woman, socially dangerous for society, and locally dangerous for the reputation of the canton. A copy of his six-page article has been sent to each member of the supreme council.

**Influencing of Stomach Functioning by External Heat.**—Ludin is chief of the local Institute for Physiotherapy, and he here reports clinical and experimental research on the physiologic and therapeutic action on the stomach of heat applied externally. In 151 tests on 23 patients, no modification of the composition of the gastric juice could be detected from the influence of the external heat. The secretory function is not modified by the heat, but roentgen examination of 50 patients showed that the motor function of the stomach was materially promoted by the local heat. With organic

stenosis of the pylorus (10 cases) the evacuation of the stomach was not accelerated, but in 9 patients with pylorospasm from ulcer, the period of expulsion of the stomach contents was materially shortened by external application of heat. This fact may prove important in roentgen differentiation of pylorospasm from organic stenosis of the pylorus. It explains also the relief of pain in the stomach by local heat. In addition to the relief of pain, the relaxation of the spasm of the pylorus is a decided advantage in treatment of gastric ulcer, preventing stagnation of the stomach contents with its train of irritation, hypersecretion and hyperacidity.

### Gazzetta degli Ospedali e delle Cliniche, Milan

July 31, 1919, 40, No. 61

Technic for Lumbar Puncture. Enzo Romanelli.—p. 626.

Aug. 3, 1919, 40, No. 62

\*Sand-Fly Fever. Romano Tonjin.—p. 635.

\*Hunger Edema. Id.—p. 636.

**Sand-Fly Fever.**—In this report from an Italian hospital in Palestine, Tonin mentions the extreme prevalence of three-day fever or sand-fly fever among the Italian soldiers. It was noted moreover that those who had had this brief fever seemed to be immune to influenza during the pandemic that swept over the land about a year later. The virus of both sand-fly fever and of influenza seem to be filterable, and many physicians confuse the two.

**Hunger Edema.**—Tonin comments on the odd fact that polyuria constantly accompanied the hunger edema which was pronounced in all the prisoners of war seen at the hospital. The edema resembled actual dropsy in some cases, but the heart, liver and kidney seemed to be intact.

Aug. 7, 1919, 40, No. 63

\*Improved Technic for Tests for Acid. E. Pittarelli.—p. 651.

**Technic for Test for Acidity.**—Pittarelli warns that methyl orange is a derivative of dimethylamino-azobenzol, and that the latter cannot be substituted for it (as is frequently done), without modifying the reaction in testing for acidity.

### Pediatria, Naples

August, 1919, 27, No. 8

\*Acute Poliomyelitis. S. Cannata.—p. 465.

\*Initial Phase of Infantile Scurbutus. O. Cozzolino.—p. 477. Con'n

\*Pycocyaneus General Infection in Infants. A. F. Canelli.—p. 503.

\*Case of Congenital Megacolon. A. Dalla Valle.—p. 515.

**Acute Poliomyelitis.**—Cannata remarks that Luciani reported 5 cases of acute poliomyelitis in 1883, and others reported later small epidemics of only from 3 to 26 cases at seven different points in Italy, until 1909 when Giuseppe reported 62 cases in the Trieste region, and Frisco 105 cases at Palermo in 1910 to 1912. In Cannata's own experience at Naples and vicinity, he has encountered 275 cases since January, 1914. In 68.7 per cent. of these cases there was paralysis of the legs, and in 13.4 per cent. of the arms. The acute poliomyelitis cases formed 2 per cent. of the total children brought to the pediatric clinic. He urges compulsory notification of the disease.

**Scurvy in Infants.**—Cozzolino describes the earliest phase of scurvy in infants, and expatiates on the absolute identity between scurvy in adults and in infants. The gums show the first manifestations of the scurvy, and permit the diagnosis in the incipient stage.

**General Pycocyaneus Infection in Infants.**—Both of the infants died in the two cases of pycocyaneus septicemia described by Canelli. The infants were 14 and nearly 3 months old, brother and sister, and the clinical picture was impressive, with hemorrhagic enteritis and furunculosis, and death in less than two weeks after the symptoms had first attracted attention. The first child's furunculosis had probably provided the portal of entry for the pycocyaneus.

**Congenital Megacolon.**—Dalla Valle reports the case of a boy of 5 who died from the toxins generated in the megacolon with intact mucosa. He knows of only two other cases of megacolon of which this can be said. In all other cases on record the fatality was due to mechanical, physical or other cause.

**Riforma Medica, Naples**

July 26, 1919, 35, No. 30

- \* Appendicitis with Movable Kidney. D. Giordano.—p. 614.
- \* Pseudo-Aplastic Anemia. Giovanni Bernardi.—p. 617.
- \* Comparative Value of Palpation and Percussion of the Spleen Region. P. Finiga.—p. 620.
- \* Diagnosis of Spirochetal Jaundice. G. Molinari.—p. 621

Aug. 2, 1919, 35, No. 31

- Factitious Lesions of the Ears in the Military. G. Gradenigo.—p. 637
- Experimental Research on Transmission of the Sound of the Tuning Fork to the Chest Wall by Way of the Larynx, Bronchi and Lungs. G. Lamfroni.—p. 639.
- Influenza and Its Surgical Complications and Sequels. G. Angioni.—p. 641.
- Influenza in Piemonte and Treatment of Its Pneumonic Form. P. F. Arullano.—p. 646.
- Modern Views on Pathogenesis of Shock. E. Auvoli.—p. 647.

**Appendicitis with Movable Kidney.**—Giordano gives two illustrations to show the case with which he removed the appendix through the lumbar incision for the kidney. The incision was no larger than usual for decapsulation and fixation.

**Pseudo-Aplastic Anemia.**—Bernardi reports a case of this kind in a man of 38 who died seven months after the first symptoms; they were diarrhea and general debility with hemorrhages from the bowel but no fever. Necropsy confirmed the intense anemia of the pseudo-aplastic type, testifying to some grave and profound deviation from the normal in blood production.

**Intero-Hemorrhagic Spirochetosis.**—Molinari gives a number of technical points that may aid in the bacteriologic diagnosis of spirochetal jaundice.

**Rivista Critica di Clinica Medica, Florence**

June 28, 1919, 20, No. 26

- Experiences with Typhus. G. Berghinz and C. Arrigoni.—p. 301. Concl'd in No. 25, p. 289.

July 19, 1919, 20, No. 29

- \* Quinin Prophylaxis of Malaria. G. Comessatti.—p. 337.

**Quinin Prophylaxis of Malaria.**—Comessatti says that the war has been an experiment on a huge scale testing the value of quinin prophylaxis of malaria for large bodies of men, and demonstrating its failure. Whatever the cause of the failure may be, its reality was repeatedly demonstrated. In one group of 230 men, who were supposed to be taking 0.4 gm. of quinin regularly, 110 contracted malaria, including 92 who had been given nearly twice this dose. The men were stationed in the Isonzo and Piave districts.

**Archivos Españoles de Enf. del Ap. Digestivo, Madrid**

July, 1919, 2, No. 7

- \* Stenosis of the Pylorus. S. Martínez Gómez.—p. 385.
- Gallstones. Antonio Lara.—p. 398.
- \* Plastic Linitis. Santiago Carro.—p. 408.

**Stenosis of the Pylorus.**—Martínez reiterates that the only characteristic and pathognomonic symptom and sign of pyloric stenosis is the discovery of residual fluid, and relies of food in the fasting stomach in the morning after a test meal. He adds that we should never class a case as atony of the stomach, chronic dilatation or motor insufficiency until we can definitely exclude stenosis of the pylorus, as this alone is able to induce any or all of these conditions. He has repeatedly noticed that Reichmann's disease is usually followed by actual stenosis of the pylorus—a further argument in favor of the assumption that the former is due generally to an ulcer on or near the pylorus. The value of the stomach tube in solving diagnostic questions in this line is far beyond that of the roentgen rays, especially in cases of what he calls latent stenosis of the pylorus with toxemia. In two cases described, the stomach tube alone gave the clue which first permitted effectual treatment of the puzzling toxemia. In another case of supposed stenosis, the pylorus and stomach were found sound although the latter was dilated. Further investigation revealed cicatricial stenosis

of the duodenum which had caused the symptoms for which the pylorus had been incriminated.

**Plastic Linitis.**—Carro's patient was a previously healthy woman of 30 who had never recovered complete health after an attack of influenza last year. Menstruation was suppressed, and she has been losing weight and strength and complains of pain in the stomach more intense after meals. The pain is strongest in the pylorus region, and keeps up until she has vomited, an hour or half an hour after the meal. The pain increases during exercising, even turning over in bed, but there are no signs of a peritoneal reaction, no ascites, no diarrhea. The most plausible explanation of the symptoms is the assumption of a fibroplastic process in the stomach, secondary to a manifest tuberculous process in both lungs.

**Medicina Ibero, Madrid**

June 21, 1919, 7, No. 85

- \* Gastric Ulcer. C. G. Peláez.—p. 222. Concluded in No. 86, p. 241.
- \* Acute Poliomyelitis in Granada. Blasco Reta.—p. 224.

June 28, 1919, 7, No. 86

- Vacuum Suction for Extraction of Cataract in the Capsule. B. Castresana.—p. 243.
- Migrating Abscess cured by Reabsorption. B. L. Diaz.—p. 246.

**Surgical Treatment of Gastric Ulcer and Its Complications.**—Peláez has been investigating the chemistry of the stomach during the months and years after gastro-enterostomy in 64 cases. He found normal conditions in regard to gastric secretion only in 6 per cent. while hypochlorhydria prevailed in 25.75 per cent. and anachlorhydria in 45.45 per cent. Two of the patients, apparently smoothly convalescing after the gastro-enterostomy for duodenal ulcer, suddenly developed tetany the twentieth and the eleventh days, with incessant vomiting until death the third or fourth day. The duodenum and stomach were enormously dilated in one but only the duodenum in the other. The passages were all permeable; the second patient had had an attack of tetany two months before the operation. In a little over two years, Peláez has operated in 140 cases for peptic ulcer; it was located in the duodenum in 26.42 per cent. of the cases. In the 103 gastric cases there were two ulcers in over 5 per cent., and in over 6 per cent. there was malignant degeneration. The operative mortality was 11.42 per cent. The gastro-enterostomy was directly responsible for the death in 2.14 per cent. and indirectly in the others.

**Acute Poliomyelitis.**—Blasco Reta states that there have been 68 cases of this disease at Granada since 1905, but the number of cases ran up to 12, 22 and 18 only during 1910, 1916 and 1917. The highest figure in the intervening years was 3.

**Prensa Médica Argentina, Buenos Aires**

May 30, 1919, 5, No. 36

- Vaccine Treatment of Secondary Infections with Pulmonary Tuberculosis. J. F. Mieres.—p. 353.
- Refraction Findings in Malingers. E. Darneno.—p. 354.
- Syphilis as a Factor in Banti's Disease. L. L. Resio.—p. 354. Cont'n.
- Arrhythmias. P. M. Barlaro.—p. 356. Cont'n.

**Progresos de la Clínica, Madrid**

June, 1919, 7, No. 78

- \* The Deeper Membranes of the Eye. Muñoz Urra.—p. 225. Cont'n.
- Secondary Malaria. Salvador Clavijo.—p. 253. Cont'n.

**Degeneration and Regeneration of the Deeper Membranes of the Eye.**—This instalment of this prize-crowned work has twenty-six illustrations, including several colored photomicrographs of the retina.

**Reforma Médica, Lima**

June-July, 1919, 5, No. 58-59

- \* To Clean Up Peripheral Peru. C. E. Paz Soldán.—p. 75.

**Sanitation of the Coast of Peru.**—Paz Soldán here outlines a campaign to stamp out transmissible disease in Peru, especially in the coast cities. His address was delivered at a meeting of civil engineers at Lima, and they appointed a committee to take up the matter, asking him to be chairman of the committee.

**Revista Médica, Puebla, México**

July 15, 1919, 1, No. 12

Malaria in Mexico. Angel de la Garza B.—p. 265.  
Composition and Nutritious Value of the Foods and Drinks of the Native Mexicans. M. Ibañez—p. 272. Cont'n.  
Capture of Uterus. A. López Hermosa.—p. 279. Cont'n.

**Revista de Medicina y Cirugía, Havana**

Aug. 23, 1919, 24, No. 16

\*Treatment of Chronic Inflammation of Maxillary Sinus. J. Alemán.—p. 417.  
\*Malaria in Cuba. J. Le-Roy y Cassá.—p. 422.

**Maxillary Sinusitis.**—Alemán reiterates that nothing but extensive opening up of the sinus will permit a radical cure. This can be counted on in three or four weeks unless other sinuses are involved. In one case of seven years' standing, long rebellious gastro-intestinal derangement subsided almost at once as the sinus healed.

**Malaria in Cuba.**—Le-Roy states that practically every one in Cuba had malaria at the close of the war. There were 4,107 deaths from malaria in 1900. But when the Americans took hold, their efforts to eradicate yellow fever reduced the numbers of malaria mosquitoes as well as of the stegomyia. In 1913 there were only 447 deaths ascribed to malaria. In ten years the malaria death rate had been reduced from 2.52 to 0.33 per thousand inhabitants of the island, and in Havana from 1.30 to 0.02. He gives eleven large tables showing the number of cases by provinces, ages, months, etc., and the corresponding weather charts.

**Revista de Psiquiatria, Lima, Peru**

July, 1919, 2, No. 1

Attempt to Systematize Criminology from Didactic Standpoint. O. Miró Quesada.—p. 1.  
The Nervous System in Peruvian Folk Lore. H. Valdizán.—p. 26.  
\*Psychanalysis in the School. H. F. Delgado.—p. 48.

**Psychanalysis in the School.**—This article was presented at the recent Child Welfare Congress at Montevideo. Delgado declares that the present school methods of education "have defects which only psychopedanalysis will correct." A new section in the medical inspection of schools should be provided for the purpose, and the teachers should be trained in the theory and practice of psychopedanalysis. He explains how this would lay the foundations for a social reform by improving the individual and the community at large in mind, in ethics, and in practical matters.

**Semana Médica, Buenos Aires**

June 12, 1919, 26, No. 24

Serobacterin Treatment of Pertussis. C. Ponce.—p. 607.  
Prophylaxis of Child Abandonment. J. F. Montellano.—p. 612.  
Dangers of Delay with Dystocia. T. A. Chorro.—p. 615.  
Inguinal Hernia in Children. R. A. Rivarola.—p. 619.  
The Medical Curriculum. A. Soeets.—p. 621.  
\*Tuberculin Treatment of Asthma from Tuberculous Glands. L. Velasco Blanco.—p. 624.  
Tracheobronchial Glands in Diagnosis. J. P. Garraban.—p. 630.  
\*Cure under Mercurial Treatment of Aneurysm in Popliteal Artery. J. A. Petrocchi.—p. 635.

**Tuberculin Treatment of Asthma from Tuberculous Glands.**—Velasco remarks that asthma from tuberculous glands at the hilum or in its vicinity is more common than generally recognized. Tuberculous tracheobronchial glands are not likely to entail asthma except in children with an inherited taint. Tuberculin treatment modifies the asthma, and has cured it completely in a number of cases in his experience. He gives the details of nine cases of the kind, showing the improvement not only of the asthma but in the general condition under the tuberculin treatment.

**Siglo Médico, Madrid**

Jan- 28, 1919, 66, No. 3420

\*Preventive Immunization by Cauterotherapy. Camilo Calleja.—p. 513. Cont'n in No. 3421.  
Simple Apparatus for Bedside Estimation of Partial Tension of Alveolar Carbon Dioxide. R. Carrasco Ferragüera.—p. 515.  
\*Operative Treatment of Strabismus. B. Castresana.—p. 517. Cont'n.

**Immunization Against Necrotic Processes.**—The main points of Calleja's article were summarized on page 1021.

**Operative Treatment of Strabismus.**—Castresana's operative method for correcting squint was described recently on page 461 of the current volume, Aug. 9, 1919.

**Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam**

July 5, 1919, 2, No. 1

\*The Arthritic Diathesis. J. E. L. van Breemen.—p. 4.  
A Case of Manic-Depressive Psychosis with Paranoïd Features. J. van der Toren.—p. 10.  
Treatment of Influenza Pneumonia. G. Berg.—p. 21.  
\*Correction of Paralyzed Hip. J. van Assen.—p. 27.  
Severe Poisoning with Both Arsenic and Mercury with Recovery. J. W. T. Lichtenbelt and E. H. Jannink.—p. 29.

**The Arthritic Diathesis.**—Van Breemen has found in the course of his ten years of service as consulting physician for the Institute voor Physische Therapie at Amsterdam that a number of the cases of chronic rheumatism did not fit into the usual classification. Study of this group over months and years confirmed that they were in a class apart from ordinary chronic articular rheumatism. This was particularly evident in the benign course of the joint affection, and in the favorable influence of appropriate treatment. Also in the way in which the disturbances shifted about, from joints to muscles, to tendons, then to neuralgias, the patients finally becoming classed as neurasthenics. The manifest influence of depressing worry and grief on the course of these disturbances was often evident, as also the chronic tendency, and the difficulty of differentiating them from gouty phenomena. Another feature of this group was the unmistakable familial and hereditary stamp, and the frequency of asthma, diabetes, and kidney stones in the men of these families and of gallstones in the women, early arteriosclerosis, and functional nervous affections and psychoses.

All the above is included in the French term of arthritism or the arthritic diathesis. Renault defines it as a loss of the normal balance between the manifestations of nerve force and the muscle force, and van Breemen has been making a study of the behavior of the muscles in persons of this category, and the behavior of the circulation in the skin. He found that the muscles became fatigued much more readily and recuperated much more slowly than in other persons; also that lactic acid, which seldom occurs in normal urine, appears in the urine of this group after physical exertion, and may reach a total of 4 or 6 gm. per liter. On the other hand, experience has shown that rheumatic disturbances occur in them after immobilization as, for instance, after a fracture, much sooner than in other persons. The muscles are thus seen to be substandard both as regards exercise and rest. The muscles are not capable of executing normally the will that seeks to control them.

He found further that the skin changes to the temperature of the environment during cold and wet much more rapidly than normal skin, while it responds less actively than in normal persons to heat-supplying procedures. Both of these anomalies seem to indicate defective functioning of the circulation in the skin. The classification of these cases in a group apart permits proper treatment as they require other procedures than those needed with ordinary chronic rheumatism, a different diet and different mineral waters and baths treatment. It will surely be a great progress when we can class together and treat from a general standpoint, eczema and nutritional disturbances in infants, bronchitis, joint affections, etc., striving to modify the causal factors, rather than to attack merely the symptoms by local treatment. There can be no question that the treatment of a large number of functional neuroses depends on the acceptance or non-acceptance of the idea of the arthritic diathesis. Long continued and systematic exercise of muscles, and massage, have often proved an actually causal treatment.

**Correction of Paralysis of the Muscles of the Hip.**—Van Assen reports very encouraging results from utilizing the external oblique muscle as the abductor for the hip. He followed Samter's technic in the main, but obtained better functioning than Samter realized himself, according to the latter's report in 1917, eight months after the operation. The incision runs from the greater trochanter to and above the crest of the ilium, and then curves forward and inward, ending thus

somewhat inside the superior anterior iliac spine. A piece of cartilage and bone, 5 cm. long, is then pried loose from the external margin of the exposed crest, beginning 1 cm. back of the spine. This piece is cut off from below upward, thus obtaining access from below to the space between the external oblique and the internal. The fascia is then separated downward, the skin incision extended a little for this purpose. Then on the posterior surface of the femur and trochanter a strip of perosteum, 1.25 cm. wide, is outlined front and rear and below, and with a chisel it is pried off along with a small layer of the corticalis. The flap thus lifted up, but still attached to the top of the trochanter, is turned upward and sutured firmly to the external oblique muscle which is drawn down over the crest of the ilium for the purpose. The suture is reinforced with the flap of cartilage and bone from the crest of the ilium. By this means the upper end of the femur is powerfully abducted and extended and twisted a little inward. A plaster cast is applied which holds the upper bone in 45 degrees of abduction, 10 degrees overextension, and 10 degrees twisting inward, the knee in extension. In the case described the cast was taken off the twenty-second day and a splint applied, maintaining the abduction. Twice a day the splint was taken off and active abduction exercises done. The thirty-first day the splint was discarded, but a plaster bandage was put on each knee to hold them stiff and enable the boy to run about until he had suitable braces. The braces were applied in about three months, and the boy now runs about without holding on to any support. The illustration shows how perfectly he can actively abduct the leg. As he does this, the band running from the trochanter over the crest of the ilium can be felt drawn taut. No illustrations are given of the technic, and no details beyond those given above.

### Mededeelingen v. d. Burg. Geneesk. Dienst, Java

1919, No. 6, Paraleel English-Dutch Edition

\*Description of the Anopheline Larvae of Netherlands India so Far as Known to Date. N. H. Swellengrebel and J. M. H. Swellengrebel-de Graaf.—p. 1.

**The Mosquitoes of Netherlands India.**—This entire issue of the *Mededeelingen* is devoted to the biology of and the microscopic findings in the larvae of eighteen different known varieties of anopheline mosquitoes and of two yet unclassified. A large number of photographs are also given, showing the favorite haunts of the mosquitoes. Each of the twenty-three plates of microscopic findings give the minute details of the fans of different hairs, plumes, leaflets, etc., found on the larvae. There is also a large folding chart with diagrams to facilitate identification of the species.

### Hospitaltidende, Copenhagen

Aug. 13, 1919, 62, No. 33

\*Reconstruction of Bone and Primary Suture with Compound Fracture. J. Nordentoft.—p. 945.

**Reconstruction of Bone and Primary Suture with Compound Fracture.**—Nordentoft reviews his experiences with osteosynthesis and with primary suture with compound fractures in a number of cases in which he applied to industrial and other injuries the lessons learned from the war surgeons in regard to reconstruction of bone and primary suture. Brilliant results were obtained, healing by primary intention in 70 and in 90 per cent. of the cases—even with the most serious lesions. At first it seems wrong to treat such lesions in this way, but the benefits from it are enormous, he reiterates, shortening the stay in bed, rendering the after-treatment far simpler and easier, and giving incomparably better functional results.

Aug. 20, 1919, 62, No. 34

\*Diet in Treatment of Heart Disease. V. Rubow.—p. 969.

**Diet in Treatment of Heart Disease.**—Rubow refers to chronic insufficiency of the heart, and expatiates on the importance of the calory content and the salt and water content of the food as affecting the course of the heart disease. Even a little restriction in these three lines, with bed rest, may cure dropsy. If not, more vigorous restriction may accomplish it, supplemented by heart stimulants. This is

exemplified in the Karell course of treatment in which the patient is kept absolutely still in bed and is allowed nothing but 800 gm. of milk in the twenty-four hours. The benefit from this Karell course confirms the great importance of dietic measures in heart disease. The metabolism is low on this diet, and the heart is taxed less to correspond. The specific action on the edema from the Karell course is evidently due to the small intake of water. Sometimes it is accompanied by a slightly increased diuresis. The dry substances in the blood may increase by 10 per cent. under a Karell course as the mass of the blood shows less and less water. This increases the osmotic interchanges, and the edema fluid streams from the tissues into the blood, carrying with it large amounts of salt, and the salt is rapidly eliminated through the kidneys provided they are permeable for salt. The elimination of water through the skin can be promoted by sweating procedures, but it must not be forgotten that every kilogram of edema fluid thus evaporated through the skin throws from 5 to 8 gm. of salt on the kidneys for elimination. If the kidneys are unable to secrete urine with much salt content, the salt may be retained in the blood. The resorption of the edema fluid thus acts like an intravenous injection of a hypertonic saline solution, and the diuresis may be increased as early as the second or third day. This rapid increase in the diuresis cannot be regarded as always a favorable sign, as it may occur in consequence of kidney disease.

In other cases, however, the edema disappears in the first day or so without material increase of the diuresis but later, the third to the fifth day, there may be more or less increase. The explanation of this is probably that, as the metabolism declines and the edema is reduced, the work of the heart is lightened, and conditions in the circulation improve. It is possible also that the lesser volume of the blood cooperates in relieving the insufficiency of the heart functioning.

Another advantage of the Karell course is that the lesser intake of salt reduces the thirst. Free ingestion of water with a salt-poor diet in some cases of cardiac insufficiency reduces the diuresis, and there is less thirst. With a moderate, constant supply of water, considerable reduction in the salt intake does not lead to increase of the diuresis with cardiac edema, but the edema may be kept stationary with it. In management of the case after the Karell course, the dietary must be water-poor and salt-poor and the calories kept down to the actual needs of the metabolism. A combined after-treatment, giving digitalis and ordering absolute repose or the Karell course or other dry diet for a few days every week or month—according to the severity of the case—is often the most effectual and the easiest to realize of all measures with cardiac insufficiency. Treatment of this kind can be kept up successfully for years.

### Ugeskrift for Læger, Copenhagen

July 7, 1919, 81, No. 32

\*Treatment of Spastic Hemiplegia. II. Abrahamsen.—p. 1273.

\*The Blood in the Elderly. K. M. Hansen.—p. 1281.

**Treatment of Spastic Hemiplegia.**—Abrahamsen reviews spastic hemiplegia in general, and describes a clinical case following a stab wound of the neck. The spasm was localized and extremely severe, but there was no actual contracture. After complete failure of persevering medical measures, he decided to weaken the reflex impulses and follow with systematic exercises of the muscles. For this it was necessary to resect half of each branch innervating the various muscles involved, reaching the nerves through the popliteal space and the inguinal region, and, in the arm, resecting half of the median nerve. The different nerves were easily reached and resected, and all the spastic phenomena subsided completely except for a slight lifting of the foot as the young man steps.

**The Erythrocyte Count and the Hemoglobin Percentage in the Aged.**—Hansen has been examining forty persons who seemed to be normal for their advanced age. The tabulated findings correspond closely to similar findings earlier in life, age in itself, apparently, not modifying the red corpuscle count or the hemoglobin percentage. The range of the latter in the men was from 87 to 102, and in women from 84 to 97.

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## PRACTICAL POINTS AND COMMON ERRORS IN THE TREATMENT OF STERILITY

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A now considerable experience in the management of reference cases of sterility has made the history of certain failures in diagnosis and treatment so familiar that it is easy to classify under a number of distinct headings those which occur most frequently. The fact that certain particular points turn up with such unvarying frequency makes it seem that a brief description of them might be of interest.

The classes so formed comprise sterilities due to mistakes in the marital relation; to neglect or failure to appreciate sterility in the male; the subjection of innocent abnormalities to unnecessary and nonproductive operations, and failures to detect evident causes of sterility from lack of special training in microscopic examinations.

Each one of these subjects would be sufficient to occupy an entire paper if fully discussed, and the attempt to treat them all within a single article necessarily implies a restriction of each of them to but a brief outline, with, in a few instances, a skeletal report of an illustrative case.

### STERILITY DUE TO MISTAKES IN THE MARITAL RELATION

Mistakes in the management of the marital relation are not infrequently by themselves a sufficient cause of sterility, usually by the production of congestion and its results. Such mistakes in marital life are not usually perversions. They may even appear trivial and yet, if long persisted in, produce important results or even changes in the organs which may demand operative treatment before pregnancy can be obtained. It is very disappointing for patients to travel, perhaps long distances, to see a specialist only to receive directions to try a change of habit and if this is unsuccessful to report again, and this is a very frequent cause of sterility which the general practitioner ought really to be capable of detecting, and of correcting, so far as change of habit is concerned, before sending his patients away.

Many practitioners find it difficult to question patients on this subject, partly from consideration for the feelings of the patient and partly from failure to know themselves exactly what questions should be asked. The subject is, to be sure, a difficult one; but such patients are usually conscious of an imperfection

or defect in their sensations. When sterile they are often very anxious about it, and if the subject is opened frankly and without preface it is often surprising to see with what readiness and, indeed, eagerness they respond to questions which they themselves instinctively believe are essential to a proper understanding of their case. Especially women often express the greatest gratitude for a frank discussion of this subject and for the instruction which follows it. It is quite essential that each partner should be questioned separately, and the keynote to the subject is that any continued error of habit which produces excitement without subsequent relief by the orgasm tends toward chronic congestion and its unfortunate results.

The point which the patient has noticed is usually decrease or lack of satisfaction during coitus. Frequent amorous caressing without cohabitation appears to be a not uncommon mistake in married life, and if habitual and frequent it is always unfortunate in its results on the organs of one or both partners.

Want of simultaneous chronicity in the orgasm, i. e., ejaculation by the male before the female has reached the possibility of the orgasm, is an extremely frequent cause of chronic congestion in the female and of its consequences in the uterus, tubes and ovaries. If it is a mere personal idiosyncrasy of the male it can in most instances be altered by psychologic restraint on his part after the necessity for it has been explained to him. It is sometimes, however, the result of a local irritation somewhere in the male organs which produces premature ejaculation, and it then demands the appropriate local treatment.

The very common practice of prevention of pregnancy by withdrawal usually deprives the female of the orgasm, and many cases are seen in which prudential prevention of pregnancy in early married life has set up consequences of congestion which persist after pregnancy is desired.

Marked congestion of the feminine organs sometimes produces a mental condition in which desire is frequently present in advance of cohabitation, and even at times when it is impossible, but in which the orgasm fails to appear during coitus, with consequent increase of the congestion. In these cases, decrease of congestion by glycerin depletion of the vagina will frequently break the vicious circle and restore normality.

Habitual excess in even normal coitus tends to congestion and, if long continued, to sterility.

Merely psychologic causes of failure to obtain the orgasm are also quite common among women and may sometimes be dispelled by ascertaining the origin of a psychic impression of distaste for coitus and giving appropriate advice.

This subject is evidently too complicated for brief discussion; but adherence to the principle that excitation without orgasm is a frequent cause of local disturbance and consequent sterility furnishes a safe guide for questions. When any one of these or other mistakes in coitus is remedied before it has been of long continuance the mere correction of habit, or such correction in connection with minor local treatment, frequently yields a prompt pregnancy. When, on the other hand, the congestion which results from such habits has been long persistent it has not infrequently produced changes in the prostate, deep urethra or vesicles, or in the cervical or uterine mucous membrane and even in the ovaries, which may require long continued treatment or even an operative correction before pregnancy can be secured.

#### MALE STERILITY

Impregnation is the result of the cohabitation of a fertile male with a fertile female, and the fertility of both sexes is essential to it. It would seem ridiculous to insist on so elementary a point were it not that almost daily experience in practice shows that the public, and a large portion of the profession, has the habit of taking the fertility of the male for granted. This is far from being the fact either in the human race or among domestic animals. In my experience with human sterility the male has been involved in about 50 per cent. of all cases, and, moreover, the majority of male sterilities have been of nonspecific cause. I am afraid that the profession in general believes that in the absence of a history of venereal disease, and more especially of gonorrhoeal epididymitis, the healthy young male is always fertile. This is far from being the fact. On the contrary, young males of healthy appearance may be, and not infrequently are, infertile from either congenital or local causes without any noticeable disturbance of general health. It may be said here too that at the outset of any intelligent consideration of sterility we must drop the too general conception that a given individual is necessarily either flatly sterile or fully fertile. We must realize that fertility is a relative term, and that we shall deal with every degree and gradation between high fertility and complete sterility. This statement is capable of definite microscopic proof in the male and is probably equally true of the female, although its definite establishment in the human race is in her more difficult. In the case of every male, as also in the female, we must hold ourselves ready to investigate congenital, constitutional and local causes for infertility.

Congenital or, more properly, pubertal sterility is the result of an arrested development of the genital organs, and is not very uncommon even in otherwise fine specimens. It may vary all the way from undeveloped, infantile testicles (usually associated with a rather small penis) and complete aspermia to a mere low normal in both respects. Its susceptibility to improvement varies with its degree. With infantile testicles and complete aspermia there is usually nothing to be done, while, on the other hand, the underdeveloped person who is nevertheless not far from the normal standard may usually be stimulated into a fair degree of fertility.

The profession apparently believes, too, almost universally, that if the inspection of a drop of semen under the microscope shows motile spermatozoa, the male is fertile. Nothing is more common than to see

correspondence, often from physicians excellently well trained in other respects, which states that the husband is all right, whereas subsequent examination reveals that his fertility is so low as to render him a very doubtful element in the case. Experimental studies of animals in the breeding laboratories conducted by examination of their spermatozoa and checked by subsequent breeding of the animals have shown that if specimens of semen are divided into four classes according to the number of spermatozoa occurring in them, and again into four classes according to the percentage of motility in the spermatozoa, the animal may with safety be regarded as sterile unless both numerical frequency and motility are at least of the second class; namely, unless the animal belongs in one of the first four of the sixteen classes so produced. My own experience in the human race has perhaps gone further than this, tending to show that in estimating the fertility of a given male we must not only judge of the numerical frequency of the spermatozoa and of the percentage of motility present, but must, furthermore, study carefully their vitality both as it is determined by duration observations and, what is still more important, by the quality of the motility present. Nothing is more certain than that spermatozoa of merely moderate vitality seldom impregnate a female.

Oligospermia with deficient vitality of the spermatozoa is not infrequently found from constitutional causes. It can be easily demonstrated in animals that both low diet and conditions of life that produce a nervous and excitable state are attended by oligospermia. The same condition is not infrequent in men who have been overworked to the point of neurasthenia or even to a state of great nervous tire. Animal breeders consider it an established principle that a high protein diet in both sexes is essential to full fertility, and somewhat extensive experimental observations of my own support this conclusion so far as domestic fowl are concerned. General clinical impression leads me to the belief that it is probably true for the human race; but this subject has not been studied with sufficient accuracy to warrant a definite expression of opinion.

Moderately oligospermic men with semen that shows somewhat deficient vitality may probably be capable of impregnating highly fertile women (especially women whose genital passages are in a condition highly favorable to the existence of the spermatozoa), while, at the same time, they would be infertile to women whose genitals are moderately hostile to the spermatozoa but who would yet perhaps be not infertile to a male whose spermatozoa were abundant and of high vitality. Men who are oligospermic from constitutional cause, as well as those who are somewhat below the normal from poor development, may often be rendered fairly fertile or sometimes fully fertile by change of habit and stimulative treatment; and though relative infertility of both partners is always rather unfavorable, success may sometimes be attained even in these cases, especially if the sterility is not of long duration.

CASE 1 (Clinical Records No. 4270).—Man, aged 30; woman, aged 24; married ten months. Male: The frequency of spermatozoa was at the upper limit of the fourth class. The percentage of motility and the degree of vitality were of the second class. There were no infections nor local abnormalities. Female: The vaginal secretion was favorable; the cervix was antelexed with pinhole os; the cervical mucus was highly tenacious, entangling all sperma-

tozoa as disclosed by postcoital examination; uterine drainage was poor, both ovaries being somewhat enlarged (at the operation they proved to be distended by retained follicles). Under change of habits of the male and moderate general stimulation by tonics, the semen improved to a low normal. It was believed that there was prospect of further improvement. An operative correction of the abnormalities of the female was then performed. Successful pregnancy followed within two months, an unusually prompt result.

Double gonorrheal epididymitis frequently produces absolute aspermia; or, when limited to the upper portion of the globus major, may produce oligospermia by cutting off the greater part, though not all, of the efferent ducts. Oligospermia, with normal motility and vitality, is not absolute sterility, but is of high importance because the percentage of destruction of spermatozoa during their passage through the genital canal of the female is so enormous that the possibility of impregnation by a semen which starts with a deficient number is always poor. When the genitals of the female partner are in a condition which is even moderately hostile to the spermatozoa, impregnation by such a semen becomes so unlikely as to be not even a probability. The only treatment of either oligospermia or aspermia due to the results of epididymitis is by resection and anastomosis of the vas deferens, an operation which is sometimes, though not invariably, successful.

Local conditions in the male genital tract that are quite insufficient to affect the general health in any noticeable degree may nevertheless be sufficient to produce a high degree of infertility. Strictly localized inflammation at some one spot in the urethra of specific, and sometimes of apparently nonspecific origin, may produce a urethral secretion which annuls or lessens the motility and vitality of the spermatozoa during ejaculation and before they reach the female. In such cases, appropriate local treatment is frequently sufficient to restore full fertility. An irritated condition of the seminal vesicles may produce the same effect, and is also frequently removable under treatment.

Congestion and swelling of the prostate may occur from many causes, very frequently from mere excess or imperfection in the marital relation. It habitually produces an excess of sticky prostatic mucus which entangles many, or in severe cases, all the spermatozoa and thus destroys their motility before they ever reach the female genitals. Such secretions may also show a biochemical hostility. These cases are again very hopeful under treatment.

CASE 2 (Clinical Records No. 4271).—A physician in the later thirties and a woman, aged 32, married seven years, both reported themselves as in unusually good health, which was borne out by appearances. The husband gave a negative past history, but said that marital coitus had been habitually excessive—six or seven times weekly. The wife was in no way abnormal, except a very sharp anteflexion with spasm of uterosacral and small os. Admixture of a direct specimen of the semen with the vaginal and cervical secretions did not affect the spermatozoa unfavorably. The woman was probably fertile, though the probability of impregnation would be increased by a plastic on the cervix and anterior cervical attachments. A direct specimen of semen showed spermatozoa in abundance and of good motility, but from the first moment of observation the progress of the spermatozoa through the semen was slow. There was a very rapid occurrence of agglutination of the spermatozoa in clumps with entanglement in the mucus. At the end of three quarters of an hour of observation all the spermatozoa were entangled and incapable of progress even in the direct specimen. Local

examination of the male revealed a large, soft prostate. The case was referred to Dr. Paul Thorndike, who confirmed this observation and also found a much enlarged vesicle. He recommended massage of the prostate and vesicle, and reexamination of the semen after treatment was recommended if pregnancy did not follow on the normal condition of the male, a plastic correction on the cervix.

These patients came from the Middle West for an opinion and were not seen again; but the case is selected as striking because the patient was a well trained and active physician who believed his own fertility to be beyond question, after repeated examination of his semen.

This and all the conditions mentioned have been seen, and most of them frequently in young males in first-rate general health.

The degree of fertility in a given male can never be decided without a full examination (as discussed later in the paper), and it is usually<sup>1</sup> unjustifiable to treat or, more especially, to operate on a woman for sterility without first ascertaining the condition of her husband. Many, if not most, male sterilities are curable.

#### AUTOINTOXICATIONS

That sluggish action of the colon with consequent chronic retention of feces may be of itself a sufficient cause of sterility in women has been shown by a not inconsiderable series of cases. It might at first sight appear possible that a direct influence on the uterus and ovaries by the production of pelvic congestion, was the way in which this cause operated; but the absence of significant congestion, as evidenced either by gross examination or by the microscopic characteristics of the secretions, and the presence of symptoms of chronic autointoxication in many of this series of cases seems to place them among the autointoxications rather than among those in which the sterility is due to local conditions.

CASE 3 (Clinical Records No. 4614).—The husband, aged 26, presented a negative history and physical examination. The wife, aged 22, considered herself in good health, but was somewhat pasty looking, and acknowledged lack of energy and resistance. They had been married ten months. The wife presented no symptoms except backache and some general abdominal lameness off and on, increasing during the last six months; some muscular rheumatism, some stiffness and occasional slight swelling in the hands. The general physical examination was negative (including urine), except on abdominal palpation evident fulness over the ascending and transverse colon. The bowels moved freely on alternate days; she was not in the habit of taking cathartics. Genital secretions were essentially normal. Pelvic examination was negative. Marital relations were normal. Postcoital examination was postponed until after treatment of constipation. During the following two weeks great quantities of old feces were unloaded under the use of liquid petrolatum, cathartics and irrigation. During this process the right hand became considerably swollen, stiff and painful though not very tender (owing to increase of autointoxication in process of unloading?) During the next two weeks there was some neuralgia in the left shoulder and arm; the right hand was better; the left hand was now a little swollen. Two weeks later, under continued catharsis and irrigation the hands became practically well; her color was now better; she was sleeping and eating better, and declared herself much less tired. Pelvic examination was now much more satisfactory. Both ovaries were probably a little full. She was given vaginal supposit

1. An occasional exception to this principle may be found in cases in which the husband is inaccessible, and when an operation which would tend to promote fertility is also justified by a local symptomatology, which is sufficient to affect the general health; for example, severe dysmenorrhea with sterility, both dependent on anteflexion of the cervix and enlarged ovaries.

tory of boroglycerid and ichthyol. She was advised to give continued attention to the bowels; to use vaginal suppositories of boroglycerid and ichthyol five days in succession, planning for coitus on the seventh day each week, for some months, before instituting any further treatment. One month later catamenia failed to appear. The patient is now well advanced in normal pregnancy.

This case is selected for quotation as peculiarly instructive from the almost complete absence of any genital peculiarities and from the absence of any other treatment than emptying of the bowels, except for the brief vaginal depletion. In most of the other cases of the retention series a greater or less alteration of the secretions was present and some direct local treatment was necessary; yet in all the retention of feces has seemed so much the predominating feature, both in diagnosis and in treatment, as to warrant the clinical conclusion that the sterilities were essentially due to this factor and terminated by its relief.

My experience has not furnished me with equally conclusive evidence that general auto-intoxication from distant lesions is by itself a sufficient cause for sterility, most of the cases presenting hostilities in the secretions which required considerable local treatment, and which might have been due to other causes than biochemical alterations from disturbed health due to auto-intoxication; but the cumulative presumption derived from numerous cases leads me to accord much practical weight to this probability and to consider it important to eliminate all such conditions in the management of cases of sterility. This conclusion is reinforced by the experience of both experimental and commercial animal breeders that both good general condition and proper diet are essential to fertility, in both sexes. Animal breeders are emphatic about the advantage of a glossy coat, a clear eye, animated temper, etc., in breeding animals. These correspond, of course, to good complexion, bright eye and the general results of conditions of good elimination in the human race.

#### EMPIRIC OPERATIONS

Sterility is a subject that has not been adequately studied, and the importance of the microscopic study of the conditions that determine it has not reached the mass of the profession or attracted the attention of more than a very few, even among specialists. An unfortunate result of this is that the specialist in sterility sees many cases that have been complicated by previous unsuccessful operations, usually on women. When the organs of a sterile woman show no gross abnormality she is usually advised to try some one of the time-honored minor expedients and is dismissed with that advice; but when some gross and easily detectable abnormality is found she is too frequently subjected to an operation on the mere chance that that abnormality may be causative to the sterility. If performed in the absence of an exact knowledge of the causes and conditions that are really involved in the individual sterility, such an operation is naturally not adapted to their correction; and while it may occasionally yield results, it is worse than wasted in the other cases. Especially prominent among these useless operations are those which are done for the relief of retroversion without recognition of one of the functional derangements of the ovaries which imply nonovulation, or of a preexisting ante-flexion from the existence of short anterior attachments of the cervix.

The futility and injustice of the performance of an abdominal operation for sterility without attention to the needs of nonovulating ovaries needs no mention, yet it is a very common mistake.

The performance of a suspension, whether by sero-serous stitch or by shortening of the ligaments in the face of a forward fixation of the cervix, means necessarily the restoration of a flexion that decreases uterine drainage and thereby increases the conditions productive of sterility; the uterine tension so produced moreover eventually destroys even the anatomic result in a large proportion of cases.

CASE 4 (Clinical Records No. 4011).—A man, aged 34, and a woman, aged 27, had been married a little less than three years. When one year married the wife was referred to an excellent surgeon of prominence in a large city, on account of the nonappearance of conception. She was free from any symptoms of ill health. The surgeon found the uterus in retroversion, but found nothing else. He dilated and curetted, and performed a suspension operation. The couple were seen a little less than two years later. The vaginal secretion was overacid and bacillary. On postcoital examination the spermatozoa found in the vagina were all still. The cervical secretion contained no spermatozoa and was profuse, tenacious and turbid, showing a high leukocytosis and constituting by itself an efficient obstacle to impregnation. The uterus was again in straight retroversion; the anterior attachments of the cervix were organically short, the uterosacrales in spasm. Both ovaries were full and slightly enlarged, the catamenial enlargement persisting during an undue portion of the month and never wholly subsiding. The husband had a negative sexual history, and his general physical examination was negative except that he was living a very confined office life, and was in soft condition. He had been much given to athletics until a few years earlier. His prostate was soft and swollen, the left side being markedly larger. Examination of a direct specimen of semen revealed oligospermia, morphologically well formed, but mostly still and the remainder in feeble motion, most of them entangled by their tails in sticky mucus. There was an extreme excess of crystallized elements in the semen, and it was believed to be hostile biochemically as well as mechanically. Case 4 is recent,<sup>2</sup> but it is selected for citation because it illustrates so many points. The husband was functionally sterile. The retroversion created no symptoms either before the operation or after its occurrence; such a retroversion has little influence on fertility and is unimportant. The fixation of the cervix made it improbable that a mere suspension would effect any improvement in the condition of the uterus. The vaginal secretion was slightly hostile, the cervical was very hostile, and in the anatomic condition of the cervix could hardly be otherwise. The ovaries were functionally deranged. The woman was subjected to an abdominal operation for a harmless retroversion, the ovaries were left untouched, and except for the institution of a dilatation and curettage, which in such an anatomic position of the cervix is useless, nothing else was done, yet the operator is a well known and able man.

Cases almost as flagrant are frequently seen by the expert in sterility. To the credit of the profession, it may be said that they have become rare in most other lines.

Unnecessary and unsuccessful curettings are another extremely frequent element in the empiric treatment of sterility. Many operators seem to believe that if a routine examination discloses no evident abnormality in the female of a sterile mating, it is always fair to curet her. Dilatation and curettage delicately performed, in connection with plastics on the cervix, form

<sup>2</sup> Both partners are now under minor treatment. If the man can be rendered fertile, the woman will need another operation.

an intrinsic part of many operations for sterility but when done by themselves and especially when done on a hit and miss principle, they are seldom efficacious and not infrequently harmful. When less well done and when done without correction of the shape of an underdeveloped cervix, they very often produce trauma and scar tissue about the angle of flexion which distinctly and by itself decreases the prospect of pregnancy at any subsequent time.

The use of stem pessaries is a far too frequent and very harmful expedient in the treatment of sterility. There is no question that the use of the stem is occasionally followed by pregnancy in previously sterile women. Some of the practitioners who use them have claimed as high as 25 per cent. success, though usually in a small series of cases, and from 10 to 15 per cent. is generally credited to this procedure; but all or nearly all of the unrelieved majority are rendered permanently and hopelessly sterile by the results of the stem. When effectively used, the stem produces improved uterine drainage; but it effects this by the production of a pressure necrosis in the portion of the canal where it lies. The few pregnancies that follow its use occur during the comparatively few months in which patency remains; but the mucous membrane has been destroyed, and unless pregnancy occurs immediately, recontraction and decreased drainage again set in. In my own experience, I have never had a success by any method after a stem pessary has been unsuccessfully used. I have seen not a few salpingitides which apparently were referable to the use of the stem.

It is well known that neither uterine fibroids nor even ovarian cystomas are entirely preventive of pregnancy, though it is comparatively rare in the presence of these neoplasms. This is evidently due to the fact that fibroids do not necessarily encroach on the uterine canal and that simple cysts of the ovary do not under certain conditions produce the intra-ovarian tensions which prevent ovulation. When such neoplasms are combined with the secretional hostilities or with non-ovulating ovaries, their possessors are sterile. When the neoplasms are removed by operations which also are directed to the removal of the conditions of sterility, the cases form a class in which the prognosis is especially favorable; but the removal of neoplasms from sterile women without attention to the real causes of the sterility naturally yields only a small percentage of results, and must then too often be followed by plastic corrections which might just as well have been performed at the same time. A single operation with a successful result is always preferable to an operation that is followed by a disappointment, even though a second operation is afterward successful.

One more class of failures remains to be discussed. It is a universally accepted principle that no chain is stronger than its weakest link; but the equally clear fact that no tube is more patent than its narrowest part seems to have attracted less attention, though it will be assented to the moment it is set forth. This principle is again as true of physiologic as of mere mechanical patency, and it is eminently true of the genital passages in many sterile individuals. A localized condition (usually inflammatory) which is either mechanically or biochemically obstructive to the spermatozoa may certainly be so much localized as to exert no special effect on the general health, and yet render the canal as impervious to impregnation as

though such a condition extended its entire length and caused an extreme symptomatology. Male hostility of this class has already been discussed. Biochemical vaginal hostility of bacterial origin, mechanical cervical hostility from inspissated or sticky mucus, tubal hostilities without marked enlargement of the tubes, and ovaries which are nonovulating from retention of the follicles are frequent causes of sterility which seldom produce ill health or even gross lesions. The diagnosis of these conditions can be made only by the microscope. These cases are usually pronounced to be entirely normal, the patients are often assured that they are not sterile in spite of the fact that they do not produce children. These cases belong properly to the expert in sterility and are among the most satisfactory cases that are sent to him. They are cases that the general practitioner, and even the gynecologist who has not made a special study of sterility, can hardly be expected to elucidate. They are frequently complicated by the presence of the stigmata of genital underdevelopment; but, unless this is very marked fertility can usually be restored. They form an important and very hopeful class, but their prognosis is always better if treatment is undertaken early in married life than when the sterility has been long continued.

CASE 5 (Clinical Records No. 4167).—A man, aged 35, and a woman, aged 30, had been six years married. The wife presented no symptoms except occasional sensations in the right lower quadrant when fatigued. There were extreme antelexion of cervix with retracted anterior attachments of the cervix, pinhole os, rather small and slender uterus in retroversion, and both ovaries palpable and probably slightly enlarged. The vaginal secretion was overacid and white. Smears showed a preponderatingly bacillary flora. There was evident biochemical hostility. The cervical secretion was quite normal. Postcoital examination revealed an abundance of spermatozoa in the vagina, all dead after an hour in situ. A cervical specimen showed abundant spermatozoa of good motility. It was presumably a case of moderate vaginal hostility and of ovarian sterility. The anterior attachments of the cervix were released; the os was enlarged by a small bilateral Pozzi operation. The abdomen was opened. The right ovary contained a small calcified corpus; it was resected; the remainder of the ovary was enlarged, mainly by edema, and was scarified. The left ovary contained a flaccid corpus cyst, the size of an English walnut, probably hardly palpable on examination; it was resected. The uterus and ovaries were suspended. The appendix was removed. There was good convalescence and considerable gain in the general condition. During the next six months occasional depletion was carried out with ichthyol and boroglycerid. During the next three months repeated smears showed favorable coecal vaginal flora with only normal acidity. At the end of this time a second postcoital examination disclosed normal motility of spermatozoa in the vagina. Pregnancy occurred immediately after this, and the child was born at term eighteen months after operation.

The general characteristics of this class of cases are an absence of symptoms, except sometimes dysmenorrhea, marked antelexion of the cervix due to a congenitally short Goffe's fascia and other anterior attachments, cervix small with small os, the fundus of the uterus not large, and the intermediate portion of the organ slender. There is poor drainage from the uterus, and the cervical secretion tends to be inspissated and sticky. Except in the dysmenorrhoeic cases, these conditions make little trouble during maidenhood; and in those in which pregnancy occurs soon after marriage, the development of the uterus is completed during pregnancy. When pregnancy does not follow

promptly after marriage, a very acid, highly bacillary, vaginal secretion usually appears, and sterility is established. At this early stage, and if repeated examinations of the ovaries show them to be thoroughly normal throughout the menstrual month, the cervical plastics alone, or in combination with vaginal disinfection and autogenous vaccinations from the bacillary flora, are frequently successful. If such a sterility remains long unrelieved, functional derangement of the ovaries usually ensues, and after persistent disturbance of the ovaries has once followed, a conservative operation on them must be combined with the other procedures if success is to be hoped for. Pregnancy seldom occurs in the first six months after any of these operations. It is most common in the second or third six months, and a considerable percentage of successes do not appear until the fourth six months or perhaps shortly after. Minor treatment and the autogenous vaccinations are often of much importance as after-treatment.

This class of cases varies greatly in the degree to which the several factors are present. Success in treatment rests largely on careful analysis of their relative importance and the adaptation of the operative or other treatment thereto; but these sterilities form a large, interesting and very hopeful class.

#### EXAMINATION, DIAGNOSIS AND PROGNOSIS

The many possibilities, on one side or the other, which are involved in the sterility of a given mating form so complicated a subject that the decision as to which of the many possibilities form the effective cause or causes in a given case, and the formation of a prognosis of what can be expected from treatment, can usually be reached only after all have been considered and examined for.

The examination of a couple should begin with a careful general life history of both, which should be especially directed toward detecting the existence of autointoxications or of an involvement of the testicles or ovaries in past general infections.<sup>3</sup>

The general history should, if necessary, be followed by a general medical physical examination.

A careful sexual history of both partners should be taken. In the case of the man it should include past and present sexual habits, degree of desire, and infections; in the case of the woman, a chronological inquiry into the events of puberty, any changes in the catamenial history, and the phenomena of the marital relation, especially when first assumed.

The local physical examination of the male should include the exclusion of any abnormalities of the penis, and careful palpation of the testicles, of the prostatic urethra, of the prostate and vesicles. When there is a history of past infection or any tenderness on palpation of the urethra, a urethral examination should be added.

In the pelvic examination of the woman, the usual visual and bimanual examination should be followed by a rectovagino-abdominal palpation, which is made with the forefinger in the vagina, the second finger in the rectum, and the other hand on the abdomen. The superior degree in which the shape and relation of the uterine body, and the conditions of the ovaries are determined by this examination can be appreciated only by those who have trained themselves to it. It is

essential to the determination of the existence of spasms in the so-called uterine ligaments (unstriated muscles), a very important item in the examination for sterility; and the functional derangements of the ovaries can hardly be studied successfully in any other way. These examinations should usually be repeated under anesthesia. The use of primary anesthesia by gas-oxygen is usually quite sufficient for this purpose, and is so lacking in disturbing or unpleasant features as to be quite unobjectionable.

These examinations should include not only the usual search for abnormalities but a complete review of every part of the genital organs, including size, shape, degree of development, tenderness, congestion, localized inflammatory conditions and spasms. The study of the lesser degrees of functional alteration of the ovaries may sometimes advantageously include repetitions of the rectovagino-abdominal examination throughout the varying phases of the menstrual month.

Finally, the secretions of both sexes should be submitted to a microscopic examination. Smears should first be made from both the vaginal and the cervical secretions, and the chemical reaction and gross appearances of both should be recorded. The smears should be stained, and their study should include the bacteriology of the vagina and the amount and condition of the contained epithelial cells, with especial reference to the degree of destruction of their cytoplasm. In the cervical secretion the important points are the amount and condition of the epithelial cells, the degree and quality of the leukocytosis, and the thickness and tenacity of the mucus.

It is usually in practice most convenient that a post-coital examination of the woman should be the next step, because if the examination of the vaginal pool shows an abundant number of spermatozoa with a high percentage of first-rate progressive motility, a direct microscopic examination of the male may be dispensed with; but it is rarely conclusive to this effect unless made within the first hour after coitus.

The mucus of the postcoital flow as it escapes from the os should next be searched. Specimens taken by syringe or otherwise from the lower and upper cervix should be examined, and the behavior of the spermatozoa within them should be carefully noted. In a small proportion of cases an examination of the corporeal secretion is desirable; but it is difficult to perform this examination without contamination from the mucus of the cervix, and it is not altogether innocuous. It should be reserved for cases in which the result of the previous examinations seems to render it especially desirable.

If the spermatozoa as found in the pool are not first-rate, an examination of the semen obtained directly from the male and without admixture with the secretions of the female is essential to a determination of his fertility, and experience has shown conclusively that no male should be condemned without the examination of a specimen which has been obtained directly from his urethra by any one of the three possible methods within a few minutes of the examination. The spermatozoa are exceedingly sensitive to chilling, desiccation and very slight overheating. Cases have been seen repeatedly in which the male has appeared sterile after the examination of a specimen that had been ejaculated as short a time as half an hour previously and subjected to transportation, but in which the examination of a fresh specimen with duration tests

3. It is well known that mumps frequently affects the testicles and less frequently and obviously the ovaries. These involvements also occur, though much less frequently, during typhoid. There is also some evidence to show that they occasionally occur in scarlatina, and perhaps in some other infections, though this must be regarded as unproved.

under proper laboratory conditions showed conclusively that the method of collection and transmission had involved what may be called laboratory errors which were wholly responsible for the absence or imperfection of fertility.

After a full consideration of the history, local and general, and of the local, general and microscopic examinations in their relations to each other in both sexes, a diagnosis of cause, and usually, a fairly accurate prognosis of the prospect both with and without treatment, may be obtained; but the conditions involved are so complex that opinions given without such an analysis are usually little better than guesses.

An accurate prognosis is especially important in sterility, since the institution of treatment, and more especially of operative treatment, in cases in which it is judged appropriate, involves a decision that is different in kind from that which is concerned with the relief of ill health.

When an abnormal condition involves a distressing symptomatology and, more especially, when it involves danger to life, it is of course proper for the surgeon to urge on his patient the importance of treatment, whether minor or operative; but the institution of treatment, with its discomforts and expenses, for the relief of sterility alone is one which is essentially at the choice of the patients and which is essentially dependent on the degree of their desire for children in relation to the degree of improvement in their prospects which may be expected from treatment. Their decision must be largely dependent on the prognosis that is given to them, and every effort should be made to render it accurate.

The degree of success that may be expected from adequate treatment of sterilities in general is a question that is frequently asked by the profession; but, although experience shows that a fairly accurate prognosis may usually be obtained in a given case, a general statement is as yet impossible. Repeated attempt at statistical study of all the cases seen has been made, but has been unsatisfactory owing to the character of the subject. There are so many possible causative elements in sterility; the presence of several such conditions within the same case is so common; the prognosis in individual cases varies so widely in accordance with the combinations so obtained, and varies so much again with the duration of the sterilities, the ages of the female patients and often with the effects of previous treatment that they have undergone that an adequate classification of the cases for statistical analysis would require the use of many thousands of instances, and such are not now available. Statistical conclusions drawn without classification would be misleading, while those drawn from cases selected as favorable would be nearly worthless.

Cases that are successful under minor measures are among the most gratifying that are seen; but the causes that effect sterility in this class of cases are not only so variable, but often grade into each other by such indefinite degrees that their classification for adequate analysis by statistical methods has proved to be, for the present, at all events, a hopeless task. The only general statement about results that is so far in any degree worth putting into figures was reached by treating as a whole the operative cases that have been seen since present methods have been used and in which two years have elapsed since operation. In this series, seventy consecutive cases yielded a general result of

42 per cent of successes; but in fairness it must be stated that this collection included a considerable proportion of cases in which the couple decided on an operation after having been given a doubtful or poor prognosis for success (in some cases as low as a 10 per cent. chance), in view of the fact that they were assured that the prognosis was hopeless without it, and because they were willing to take even the smallest chance.

It may fairly be said that in young persons without venereal history or serious congenital defects, and with a sterility of but a few years' standing, the prospect of obtaining pregnancy under treatment is almost always very good. In selected cases it is as high as from 75 to 80 per cent.; but in less favorable cases it ranges all the way downward to those in which it is from one cause or another absolutely hopeless. Each mating must, then, be considered by itself and it is manifest that no general statement of value can be made.

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## STONE IN THE KIDNEY AND URETER

FROM THE STANDPOINT OF THE  
CLINICAL SURGEON\*

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It would seem proper for me in my part of this discussion to avoid a repetition of what is contained in most of the special works as well as in the various monographs on stone of the kidney and ureter, which are so complete and exhaustive that, in connection with the recent papers by Braasch,<sup>1</sup> Eisendrath,<sup>2</sup> Young,<sup>3</sup> Cabot,<sup>4</sup> Eliot,<sup>5</sup> Merritt<sup>6</sup> and others, the field has been splendidly covered. It would seem well worth while, however, for me to consider stone of the kidney and ureter from the standpoint of the clinical surgeon, especially because I have been constantly active in the treatment of these cases since they have been looked on as surgical.

I assisted Prof. Charles T. Parkes<sup>7</sup> in 1887 in the diagnosis and operation of his first case, which was one of the earliest cases treated by operation in this country.

At that time, the characteristic symptoms, which are now generally accepted, were discussed incidentally in textbooks. Morrison had written on the subject and reported cases. Israel was beginning the work in this department which has since brought him international fame, and Jacobson had given some attention to the surgical importance of this subject which had been mentioned by various surgeons in connection with occasional clinical observations.

The stone in the first case of my experience, mentioned above, was the shape and size of a robin's egg,

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2. Eisendrath, D. N.: *The Diagnosis of Ureteral Calculi*, *Surg., Gynec. & Obst.* 27:461-467 (Nov.) 1918.

3. Young, F. L., Jr.: *Clinical Diagnosis of Lithiasis of the Upper Urinary Tract*, *J. A. M. A.* 63:1499 (Nov. 3) 1917.

4. Cabot, Hugh: *Errors in Diagnosis of Renal and Ureteral Calculi*, *Surg., Gynec. & Obst.* 24:403, 1917; *Stone in Kidney and Ureter*, *Clinical Review of 157 Cases*, *J. A. M. A.* 45:1153 (Oct. 9) 1917.

5. Eliot, E. Jr.: *New York M. J.* Dec. 1, 1916.

6. Merritt, E. P.: *A Consideration of Ureteral Stones*, *Surg., Gynec. & Obst.* 27:536 (Nov.) 1918.

7. Parkes, C. T.: *Clinical Lectures*, Chicago.

was perfectly smooth and fitted like a valve into the entrance of the ureter, accounting perfectly for the pain and symptoms of obstruction and for the thickened walls of the pelvis which made location of the stone by palpation impossible. The stone was located by puncturing with a fine sewing needle, which was generally recommended at that time, but which has since been discarded because it leads frequently to the missing of small stones.

My next observation of especial importance occurred in 1888, when I was directed by my chief to keep a colleague under the influence of chloroform at intervals from 10 a. m. to 8 p. m. while a renal calculus was passing through the ureter. For several years, this physician had passed from one to three renal calculi annually. Morphine had no effect on him and the pain was unbearable, so the use of anesthesia was our only hope of giving relief.

A few days later, before this patient had time to produce another calculus, we met another one of Professor Parkes' patients who had suffered from recurrent renal colic, a manufacturer of steam boilers. On asking him whether he had experienced any attacks recently, he stated that he was definitely through with renal colic, and suggested that if the doctors used their intelligence as actively in their profession as boiler manufacturers had to in their business, no one would ever have to experience a second attack unless he had more than one stone in his kidney to begin with. He stated that when his customers complained of their boilers filling up with lime in the form of scales, he advised them to use rain water, and this ended the trouble; so on the same principle he drank freely of distilled water, and had been free from a recurrence of kidney stone and renal colic.

I immediately put our colleague on this treatment, which he continued for twenty-nine years, never having another attack. He died of cerebral hemorrhage at the age of 74.

Since that time, I have made use of this method in an enormous number of cases, always with the same result; and the practice has been followed by many practitioners who have visited my clinic and others who have read about this method of treatment. I have no doubt that the method must have been used before the boiler maker discovered it, but earlier reference to it has escaped my attention, except that the water from certain springs which is almost as free from lime as is distilled water has been used as a prophylactic against recurrence of renal colic from time immemorial, while regions in which the drinking water is loaded with lime salts are notorious for the frequency of renal calculi, as cited by O. S. Fowler,<sup>8</sup> for instance, in India.

A number of observations similar to the following have proved the importance of this treatment:

CASE 1.—A farmer, aged 34, from the limestone region of Wisconsin, came to my clinic suffering from recurrent renal colic twenty-seven years ago. During former attacks, he had obtained relief spontaneously, but this attack seemed more severe. The stone passed on the second day under treatment with morphine and atropin hypodermically, and 2 ounces of glycerin and large quantities of distilled water, all of which were repeated after twenty-four hours. He obtained a disillling apparatus and drank only distilled water for twelve

years without having any further attacks until he drank well water for six months, being too much occupied while building a new house to take the distilled water. This brought on another attack, during which he passed a calculus 1.5 cm. in length. He immediately returned to the use of distilled water and has now been free from attacks for fifteen years.

I have encountered a number of similar cases.

There is a marked difference in opinion as regards the proportion of cases in which renal and ureteral stones will pass spontaneously, some placing the percentage as high as 90, while others place it as low as 10 per cent. (Merritt,<sup>9</sup> Braasch<sup>1</sup>).

This depends, of course, very largely on the class of cases treated. In our clinic the patients who come from the immediate city or vicinity usually have stones that pass under the treatment mentioned above. In all probability, the stones that passed following this treatment would have passed spontaneously before the patients could have traveled a long distance so that only those patients come from a distance whose stones cannot pass for one reason or another, and therefore clinics which receive their patients almost exclusively from long distances must have a far larger percentage of cases requiring operation than clinics in municipal hospitals.

My next case of especial interest, which I saw in 1892, demonstrated a fact which is now mentioned in most articles, and in practically all textbooks treating on this subject:

CASE 2.—A powerful, healthy appearing man, weighing over 200 pounds, about a week previously had begun to suffer from pain in the region of the right kidney which had increased constantly, no relief being obtained from the hypodermic use of morphine. It was thought that the typical uremic convulsions to which he succumbed almost immediately after I saw him were due to the pain, which was confined to the region of the right kidney.

The physician in charge felt certain that the patient had not previously suffered from nephritis and could not account for the uremic convulsions. The necropsy revealed absence of the left kidney. The pelvis of the right kidney contained a pear shaped stone, 2.5 cm. long, with the portion corresponding to the stem inserted in the upper end of the ureter. A pyelotomy during the early stage of the attack would, of course, have cured the patient as has been demonstrated in many cases since that time.

CASE 3.—A woman had a sinus, leading to a nephritic abscess of the right kidney from which a stone had previously been removed, which refused to heal under treatment. In the meantime, the fistula had drained much urine and pus, while the amount of urine secreted by the other kidney, although it remained normal in quality, decreased constantly until less than 100 c.c. were voided daily. After keeping the patient under observation for a sufficient period, and finding it impossible to pass a ureteral catheter into the pelvis of the right kidney, we decided to remove the organ because we attributed her failing health to absorption of septic material, and at the rate she was losing strength, we felt certain that she could not last very long.

Within two days after the operation, the urine passed from the bladder increased markedly, and within two weeks it increased to 800 c.c. This showed in a very marked degree the fact that the remaining kidney is stimulated to greater activity on the removal of the diseased organ, the justification of which has now been thoroughly established.

The next case marks the beginning of a change in the practice in our clinic:

CASE 4.—A woman, aged 60, emaciated and septic in appearance, with typical symptoms of double pyonephrosis with multiple calculi, was treated by drainage of the left kidney and the removal of a number of stones; a month

<sup>8</sup> Fowler, O. S.: Ureteral Obstruction Causing Urinary Stasis, a New Etiology in Kidney-Stones with a New Method of Nephropexy and Sigmoid Ictal Natural Drainage, J. A. M. A. 62: 367 (Jan. 31) 1914.

later the right kidney was treated in the same manner. Both kidneys were tuberculous. The patient was put under hygienic and dietetic conditions, but lost in weight and strength very slowly but gradually. Formerly, no patients of this type had ever recovered in our experience, although we had a series of recoveries in cases in which we had removed one tuberculous kidney even after it had been drained for a time. In this case, both kidneys were in such bad condition that it seemed out of the question to remove one. We consequently started to fill the sinuses and the pelvis with a paste of 20 per cent. bismuth subnitrate in petrolatum, repeating the treatment once a week. The patient showed improvement within a few weeks, increased in weight and strength rapidly, and made a complete recovery.

Since that time, we have invariably treated sinuses leading to tuberculous kidneys with Beck's bismuth paste with a fair number of recoveries.

During the fifteen years ending Jan. 1, 1919, I have treated 146 cases of kidney and ureteral stone in my clinic at the Augustana Hospital.

#### TREATMENT

In case the calculus lies in the pelvis without several branches into the calices, we have found pyelotomy most satisfactory, following the advice of J. B. Murphy,<sup>9</sup> whenever possible, of first splitting the upper end of the ureter longitudinally and continuing the incision into the pelvis.

In branching stones, we have clamped the pelvicle of the kidney lightly, split the cortex longitudinally just behind its midline, removed the stone, and placed heavy catgut sutures through the kidney, tied just tightly enough to bring the surfaces together, and then released the clamp. In pyelotomy, only in cases in which the edges of the pelvis failed to fall together evenly, fine catgut sutures were used. In either case we drained the wound with a strand of gauze and a cigaret drain.

Ureteral stones which could not be delivered through the bladder without traumatizing the ureter, we have removed through an abdominal incision in the linea semilunaris carrying a small rubber drain, a narrow strip of gauze and a cigaret drain through the lower angle of the wound down to the incision in the ureter. In none of these cases have we applied sutures. Only in one case have I removed a stone through a vaginal incision.

#### CONCLUSIONS

1. The size of the pelvic stone will usually determine the possibility of its passing spontaneously.

2. In the ureter, the primary stone, if it gets started, will usually pass. Secondary stones may be stopped by cicatricial contractions which may have been caused at some point by injuries due to the passage of one or more previous stones.

3. A large proportion of stones of moderate size will pass spontaneously or after dilatation of the ureter with bougies, the use of oil of glycerin injections or one of the various methods of dilatation, of which the one perfected by Lespinasse<sup>10</sup> seems most effective.

4. At times, simply starting the stone with a bougie will suffice.

5. In patients suffering from acute renal colic, the use of morphin and atropin hypodermically followed by the ingestion of 2 ounce doses of glycerin with

large quantities of distilled water has seemed to be of value in aiding the passage of stones spontaneously, especially when the patient was immersed in a very hot bath.

6. The prophylactic measure of taking large quantities of distilled water seems to be effective in preventing recurrences.

7. Sinuses remaining after pyelotomy or nephrotomy will frequently heal after injection with Beck's bismuth paste.

8. The clinician who is alert for the discovery of renal or ureteral stone, who takes into consideration the history and physical findings, will rarely miss a correct diagnosis provided he confirms his diagnosis (a) by careful urine examination; (b) by roentgenographic examination with intensified shadows if necessary; (c) by the introduction of ureteral shadow sounds; (d) by pyelography in doubtful cases, and provided he is willing to consider all points as a whole and will place no weight on negative findings by any single one of the various methods employed.

#### DIAGNOSIS

The most important element in the diagnosis is a carefully written history taken by the surgeon himself who is thoroughly familiar with the clinical courses of these cases, because the careful weighing of all the points elicited is exceedingly valuable, while each individual element in the history may be of but slight value.

This accounts for the constancy with which the older clinical surgeons have their diagnosis confirmed by the roentgenographic and other laboratory findings, and also for the fact that we find in the literature so many of the younger surgeons and diagnosticians who lay little value on the history.

It is certain, however, that wide clinical experience must confirm the conclusion arrived at by Young<sup>11</sup> after his extensive studies, that "no single piece of evidence or combination of evidence is sufficient to make an absolute diagnosis."

Next in importance is the roentgenographic examination. The plate should show a distinct picture of the outline of the kidney to be dependable in case of renal calculus.

In case the shadow is not sufficiently distinct, the latter should be intensified.

In case there is doubt concerning the stone's being in the ureter, a shadowgraph catheter should be introduced.

Of course the bowels should be thoroughly emptied before the roentgen ray is employed, and both kidneys should be examined, because, according to Brunsch,<sup>1</sup> in bilateral stone the pain is unilateral in 64 per cent. of the cases. Guyon pointed out the fact many years ago that a stone in one kidney may give rise to pain on the opposite side exclusively, a condition he termed "renorenal reflex."

Cystoscopic examination is especially useful in differentiating between calculus and tuberculosis. The same thing is true of microscopic examination of stained urinary sediment and inoculation of guinea pigs for tuberculosis.

Lucas,<sup>11</sup> in one of the early works in this field, invented an interesting test for ureteral calculus which has not received due attention. The thigh is held in a flexed position resulting in contraction of the

<sup>9</sup> Murphy, J. B.: Surgical Yearbook, 1907.

<sup>10</sup> Lespinasse, V. D.: Surg., Gynec. & Obst. 26: 631 (June) 1918.

<sup>11</sup> Lucas, R. C.: Lancet, April 2, 1903.

iliacus muscle, which is relaxed suddenly, jarring the ureter containing the stone and causing acute pain. He also gives the following symptoms not usually mentioned: Patients with calculi often have a tendency to micturate frequently during the daytime, while at night they are not disturbed.

In case of obstruction of the pelvis or ureter of the only remaining kidney, the patient in making frequent unsuccessful attempts to micturate develops headache, vomiting and uremia.

He gives the following points for differential diagnosis between tuberculosis and calculus:

Hematuria without pain appears early in tuberculosis; hematuria with pain is constant in calculus.

Pyuria without pain appears early in tuberculosis; pyuria with pain appears late in calculus.

Pus is present in tuberculosis in excessive amount; in calculus it is minimal in amount.

Pain in tuberculosis is diffuse, dull, constant; in calculus it is definite, sharp and intermittent.

Chills in tuberculosis are common; in calculus they are rare.

There is rise of temperature in tuberculosis especially in the afternoon; in calculus it is rare.

Tubercle bacilli in tuberculosis are sometimes present; in calculus they are absent.

The ureter is thickened in tuberculosis, sometimes it is palpable; in calculus it is not palpable.

The remaining conditions to be considered in making a differential diagnosis are movable kidney, oxaluria, acute granular nephritis, papilloma in the pelvis, tumor, gallstones, tuberculosis of the spine, appendicitis, ectopic gestation, sciatica and lumbago, stone in the opposite kidney, seminal vesiculitis, pyosalpinx, and gastric or duodenal ulcer. Phleboliths and calcified tuberculous lymph nodes may be mistaken for stones when one is attempting a differential diagnosis.<sup>12</sup>

#### ABSTRACT OF DISCUSSION

DR. CHARLES HARFSTER, Toledo, Ohio: I watched the work of Professors Israel and Nitze for about two years, and was much impressed by what they said regarding the finality of any test. Regarding the use of the ureteral catheter and the refinements of urologic diagnosis, I will cite one or two cases to illustrate their great usefulness. In cases of bilateral ureteral calculi, with anuria of from two to five days' duration and the roentgenogram showing stones in both ureters, on which kidney are we going to operate? In a case of anuria of five days' duration, with stones showing in the roentgenograms, we were able to pass a number four catheter by the stones on each side. On one side no urine was coming at all, yet the clinical symptoms seemed to point to that kidney as the one that was functioning. If we had operated on that kidney the man would have died. By being able to pass the small catheter on both sides, we cleared up the diagnosis, operated on the right kidney and saved the man's life. Regarding the length of time a per-

son with anuria and stones on both sides may live, one man who refused operation, on whom we had previously done a prostatectomy, lived about twelve days. Of course, we appreciate the worth of clinical evidence, but we should in all cases corroborate our findings by cystoscopy, roentgen ray and all other diagnostic refinements.

DR. V. D. LESPINASSE, Chicago: The symptoms of stone were worked out in the early days of medical practice, as urinary stone is an obvious lesion and these symptoms were called stone symptoms. Stone symptoms are merely symptoms of acute ureteral obstruction, and anything that will obstruct the ureter will cause the same group of symptoms as a stone. So that we must have more than symptoms to make a diagnosis of ureteral stone. Blood and pus in the urine, of course, help a great deal, but most of us nowadays want something objective, something definite that we not only can see ourselves but demonstrate to anybody else, and we turn to the roentgen ray. The roentgen ray very often fails, particularly in the case of the smaller stones in the ureter, and particularly in certain heavy individuals. The point that I want to make is in regard to the diagnosis of these stones that are negative to the roentgen ray. What happens in the urinary tract when a stone is present? There is ureteral dilatation, dilatation of the pelvis of the kidney and its calices, and these facts can be used to diagnose a stone in the ureter, and should be used. A pyelogram and a ureterogram should be made. Obstruction of the catheter at a certain definite point confirms the diagnosis. These points of pelvic and ureteral dilatation have helped me make a diagnosis in several instances where the stone was negative to the roentgen ray and operation produced the stone.

DR. A. J. CROWELL, Charlotte, N. C.: Three points in connection with Dr. Ochsner's paper I would like to discuss: first, the causes of recurrences of stone in the kidney; second, the frequency with which we have recurrence, and third, a plan to prevent recurrence. Dr. Ochsner believes he has clinical evidence that kidney stones are produced by drinking certain mineral water. How any mineral water can be a direct or predisposing cause to stone formation, I do not know. It may act as an irritant, lowering the kidneys' resisting power and make infection more liable. In my opinion, clot, following hemorrhage, or debris as a result of infection, are the principal causes of stone formation. These act as a nucleus on which the salts of the urine are deposited and to prevent stone formation it is necessary to get rid of these predisposing causes. It occurred to me a few months ago, while studying a case of double nephrolithiasis with infection, that, theoretically, to prevent reformation I should first get rid of the infection. With this end in view I irrigated the kidney pelvis with silver nitrate solutions every third day, beginning with 0.5 per cent, and increasing 0.5 per cent, each treatment, keeping this up until the infection subsides. The stones are removed simultaneously by pyelotomy. The wounds heal by first intention. In ten days I resume pelvic lavage with silver nitrate and physiologic sodium chlorid solutions. This is kept up until no evidence of infection is found. I am now treating several cases in this way. I feel that many recurrences can be prevented by faithfully following this plan of treatment. It was new to me and in looking up the literature on the subject I found that no one seemed to have thought of it as a routine plan of procedure to prevent stone reformation. It has been estimated by different operators, that stones have recurred in from 10 to 40 per cent. of the cases. I heard Mr. Freyer, while removing a stone from the kidney of a patient, say that unless the stone was producing considerable clinical symptoms, "leave them alone since we have recurrences in practically every case."

DR. GUY L. HUNNER, Baltimore: Ureteral stricture is the chief cause of most stones in the ureter. Not only that, but stones forming in the ureter may so dilate the ureter above the stricture that the stone will float up into the kidney, where it will, perhaps, get larger and remain, or get larger and start down again and then get obstructed in some other point. The chief point of importance about this is that in operating on any stone in the kidney or upper ureter, we

1. In addition to the references already given, the following will be of interest:  
Bosley, Aschall: The Value of Roentgenological Examinations, in Johnson, A. B., Operative Therapeutics, New York, D. Appleton & Co., 1915.  
Doyen, E.: Traité de chirurgie urologique et de technique opératoire, 37<sup>e</sup> édit., 1913.  
Lass, G.: Traité de cystoscopia, Paris, 1918.  
Mayo, W. J.: The Removal of Stones from the Kidney, Surg., Gynec. & Obst., 24: 19 (Jan. 1) 1917.  
Tenney, Benjamin: Renal and Ureteral Stones, Boston M. & S. J., 77: 731 (May 30) 1918.  
Tresselt, Frederic K.: Operative Surgery, 1892.  
Utter, R.: Stone at the Level of the Level of the Kidney and Pelvis, Progress Obst. 23: 189 (June 1) 1918.  
Williams, B. C. K.: The Formation of Urinary Calculi, New York Med. J., 102: 609, 1915.  
White, Sinclair: British M. J., 1: 13 (Jan. 8) 1919.

should pass the graduated or the dilating bougie from above downward, in order to dilate any possible stricture in the lower end of the ureter. I am a great believer in Dr. Ochsner's method of using these pure waters for these cases that have shown a tendency to reformation of stone.

DR. ALBERT J. OCHSNER, Chicago: I am very glad, indeed, that Dr. Hunner and Dr. Crowell brought out these points, because there is no doubt but what infection is a very important etiologic element and, of course, with the presence of strictures in the ureters you are bound to have infection. You cannot have retention of fluid in the bladder or in any cavity without having infection in a relatively short time. An interesting point that I might mention is this: That there are a number of vegetable juices that seem to have a marked disinfecting influence on the infections in pyelitis. In my contact with surgeons in the tropics, in Porto Rico, and in Mexico particularly I found that they can disinfect a pyelitis within a very short period of time. A person who comes from the United States, with a pyelitis, who has been under treatment for months, or possibly years, will be disinfected within a few weeks by the use of large quantities of the milk of the unripe cocoanut, in the cocoanut countries, and by the use of the juice of one of the century plants in Mexico. And here in our own country I have, in many instances, secured relief from infection of the kidney and bladder with the colon bacillus by the use of large quantities of watermelon. So that these vegetable juices seem to have the power of disinfecting the urinary cavities if taken freely.

### THE NERVOUS CHILD AND HIS MANAGEMENT \*

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The well-poised, effective, emotionally stable adult human being is the exception rather than the rule in modern life. Guthrie<sup>1</sup> believes that "neurasthenia probably causes more misery and pain than any organic disease," and Ernest Jones<sup>2</sup> states, that "neuroses constitute, perhaps, the most widely spread form of disease." A recent institutional census<sup>3</sup> shows that on Jan. 1, 1918, one individual of every 405 in the United States was definitely insane to an extent requiring custodial care. Procrastination in locking the "barn door" is proverbial and is particularly common in nervous and mental disorders. For this both the public and the medical profession are to blame, but more particularly the latter. Physicians deride the efforts of laymen toward that little knowledge of matters medical which they consider renders them dangerous to their own well-being, and while this attitude may be advisable under some circumstances, it can be justified only by the physician's electing himself monitor over both the physical and mental health of his clients by placing a higher value on prevention than on cure.

The neuroses and psychoses are seldom of sudden onset, but are usually the end-result of a long series of contributing factors, which have their inception in early life and are recognizable in early life by the conscientious and careful observer. Parental fears are easily allayed when a trusted family physician or con-

sultant, after examining a distinctly hypoplastic nervous child, states that he can find nothing "organically wrong" (meaning thereby, I suppose, that he finds no disease entity) and dismisses the patient with a tonic and a few vague directions about keeping the child out of school, getting him into the country, or giving him more milk to drink with the optimistic assurance that he is just a little nervous and anemic and will outgrow it after a while. As I have before taken occasion to state,<sup>4</sup> "To this attitude of *laissez faire* more wrecked lives are due than to the actual dishonesty of the charlatan." Equally dangerous are the pessimistic prognostications of another variety of routinist, ignorant of the value of a proper combination of medical, hygienic and educational treatment. While some children are born nervous (hereditary causes), some acquire nervousness (disease, habits, etc.) and others have nervousness thrust on them (faulty training at home and at school). To counteract and to remove these causes in their various and combined phases is the duty (and the privilege) of the physician, and if he fails in its exercise he is derelict.

The difficult feeding case is such because the maternal supply of food does not agree with the child, or because the child fails to agree with the food. The latter condition is due to a deficient legacy of vital force, directly traceable to either or both parents, or to developmental disturbances in embryo. The maternal inability to furnish suitable or sufficient nourishment, and the offspring's inability to metabolize it, are often due to identical causes—organic inferiority and subenergization. The proper development of the nervous system is dependent on proper metabolic functioning, and anything that interferes with this—improper or insufficient food, acute or chronic disease, fatigue, physical and emotional, including that from reflex irritation—all lay the foundation for future trouble. Donaldson<sup>5</sup> and Sugita<sup>6</sup> have shown that the human cortex attains its full thickness at about the age of 15 months, and that at this time cell multiplication and cell migration have practically come to an end, and that the changes incident to further growth are those of enlargement of the cell bodies, growth of axons and myelination. Underfeeding and nutritional disorders retard the completion of this higher cerebral organization. "All this," according to Donaldson, "shows that the important events in the postnatal growth of the nervous system occur early in life, and this in turn emphasizes the paramount importance of favorable conditions during the first three years of childhood."

The danger signs are many; and while not all are of equal import, none should be disregarded. In early infancy they are digestive disturbances, fretfulness, extreme sensitiveness to light and sound, convulsions, premature or late closing of fontanel, premature or late dentition, precocity or delay in the development of muscular control, in talking, undue sensitiveness of skin and mucous membranes, thumb sucking, head rocking, thigh friction, and manipulation of genitalia. In early childhood they are constipation, perhaps alternating with diarrhea, anorexia, and perversities of appetite, aversion to particular articles of food, night

\* Read before the Section on Diseases of Children at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Guthrie, L. G.: Functional Nervous Disorders in Childhood, London, Oxford Press, 1907, p. 17.

2. Jones, Ernest: The Treatment of the Neuroses, p. 17. White, W. A., and Jelliffe, S. E.: Treatment of Nervous and Mental Diseases, Philadelphia, Lea & Febiger, 1:333, 1913.

3. Pollock, H. M., and Furush, Edith: Annual Census of the Insane, Feeble-Minded, Epileptics and Inebriates in Institutions in the United States, Mental Hygiene 3:78 (Jan.) 1919.

4. McCreedy, E. B.: What Can Be Done for Childhood to Promote Sound Mental Health? Am. Med. 13: 91 (May 19, 1913).

5. Donaldson, H. H.: Growth Changes in the Mammalian Nervous System, Harvey Lectures, Philadelphia, J. B. Lippincott & Co., 1914, p. 113.

6. Sugita, N.: Comparative Studies on the Growth of the Cerebral Cortex, J. Comp. Neurol. 1917, p. 381; ibid. 20: 177, 1918.

terrors, muscular twitchings, tics and muscular inco-ordination, stammering, lisping, idioglossia, enuresis, tremors of the fingers on extension, restlessness, irritability, perversity sometimes amounting to negativism, phobias, extreme timidity, fatigability, hypermotivity, etc. If unchecked and uncorrected, the foregoing characteristics tend to aggravation as puberty approaches and we may have definite negativism, stereotypy, and the typical "shut-in personality," psychasthenia, and that short circuit of consciousness included in the term "neurosis." From the physical standpoint, the nervous child more than the child of stable nervous system, is likely to present the anomalies, such as marked cranial and facial asymmetry, ocular muscular imbalance, myopia, hyperopia, astigmatism, adenoids and enlarged tonsils, prognathism, irregular dentition, nevi, deviation of the nasal septum, phimosis, etc. He may show evidence of ductless glandular dysfunction, may be obese with short, stubby fingers, or slender with long bones and tapering fingers, may be sexually precocious, or puberty may be delayed, may take on sudden accesses of growth, or may fail to grow at the normal rate. Adler<sup>7</sup> gives a comprehensive enumeration of the defects which may be found in organically inferior individuals predisposed to the neuroses. Eppinger and Hess,<sup>8</sup> discussing vagatonias, which they find a prominent factor in the neurotic make-up, say: "When we discover that vagatonias is associated with so many constitutional anomalies, which are manifestations of inferiority, we naturally are inclined to ask whether vagatonias itself is not a form of constitutional inferiority." Collin and Verdé<sup>9</sup> find that children with "cerebrospinal fragility," to use their term, are exceptionally susceptible to toxic and infectious influences, and they review a long train of phenomena that are due to this. In fact, so closely associated and interrelated are the symptoms of deficient growth energy (hypoplasia) and nervous insufficiency (adynamia) that the mutual and reciprocal action of each is apparent.

It is not necessary that we classify and label nervous children, as has been attempted, into those destined to develop dementia praecox, those who will develop manic-depressive insanity, psychasthenia, neuroses and what not. The mere fact that the child possesses characteristics which stamp him a potential neuropath or psychopath is sufficient. Treatment should begin as early in life as possible, even in the prenatal period, employing every means at our hand to allow Nurture every opportunity for beneficent activity. Nature, in the form of hereditary tendencies we cannot affect; we can only influence her results through Nurture. The nervous child, particularly the one whose nervousness has been thrust on him, disagrees with his environment. Consequently, his environment should be modified to meet his needs. Unfortunately, the average private home, particularly the urban home, is conducted for the convenience of the adult members of the household; the children may fit in as best they can, just so they keep out of the way of their elders at the infrequent times when these have "no place to go." If this is not the case, they are liable to the opposite extreme

of oversolicitude, overindulgence, and inconsistency of management as harmful in its results as the neglect referred to above.

Thus the treatment of the nervous child must begin with a modification of the immediate environment. It is often impossible for the child to improve while he remains in his own household; not necessarily because the home is essentially unfit, but because it is difficult to eliminate the causes originally responsible for the establishment of faulty modes of reaction. Again, no matter how solicitous and conscientious the parents may be, they lack the special training and experience that would enable them to deal effectively with a mal-adjusted child. This they have already proved, by the child's condition, and it is now time for some one with the necessary equipment to take a hand. If the child remains in his home, his regimen should be under the absolute charge of the attending physician; otherwise treatment is futile. Domestic arrangements must be modified and changed as conditions require, sources of friction must be removed, impatience, irritability and undue sympathy on the part of various members of the household must be curbed. The first consideration should be to see that the child obtains sufficient rest. Not only is easy fatigue a prominent symptom of nervous instability, but it is also a potent cause. Most children are overstimulated by the conditions of modern life; conditions which, because they are usual, are considered normal. Fatigue in children brings about a nervous irritability which leads to further effort, giving the false impression that the child is unusually energetic. Constant calls on the reserves of energy which should only be made in emergency, and very infrequently in childhood at least, result in a condition of nervous insolvency even more serious than the adult form. The constant din of the city streets, the vibration of street cars and automobiles, the flickering glare of the movie, the strident blare of the graphophone, the constant hurry and bustle to be somewhere else as quickly as possible—all these have their effect for harm on the delicate sensorium of the growing child.

Equaling the importance of the prevention of over-fatigue is the regulation of the diet. We are accustomed to think of malnutrition as affecting only those of narrow means; yet a large percentage of children from well-to-do homes are undernourished. The schoolchild, in the habit of sleeping until the last minute, comes to the table with time only to bolt one or another emaculated but widely exploited cereal whose only virtue is that it requires a large quantity of cream to admit of its being swallowed. By the middle of the morning his tissues crave more nourishment, which craving is relieved by candy or highly ornamental pastry of low nutritive value. The edge of his appetite blunted, he makes a sketchy lunch, grudging the time that might be used for play. In the afternoon again his appetite is impaired by some easily obtainable carbohydrate food, and at dinner time he partakes of those dishes only for which he has the greatest liking. The result is that his diet, while perhaps not necessarily deficient in calories, is composed mostly of carbohydrates, generating an evanescent energy, but failing to provide for tissue wear and tear, for growth and for storage for emergency. Such diet, also, is poor in vitamins and mineral salts; nervousness in children is often as much a deficiency disease as is scurvy or beriberi.

7. Adler, Alfred: *The Neurotic Constitution*, New York, Moffat, Yard & Co., 1917.

8. Eppinger, Hans, and Hess, Leo: *Vagatonias: A Clinical Study in Vegetative Neurology*, Nervous and Mental Disease Monograph Series, No. 20, Ed. 2, Washington, Nervous and Mental Disease Publishing Company, 1917.

9. Collin, A., and Verdé: *Cerebrospinal Fragility*, *Arch. de méd. d. enf.* 22: 126 (March) 1919; *abstr. J. A. M. A.* 72: 1332 (May 3) 1919.

Fresh air, bathing, regulated exercise, all have an important place in the hygienic management of the nervous child. It is time for us to apply the lessons learned on the stock farm, in the raising of domestic animals and fowls, to the raising of children. The scientific animal husbandman has learned that the three prime requisites for success, the stock being sound, are; diet, fresh air, exercises. He knows that to secure growth and vigor he must feed a balanced ration, that he must furnish sufficient roughage to give bulk to the intestinal contents, that he must give green stuff and other foods rich in vitamins and in mineral salts. He knows that he must feed in proper quantities, and that to gain the maximum of growth and vigor all animals require range, free from crowding, from noise and from confusion. To the urban realist "pigs is pigs"; but to the up-to-date farmer, good pigs and other animals are the result of balanced rations, exercise and fresh air. What observant swineherd has not seen the "runt" of the litter, nosed aside by his stronger and more active brothers and sisters, equal or outstrip them all when given a trough and a run to himself? Our domestic animals are important and valuable, but are they more important and valuable than our children? Should more scientific study and care be devoted to them than to the individuals for whom they exist?

Mention has been made of the difficulty of bringing about proper nervous adjustment in the child's own home. This is doubly difficult when that home is a city home, and most difficult when it is that of the modern cliff-dweller, the apartment or flat. City life is at best an artificial one for any human being; for the nervous child it is poison. There is nothing so conducive to nervous stabilization as well conducted country life. It is here that the nervous child may be brought to realize what Cabot calls "the glory of raw materials," and it is here that the "human plant" may best receive the nurture that it requires. Mere absorption through contact is not, however, sufficient, for "experience and not memory is the mother of ideas." The child, to gain the best results, must return to a fairly primitive mode of life; and though not, perhaps, obeying to the letter the mandate, "Study Nature, not books," must "study Nature, then books." As Brown- ing says:

It was better youth  
Should strive, through acts uncouth,  
Towards making, than repose on aught found made.

The conventional cut and dried methods of the modern schoolroom, depending largely on memory and abstractions, fail to properly hold and direct the attention of the child predisposed to nervousness. The study of nature, of bird, animal and plant life, and contact with the various activities of country life serve to bring about function of normal areas of interest and to eliminate abnormal ones.

Sequin,<sup>10</sup> to whom modern education and modern medicine are more indebted than either realizes, was a strong advocate of the utilization of Nature in the educational system. Holman<sup>11</sup> says:

Of all the great educators of the past, Sequin is the only one who directly attacked the problems of education, from the first, in a purely scientific spirit, and with a purely

scientific training and purpose. It is not surprising, therefore, that he did what neither Pestalozzi, Froebel nor Herbart had done: he showed that the development of mind, in the earliest years, depends on the development of muscles, senses and nerves; and he discovered the means by which this could be best secured. In short, he cast such a new and essential light on the principles and practices of education as only a mastermind can. . . . In some ways his scheme of garden schools is the crown and completion of his whole theory of physiologic education. It is also the application of his theories to normal children and ordinary schools with regard to certain essentials. In the light of present-day enthusiasms for, and experiments in, open-air schools and classes, Sequin is seen to have been a real revealer of fundamentals and a true prophet. No better testimony to the profound truth of his great discoveries could be found than the recent rediscovery of them.

Some general rules formulated by him more than forty years ago for the conduct of garden schools are as follows:

1. Do not teach anything indoors which can be learned outdoors.
2. Teach nothing from books which can be learned from nature.
3. Teach nothing from dead nature which can be observed on the living.
4. Nature is to be the schoolroom and the schoolbook, unless insuperable difficulties prevent.

Sequin's scheme, as outlined in two papers read before the New York Academy of Science in 1877 and 1878, embraced a comprehensive scheme for the utilization of public parks, museums, libraries, conservatories and other public institutions in a system of education which would render the schooling of the masses more active and practical. Unfortunately, Sequin's ideas, as a whole, have not yet been put into practice, though I venture to prophesy that the day will come when we shall see them carried out almost in entirety with modifications made necessary by the time, just as we now have open-air schools, manual training, domestic science, vocational training, physical culture, and other "modern improvements," all of which were described in in Sequin's plan.

A description of a practical method of education for nervous children, based on the theories enunciated by Sequin, I will take up in a later paper.

Wildwood Hall.

#### ABSTRACT OF DISCUSSION

DR. PERIVIAL J. EATON, Pittsburgh: I was very much pleased to hear Dr. McCready's description of the nervous child. Some children are born nervous, but they are in the minority. Some children acquire nervousness. A greater number acquire nervousness than those who are born nervous. The great majority of nervous children are those who have nervousness thrust on them, if we can express it that way. It seems to me that all of us who are interested in children and who study the effect of environment on children know that is so, and it seems to me that one of the paramount duties of the pediatricist is to teach the mothers (and the fathers, too) and when the opportunity arises the rising generation of girls, the potential mothers—the dangers, the shreds, the rocks, on which they so easily founder. The "back to the soil" cry is what should be realized. The best place in which to train children is in the environment of the country, the open space and the fresh air. As Dr. McCready has said, the training of the child should begin at once. If you cannot begin a child's training prenatally you should do so as soon after birth as is possible. If the pediatricist would teach along these lines, there would be a great deal more of good health and soundness of mentality, and above all an increase in the character of our children.

10. Holman, N.: Sequin and His Physiological Method of Education. London, Pitman & Sons, p. 224.

11. Holman, N.: Sequin and His Physiological Method of Education, p. 12.

DR. RICHARD COLE NEWTON, Montclair, N. J.: I believe it was the late Horace Greeley who said the great trouble in bringing up children in modern times is that we bring them up altogether too carefully. We do too much to our children and often interfere with their natural development. In the South in slavery days the negro children were raised very much like animals; they were put in a sort of pen where they crawled or ran about naked and ate out of a trough. There was never anything the matter with them, so far as known. When I was a young man the negro was ostensibly immune to tuberculosis; now he is more susceptible to it than the whites. His infancy was formerly passed in such a way that he escaped tuberculous infection. Now he is subjected to a so-called higher form of civilization with disastrous results to himself.

DR. HAROLD B. WOOD, Providence, R. I.: There is an aspect in the development of nervous and allied conditions which should be considered. The physical condition of the father at the time of procreation is a potent factor in the development of the child and to a relatively corresponding degree as is the condition of the mother during the child bearing period. The public now appreciates the frankness of the physicians in telling them of the problems of combating venereal disease and would welcome needed advice on this other question. Children should be the result of intent and not of accident. Among the better classes they would be the result of intent if the prospective parents were instructed properly. The physical condition of the father at the time of procreation is reflected in the future child. I am not referring to the transmission of venereal disease or of insanity. All of us know instances which prove my assertions. I know of a father who begot two children at times when he was doing very hard mental and physical work and was much below his physical norm. His children, now adults, are much below his physical and mental powers. In another instance, the first child was conceived when the father was below his normal physical condition and was much worried. The second child was intentionally begotten in the middle of a long and happy vacation. The difference in the children is very marked, the second being of a happier disposition, better physical and mental development and much more resistant to disease. The condition of the mother was not a factor in these cases. Physicians should teach prospective parents that there is a time for establishing their families and that the time for procreation should be intentionally selected according to the presence of good physical condition and mental ease of each parent, especially of the father. In the development of eugenics we need prenatal instruction for expectant fathers.

**Vaccination of Cattle Against Foot and Mouth Disease.**—The chief of the public health service in Italy, Dr. Lutrario, publishes in the *Bulletin of the Office International d'Hygiene Publique* 11:266, 1919, an account of successful vaccination of cattle against foot and mouth disease. In 1914 a committee of five leading university professors and four veterinarians was organized for the study of this subject, with government authority and funds. The method which Professor Terni has worked out consists in reinforcing and prolonging by successive inoculations the immunity already contracted by the animals from a first attack. This method has proved effectual on such a large scale that the farmers now ask to have it applied to their cattle. From 25 to 50 c.c. of blood from cattle saturated with the virus are injected by the vein. This is repeated four or five days later, supplemented with 25 c.c. of a 1 per cent. solution of filtered virus. A third inoculation is made eight or ten days later. The inoculations can be done subcutaneously, doubling the amount of the hyperimmunized blood. Another method seems to act as an effectual preventive vaccine; this is the intravenous injection of red corpuscles from an animal with the disease. This also requires three injections. Two animals that had never had the disease and were vaccinated by this technic showed no signs of the disease, to which the controls all succumbed within forty-eight hours, when the animals were placed in a herd affected with the disease in a grave form.

## MALAKOPLAKIA OF THE BLADDER \*

A. I. FOLSOM, M.D.

DALLAS, TEXAS

## REPORT OF CASES

CASE I.—In November, 1917, Mrs. H., aged 43, was referred to me. Her general health was good. She came complaining of a severe irritation of the bladder. There was undue frequency of urination (nocturnal and diurnal), a burning sensation, and difficulty in voiding. This had been more or less continuous for about six years. Eighteen months prior to her visit to me she had passed in the urine a small piece of tissue which had been submitted to a pathologist, who had reported the tissue to be carcinoma.

The woman was well nourished, had lost no weight, and in general had the appearance of good health. The blood count was about normal save for a leukocytosis of mild degree. Vaginal examination revealed nothing of interest except that the vesicovaginal septum was not indurated at all, and no mass could be felt in the region of the bladder, in spite of a previous diagnosis of cancer. Cystoscopic examination revealed a residual urine of 11 ounces, very milky and having the odor of decomposing urine, similar in every respect to the urine of an old prostatic.

The general bladder surface, roof and side walls were grossly trabeculated, showing numerous cellulæ. These surfaces, however, were only mildly inflamed. The trigon and the adjacent areas of the base of the bladder were covered with irregularly placed, smooth, rounded, nodular tumors, varying in size and shape; some round and almost pedunculated, others with broad bases and resembling plaques. These masses had none of the appearance of papillomas, there being no fronds nor villi. None of the growths showed any ulceration, nor did any have the appearance of cancer.

There were two of these masses located directly on the edge of the vesical sphincter; they were evidently acting as ball valves, obstructing the passage of urine and resulting in the residual urine and the trabeculation of the bladder wall. One of the small masses was removed with the rongeur and was submitted for microscopic study to Dr. J. H. Black of Dallas. His first report was that the growth was medullary carcinoma. I objected to this diagnosis on the grounds that, first, the history was not that of malignancy; second, the cystoscopic picture did not warrant such a diagnosis, and third, there was absolutely no induration to be felt in the vesicovaginal septum.

I told Dr. Black that I did not know what the condition was, for I had never seen such a condition before, and did not recall having read of such, but that I did feel very positive that clinically it was certainly not a carcinoma.

Not knowing what else to do, I began the use of d'Arsonval fulguration, and after the third sitting I found a decided improvement in the local picture. Several of the masses burned had disappeared, just as is frequently seen in like treatment of papillomas. This confirmed my previous doubts about the condition's being malignant, and I again opened the subject with Dr. Black. His further study of the tissue and search of the literature brought him to the diagnosis of malakoplakia. The only mention of the condition found in the texts was in Mallory's "Histologic Pathology": "Rarely an organism, apparently of the colon type, gains access to the submucous tissue and causes a mild inflammatory reaction there, consisting chiefly of an accumulation of endothelial leukocytes, which may collect in large numbers so that soft polypoid masses project into the cavity of the bladder, and suggest the presence of some form of tumor. The organisms are sometimes present in large numbers in the leukocytes, which are occasionally multinucleated and often contain other inclusions, such as lymphocytes and red blood cells."

The diagnosis seemed justifiable from the clinical, cystoscopic and histologic findings, so we classified it as such.

\*Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Fulguration was continued, and in all there were six sittings. The residual urine decreased materially and the growths were nearly all gone when the patient was seen last in March, 1918.

In April, 1919, she again came in for examination, and no residual urine was found. The bladder surface was practically normal, save for the trabeculation and a few slightly thickened areas over the base of the bladder. No distinct masses were seen at all, and in every way the patient felt entirely relieved of her previous troublesome symptoms.

CASE 2.—In January, 1919, Mrs. S., referred by Dr. Henry Clay, consulted me for a very severe bladder irritation—frequency, burning and general discomfort. This had been noticed first about six years previously and had returned at intervals, getting worse and staying longer each time, until, for the last few months the patient had had very little rest day or night.

Physical examination failed to reveal anything of interest except that her general appearance was below par. She was nervous and her blood showed a moderate secondary anemia. Pelvic examination revealed the uterus retroposed and fairly fixed with a fullness posteriorly.

The vesicovaginal septum was soft and showed no induration at all. Cystoscopic examination disclosed the general bladder surface inflamed in mild degree; the trigon and the adjacent areas were seen to present almost identically the same picture as in Case 1. There were numerous round, smooth, nodular masses, varying in size and shape, some flattened and some almost pedunculated. There were no villous growths, nor were any of the masses ulcerated. A small mass was removed and submitted to Dr. Black for examination.

Fulguration was instituted, and almost immediate improvement was noted in the subjective symptoms. Three treatments were given and a decided improvement in the bladder picture was seen. The symptoms were nearly gone, and the patient was sleeping and eating, and in every way felt improved.

Dr. J. H. Black reported: "The tissue removed from the bladder of Mrs. H., is a soft, reddish-gray mass about 5 mm. in diameter. Sections show normal surface epithelium which is everywhere well defined and nowhere shows any infiltration of the subjacent tissues nor any transition into the types of cells found beneath it. Extending through the mucosa and into the submucosa are large numbers of large oval cells which are, in some areas, densely crowded together with little supporting stroma. These cells have a definitely oxyphilic cytoplasm which is occasionally 'foamy' in appearance. The nucleus is fairly small, deeply stained, and eccentric. These cells are apparently identical with the plasma cell so often found associated with other conditions.

"Many large mononuclears are seen together with some small lymphocytes scattered irregularly through the mass. The stroma is everywhere delicate, and many small thin-walled vessels are seen. Only a few polymorphonuclears are found.

"The tissue removed from the bladder of Mrs. S. is macroscopically similar to the above. Sections show the same character of cells and the same general picture. The number of 'plasma cells' is less, while the mononuclears are proportionately increased. Polymorphonuclears are more abundant also.

"Clinically, the condition present in these two patients is reported to be quite similar. Grossly the tissue is the same. Microscopically, the first picture is quite analogous to those described in the literature as malakoplakia save that none of the so-called 'inclusion bodies' were seen. It differs from the section of a case of Mallory's which I have had the pleasure of studying in that it shows somewhat fewer of the 'plasma cells' and more mononuclears. The second tissue is apparently the same condition save that the inflammatory picture is more pronounced. One who studies these slides would, I think, be forced to the conclusion that malakoplakia is a comparatively rare inflammatory condition which, while essentially characteristic, varies somewhat in its cell content as do other inflammatory conditions."

## COMMENT

A reasonably careful search of the literature shows that the first use of the term malakoplakia was by von Hansemann<sup>1</sup> in 1903, but, as early as 1902, Michaelis and Gutmann<sup>2</sup> described the same condition. Since that time twenty-two cases have been reported, all but two of which were observed at necropsy. Zangemeister,<sup>3</sup> in 1906, reported the first case observed during life. The only article in the English language found was by A. M. Pappenheimer<sup>4</sup> of Bellevue Hospital, in which he reports two cases seen at necropsy.

The disease appears to be one of late life, only one case occurring in a child. All other patients were over 40 years old. The majority of these cases have been found in females, including the author's cases. Eighteen have been found in women and six in men.

Opinion is divided as to the part tuberculosis plays. Some maintain there is very close relationship, while others do not consider it of any importance save as an accidental association. Landsteiner<sup>5</sup> thinks tuberculosis is merely coincidental when found. "The histologic and bacteriologic findings preclude tuberculosis, although the microscopic picture lends support." Von Gierke, in a case with tuberculosis of the lungs, intestine and tubes, found tubercle bacilli in the bladder folds, never in the plaques themselves.

Wegelin<sup>6</sup> and Loelke<sup>7</sup> did not find tuberculosis and do not consider it of any importance.

Waldschmidt<sup>8</sup> concludes by saying:

If we assume tuberculous etiology we must assume action of tuberculous virus at a distance not heretofore known. Summarizing twenty cases with necropsy, tuberculosis was the cause of death in six and minor foci were found in five others; in two cases no reference is made to search for such changes; in seven no tuberculous changes were found anywhere; that such infection was found in two thirds of the cases is certainly explained by the frequency of this disease, irrespective of other conditions.

Pappenheimer says:

The number of cases is as yet too few to decide whether the coincident occurrence of tuberculous lesions in other viscera is more than fortuitous.

In my cases no history of tuberculosis was obtainable. No tuberculin test was made; repeated stains of the urine did not detect tubercle bacilli. No guinea-pig test was made. A careful examination did not reveal any evidence of tuberculosis, and I feel that I am safe in saying that tuberculosis was not a factor in either of my cases.

Among those writing on the subject, Gutmann and Michaelis alone consider the condition neoplastic, calling it "a form of benign epithelial neoplasm"; Hansemann does not take a definite position as to the nature of the growth. All other writers are agreed that the lesions are "infectious granulomas of inflammatory

1. Von Hansemann, *Leber Malakoplakie der Harnblase*, *Vierteljahrsschr. f. path. Anat.*, **17**: 302-309, 1903.

2. Michaelis, L., and Gutmann, *Eisher Einschüsse in Blase und Nieren*, *Ztschr. f. klin. Med.*, **47**: 98-115, 1903.

3. Zangemeister, W., *Ueber Malakoplakie der Harnblase*, *Centralbl. f. Krankh. d. Harn u. Sex. Org.*, **17**: 441-495, 1906.

4. Pappenheimer, A. M., *Malakoplakia of the Urinary Bladder*; Report of Two Cases, *M. & S. Rep. Bellevue Hosp.*, **2**: 305-309, 1906; *Malakoplakia of the Urinary Bladder*, Report of Two Cases, *Proc. New York Path. Soc.*, **6**: 65-71, 1906-1907.

5. Landsteiner, K., and Stark, O., *Ueber eine eigenartige Tuberculosis Cysticae* (v. Hansemann's Malakoplakie), *Beitr. z. path. Anat. u. z. allg. Path.*, **34**: 131-151, 1904.

6. Wegelin, *Malakoplakie der Harnblase*, *Chir. Bl. f. Schweiz. Ärzte*, **10**: 234, 1910.

7. Loelke, W., *Ein Beitrag zur sog. Malakoplakie der Harnblase*, *Beitr. z. path. Anat.*

8. Waldschmidt, M., *Ueber Malakoplakia vesical-urinarum*, *Ztschr. f. Urol.*, **6**: 541-564, 1912.

origin." Landsteiner and Störk consider it an inflammatory process, the characteristic large cells being derived from interstitial tissue, though they are unable to determine from what kind of cell. Their phagocytic powers indicate wandering cells.

Gierke and Ellenrieder find a resemblance to epithelioid cells of tubercle and think they originate partly from connective tissue, partly from blood.

Guterbock<sup>9</sup> thinks them similar to large lymphocytes and true fixed connective tissue cells.

Loebl considers them transitions from large granulata cells, not differing from other inflammatory reactions.

Landsteiner and Störk think the histologic picture that of an inflammatory process and propose making it "cystitis in plaques."

Hart<sup>10</sup> would classify it as a chronic, nonspecific inflammatory hyperplasia.

Michaelis<sup>11</sup> suggests that it is a sort of specific granuloma, due to irritation of cellular elements of sub-mucous lymph spaces.<sup>12</sup>

Pappenheimer closes his description of his two cases by saying:

The precise origin of the characteristic large cells is still a subject for speculation. That they are of similar origin to the phagocytic cells seen in other inflammatory processes seems beyond question. Their large size may, as has been suggested by Michaelis, be due to the inhibition of fluid from the urine.

In reporting his second case he says:

Histologically the characteristic structure is obscured partly by postmortem changes in the tissue, partly also by inflammatory infiltration and necrosis. The characteristic

"inclusions" could not be demonstrated, nor were bacteria to be found. Since, however, there is no other known bladder lesion producing a similar macroscopic appearance, the lesions must, for the present, be classed as one of malakoplakia.

#### ABSTRACT OF DISCUSSION

DR. ARTHUR L. CHUTE, BOSTON: I have been very much interested in the report of the case; but as I have never seen anything like it, I can only speculate as to its nature. It seems to me that Dr. Folsom is perfectly right in believing that it must be some chronic inflammatory condition. It does not seem to me that it is of a tuberculous nature; it does not act in the way tuberculous processes do. I shall be very much interested to hear the report of further cases of the same sort to see if they make the condition clearer. It is a new one to me.

#### THE MAXILLOFACIAL SURGEON IN A MOBILE HOSPITAL\*

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JEFFERSON BARRACKS, MO.

When roads are congested with hundreds of thousands of moving troops with all the impedimenta of war, the matter of the weight and the bulk of the equipment for those who operate on wounded men must be carefully considered. Only those things which are absolutely necessary can be carried. The typical front line operating organization is a mobile hospital. The dressing stations and field hospitals are crowded with the work that they are expected to do, which is essentially emergency treatment. There are many patients who might have a chance to recover if they could have specialists to operate on them at once. Many classes of wounds occur that emergency units are unable to handle. The element of time and transportation is a very important factor. Men that could be saved if they could be operated on within a few hours of the receipt of the injury, and many others who are in such a condition that they cannot survive the trip back to the evacuation hospital, can be successfully taken care of in the mobile units. For these reasons the mobile hospitals were developed.

The equipment furnished by the government for the front line work in this department was well planned, but the insurmountable difficulties in procuring especially designed instruments at the beginning of the war defeated the fulfilment of the plans. There was only one remedy: that of the surgeon's taking his own equipment. That is what I did, and I believe it is the satisfactory solution for all specialists in any war in any army.

For plastic surgery a very complete assortment of needles, Hagedorn half curved and full curved, with cutting points, both large and small, is required. Small, sharp pointed gynecologic needles are also required. One complete set of cleft palate instruments, with appropriate mouth gags, at least three good tongue forceps; an assortment of hemostats, particularly small, sharp-pointed ones; several needle holders of varying shapes; one full set of extracting forceps; an

\* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

\* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

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10. Hart, K.: Ueber die Malakoplakie der Harnblase, Ztschr. f. Krebsforsch., 60: 389-395, 1906.  
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12. In addition to the references already given, the following will be found of interest:  
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assortment of elevators; two ronguers; one small dental hand drill; wire working pliers; orthodontic wire; modeling compound; a set of knives; a sharpening stone of carborundum, mouth retractors, and a tracheotomy set can all be easily carried and, if carefully selected, will supplement the instruments found in the ordinary hospital equipment.

It was my good fortune to be detailed as maxillofacial surgeon to U. S. Mobile Hospital No. 1, A. E. F., and it is from the experience gained there that I speak.

NATURE OF WOUNDS

Mobile Hospital No. 1 was always in the area between the 75's and the 6-inch guns. Our advanced position made it possible for us to receive many patients as early as two hours after they were hit. These patients were first carried to the front line dressing station, then, by ambulance, to the triage, and from the triage to us. Only nontransportable battle casualties were taken by No. 1. This meant that we received the most desperately wounded men. Nearly all our patients were suffering more or less from shock. Many were in a state of coma. In nearly all cases of shock in which there was a fracture of the mandible, the patient came out of the condition of shock as soon as the jaw was set, because, in these cases, shock is usually due to obstructed respiration.

As these patients came in they were placed in the receiving ward and, according to the nature of their wounds, assigned to the different services. They were usually covered with blood and dirt, almost invariably suffering from extreme exhaustion, and many, particularly those with wounds in the head, face and neck, were suffering from labored respiration.

As soon as possible after their arrival, they were taken to the roentgen-ray department and examined with the fluoroscope for foreign bodies. It was impossible for us to carry a photographic roentgen-ray outfit, and consequently we depended for localization on indelible pencil marks made on the surface of the body.

When the patient came to the operating table, the face was usually matted with blood and powder, and it was very difficult to get him into the proper condition.

We overcame this difficulty by using gasoline to wash the face, and after that shaving as smooth as possible. Frequently it was necessary to have the anesthetic given before the slightest attempt could be made to clear up the face.

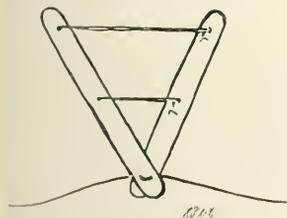


Fig. 1—Emergency splint to permit breathing when the patient is lying down.

TREATMENT

The first things to consider are the depth of the wound, the shape of the wound, and whether or not there is a loss of tissue. Not to exceed 1 per cent. of the patients have a considerable loss of tissue other than that in the direct course of the missile. This applies to wounds of the soft tissues and not to bone injuries. Bone injuries in the maxillary region were most severe when caused by high explosive. The Germans did not use true shrapnel. All injuries marked as shrapnel wounds were really high explosive wounds.

In my clinic at Mobile Hospital No. 1, I had only one case of bayonet wound of the face. We found many men wounded with the bayonet in the front line area, but they were all dead.

The control of hemorrhage in these fresh wounds is not so difficult as the control of hemorrhage later in older wounds. We were bothered very little with secondary hemorrhage, largely because the mouths of the American soldiers are the cleanest and healthiest of those of any soldiers in the world. Much of the secondary hemorrhage that was encountered in the British army was due to the tremendous percentage of oral infection among its soldiers. Fortunately for us, the American habit of taking care of the mouth and teeth and the service of the Dental Corps in the Army render septic mouths a rarity rather than a rule.

Cases in which the parotid gland and Stenson's duct were injured presented the possibility of salivary fistula, and my plan in handling them was always to gather up the exposed portion of the duct or gland with sutures, carry the sutures inside the mouth and fix them there, and then close the face wound immediately so that the fistula, when established, would follow the suture line and open into the mouth instead of on the face. It makes very little difference what portion of the buccal cavity the parotid gland discharges into, and if any change was desired later it was very easily effected; but a well established fistula on the surface of the face is an extremely difficult thing to handle.

When it was possible tracheotomy was avoided; but in some cases, before, during or after the operation, it was necessary to increase the air supply of the lungs, and a number of tracheotomies were performed. In those cases in which the patients were tubed immediately on their receipt at the hospital, I always had the ether given through the tracheotomy tube. This is a very convenient method of etherization for operation on the face and mouth, and should be taken advantage of when intubation is necessary.

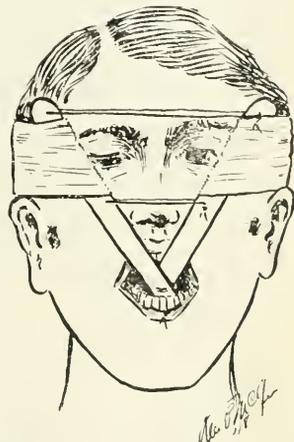


Fig. 2—Emergency splint applied, jaw thrown forward and mouth held open.

REPORT OF CASES

CASES IN WHICH RESPIRATION WAS IMMEDIATELY IMPROVED BY EARLY SPLINTING.

CASE 1—J. C. received a gunshot wound in the arm and the face. The bullet traversed the right upper arm, caused a large superficial wound of the neck, and destroyed the body of the mandible from the cuspid to the second molar on the right side. The patient suffered from shock and labored respiration. Preoperative shock treatment failed to get the patient in condition to receive an anesthetic. The neck wound was cleansed; loose bone fragments were

removed; the jaw was set, and a wire splint was applied. The respiration immediately improved, and the patient was soon out of shock. No anesthetic was used. September 13, 1918, three sequestrums were removed. September 16, the patient was evacuated in good condition.

CASE 6.—P. B. was wounded Nov. 2, 1918, at 2 p. m., admitted the next day at 12:30 a. m. and operated on the same morning at 2 a. m. He had a gunshot wound of the mouth and the neck. The roentgen-ray finding was negative. A machine gun bullet had entered the back of the neck, to the right of the center, and at the level of the chin; had traversed the neck, the pharynx and the floor of the mouth, and had destroyed bone and teeth from the left central to the right bicuspid, removing bone to within one-half inch of the lower margin of the mandible. There was a severe, hemorrhagic edema of the sublingual glands, driving the tongue backward toward the pharynx. The patient could breathe only when leaning forward, and then with difficulty. The lower lip was cut open from the center to the left mental foramen. The sublingual glands were drained, and a wire suture was placed through the incisions to keep the drainage open. A stab wound was made and a rubber tube drain inserted under the chin; the bone fragments were removed, the lip repaired and tension sutures employed.

Since returning to the United States I have seen this patient; he had fully recovered, with no further operative interference.

#### CASE IN WHICH EMERGENCY LEVER SPLINT WAS USED

CASE 9.—C. H. was wounded Oct. 14, 1918, at 8 a. m., admitted October 15, at 6:45 a. m., and operated on the same morning at 8 o'clock. The roentgen rays revealed a foreign body 8 by 10 mm. under the upper third of the left ramus. There was a compound comminuted fracture of the ramus on the left side, and one of the body of the mandible on the right. The foreign body entered the right cheek, passed through the palate and lodged on the inner surface of the left ramus. Edema of the palate was so great that the mouth could not be closed, and the drop of the fractured mandible prevented normal respiration. An emergency lever splint was applied. The respiration immediately improved, and the patient was able to breathe lying down, for the first time since the receipt of the injury. October 16, the lever splint was removed, and the edema of the palate was found somewhat improved. An open-bite splint was applied, and breathing stopped. The lever splint was replaced, and the respiration became normal. October 18, a local anesthetic was given. I removed a rifle ball from the inner surface of the mandible, evacuated pus, inserted a drain and applied an open-bite splint with a wire anchorage. The condition of the patient was good at the time when he was evacuated.

#### BAYONET WOUND OF THE FACE

CASE 10.—V. E. was wounded Sept. 26, 1918, admitted the next day at 6:45 a. m. and operated on that evening at 7 o'clock. The patient had a bayonet wound in the right cheek which had opened the antrum and fractured the alveolar process of the maxilla from the third molar (left) to the second bicuspid (right), with comminution between cuspids and bicuspids on each side. The roof of the mouth had been broken through into the nose and the antrum. There was a stellate wound of the face. The injury was cleaned and the wound sutured. A drain was inserted, a modeling compound splint with wire reinforcements on the

upper teeth was applied, and a chin cup used. The patient was evacuated on the third day.

#### CASE OF EXPOSED PAROTID GLAND

CASE 11.—S. M. was wounded Sept. 29, 1918, at 7 a. m., admitted September 30 at 6:55 p. m. and operated on that night at 10 o'clock. The roentgen-ray finding was negative. A gunshot wound had perforated his face and fractured, on each side, the body of the mandible, with a loss of tissue in the molar and the bicuspid region. The upper molars and the second bicuspids were shattered. The tongue was more than two thirds severed. The wound in the left cheek measured 3 by 3 inches. The parotid gland was exposed in the wound, and the capsule ruptured. Breathing was difficult. The tongue was repaired, the mucosa of the cheek stitched, the exposed parotid gland caught with a suture and carried through the mucous membrane, and a ligature passed through the mouth and back over the ear. Primary sutures in the face wound and tension sutures with buttons were placed. The condition of the patient required rest before further operation could be attempted. At a second operation, performed October 1, edema of the glottis and the larynx was relieved, and a low tracheotomy was performed. At a third operation, October 3, the jaws were wired and the tube cleaned. The patient when evacuated was in good condition.

#### DESTRUCTION OF ONE HALF THE MAXILLA

CASE 12.—C. O. was wounded Oct. 11, 1918, at 7 a. m., admitted October 15 at 1 p. m. and operated on the same day at 4 p. m. A high explosive shell fragment had torn the right side of the face entirely open and caused a compound comminuted fracture of the upper jaw, complete up to the floor of the orbit. The right half of the maxilla was destroyed, and the palate was destroyed except for a few fragments of bone and soft tissue. The left cheek was without support, owing to the displacement of the remaining fragment of maxilla to the right. The base of the nose was torn away, and the wound was septic. The patient was unconscious. No injury had been done the mandible. I replaced the fragment of

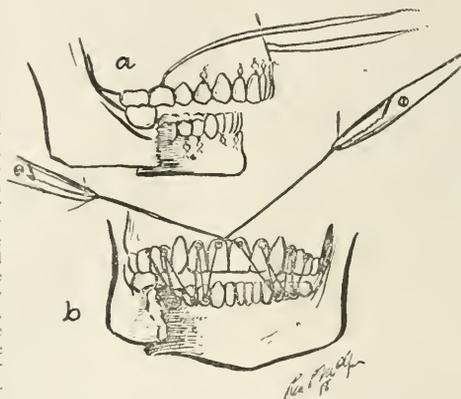


Fig. 3.—Wire splint: a, method of forming wire loops on the necks of the teeth to serve as pulleys; b, wire threaded through the loops.

maxilla, repaired the palate, as far as possible, by closure of the remaining mucous membrane and repaired the mucosa of the mouth. Tissues of the upper lip, face and nose were returned to place and sutured. Button tension sutures were used. An interdental splint was applied and anchored by tension wires from the lower teeth to the head bandage. A modeling compound splint was placed in the nose. Respiration stopped on the table, and I performed a high tracheotomy with good results. A gunshot wound of the outer canthus of the left eye was not operated on because of the condition of the patient.

#### CASE REQUIRING MODELING COMPOUND SPLINT IN AREA OF LOST BONE TISSUE

CASE 13.—H. M. was wounded Oct. 11, 1918, at 11:30 p. m., admitted October 12 at 3:30 a. m. and operated on, that day, at 3 p. m. The injury was a gunshot wound of the chin and a compound comminuted fracture of the mandible. All the bone was gone from the second bicuspid right to the second bicuspid left. The lower lip was detached and hanging by a pedicle from the left side. The bridge of the nose had been shot out. The segments of the mandible were wired into position. Wires were suspended from bicuspid 1 bicuspid, and a modeling compound splint approximating the shape of the missing bone was attached to support the soft

tissues of the reconstructed chin. The chin and the lower lip were repaired. A modeling compound splint was placed on the nose to prevent the turning up of the tip from cicatricial contraction. Button tension sutures were used, and a cigaret drain placed. The patient was two and one-half hours under gas-oxygen analgesia.

SPINAL ACCESSORY NERVE INVOLVEMENT

CASE 14.—M. B. was wounded Oct. 12, 1918, at 10:30 a. m., admitted the same day at 2 p. m. and operated on that night at 11:45. Roentgenoscopy revealed a foreign body, 10 by 12 mm., under the mark on the right side of the nose. It was apparently against the body of the third cervical vertebra. The patient had a gunshot wound of the face; a high explosive fragment had entered the cheek opposite the right first molar, and had ranged inward and backward, fracturing the mandible at the angle on the right side and severing the mandibular artery. The muscles of the pharynx were penetrated. The foreign body was found against the body of the third cervical vertebra. It was removed through the wound of entry, without opening into the buccal cavity. The face wound was stitched and the jaws wired. Immediately on receipt of the wound, voluntary motion in the arms and the legs ceased; the patient was semiconscious. After the operation, the left arm and both legs gradually approached normal. On the second day the patient was fully conscious. The right arm had normal sensation but no motion. The patient could close the right hand and had a slight motion in the wrist. He was evacuated.

METHODS IN DIFFERENT TYPES OF WOUNDS

We had several cases of double fractures of the ramus near the condyles, with the soft palate traversed. In all these instances the men had been shot by Boche snipers. In this type of injury the jaw drops downward and backward and seriously interferes with respiration. If the jaw is set with the mouth closed, the swelling of the soft palate will completely stop respiration. It is necessary to splint the mandible with the mouth open, but with the jaw very considerably thrown forward, to allow the patient to lie down and yet breathe. This was done with a very simple emergency splint of my own invention, made from wooden tongue depressors and orthodontic wire (Fig. 1). All patients with this type of injury will die unless treated early. They invariably come in in a sitting position, leaning forward, breathing with the greatest difficulty, and extremely apprehensive. Those who become unconscious are usually brought in dead, because breathing requires the greatest exertion on the part of the patient. The emergency splint, in every case, allowed the patient to lie down and breathe in the ordinary position (Fig. 2). He was fed with a rubber tube on a feeder through the forks of the splint. The levers were usually left in place for three days and then removed, whereupon the jaw was closed with the wire splint that I used as a routine.

In fractures of the maxilla, complete or partial, whether or not complicated with fracture of the man-

dible, the early treatment is employment of the open bite splint, such as is furnished by the United States government, or the Kingsley type of splint used by the New Zealand troops. The Kingsley type I believe to be the most efficient. In all cases, chin bandages of whatever type are extremely unsatisfactory.

Union in fractures of the maxilla usually occurs much more promptly than union of the mandible; but when we do not get a prompt result, it is much more difficult to treat an ununited fracture of the maxilla.

In all cases of traumatic cleft of the hard or the soft palate, the injury is repaired at once. It is desirable to avoid circumferential wiring or bone sutures whenever a good result can be obtained without them.

Abscessed teeth or teeth that were actually loosened in the line of fracture were always removed.

It is seldom necessary to make incisions in the facial tissues in jaw cases, the wound of entry and the natural opening of the mouth furnishing sufficient access and drainage. Stab wounds under the margin of the

mandible are frequently necessary for drainage. Rubber tubes are always anchored in the drainage area with sutures. Every fractured jaw must be drained at the point of the fracture.

USE OF THE WIRE SPLINT

The wire splint used in my service was made from the ordinary orthodontic wire. Short wires were placed about the necks of selected teeth. These wires were turned with a loop about one-eighth inch in diameter, so that it would act as a ring pulley on each tooth (Fig. 3 a). Two full length wires were used, usually anchored to the upper first molar if present, and if not, to some similarly strong point of vantage. These wires, being doubled, were then worked through the alternate rings

on the other teeth, first, below, then, above; then, below; then, above (Fig. 3 b). After these wires had been placed, the ends grasped with a hemostat, and gentle traction was made outward (Fig. 4 a), which invariably swung the jaw into its correct position, with practically no pain to the patient, and no necessity of manipulation with the hands, no shoving or pushing or pressing to get the fragments disengaged. The wires were then twisted in the median line, so that the jaws were firmly held together (Fig. 4 b).

The great advantage in this type of temporary splint is its ease of application, the ability to apply it without a general anesthetic, and the practically painless setting of the fracture. When an anesthetic must be administered, either for face complications or for wounds of other parts of the body, the jaws should not be splinted with the teeth in occlusion until all danger of emesis has passed. In these cases I always placed the wires ready for splinting, and then, two hours after the patient had recovered from the anesthetic, I drew the

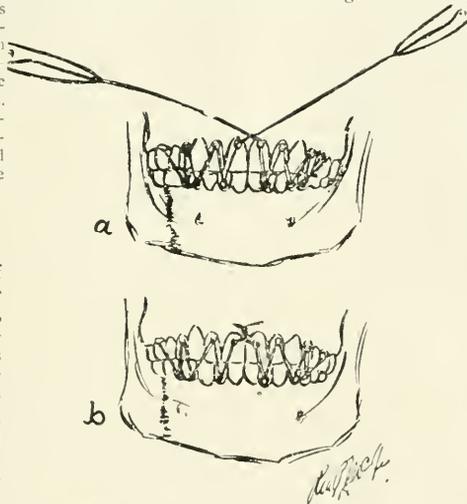


Fig. 4.—a, traction on the wires drawing the fractured jaw into place; b, fracture secured in position.

wired up to close the jaws. In this way all danger was avoided, and time was saved.

Another advantage of this type of splint is that if it becomes necessary to open the jaws quickly, it can always be done with one cut from a pair of scissors. The old type of wire splint, in which two alternate teeth were wired together, made it almost impossible to open the jaws, and, when they had been opened, the entire splinting process had to be repeated; but with the type of splint which I devised, it is simply necessary to twist another length of wire on the end of the cut wire, thread it through the loops, and again close the jaws by traction.

#### PRINCIPLES OF TREATMENT

Fractures of the jaw in war surgery are almost always complicated by wounds of the face. The jaw should first be splinted, or, at least, temporary splint wire should be placed and followed by repair of the facial wound.

Gas gangrene does not occur in the region of the face; consequently, debridement is contraindicated.

All live tissues and all bruised tissues that have a sufficient vitality to recover must be preserved, and the rich blood supply of the face makes it possible for many bruised areas to regain their circulation.

The contraction of the muscles of expression draw the lacerated tissues from their normal positions, and the greatest care must be used to make the correct approximation. Actual loss of tissue sufficient to require flap transfer is comparatively rare. The extensive loss of facial tissue from gunshot injury, so often seen in base hospitals, is more frequently due to shrinkage and adhesions of flesh fragments than to the actual loss from the primary wound.

The routine work was to bring together the mucous membrane before the cutaneous surface was sutured. Tension sutures were used in all extensive injuries to support the approximating sutures and avoid scars and displacement.

When the nose is injured, it should be repaired at once, if possible; and if the injury has resulted in a loss of bone structure, a modeling compound splint should be used to prevent cicatricial displacement.

Patients with the jaw splinted in either the open or the closed position, require liquid diet through a rubber tube attached to the ordinary hospital feeder. Many times the soldiers with their mouths splinted were unable to smoke. This was overcome by placing a glass of water or cup of coffee or cup of chocolate where they could reach it, and by wetting their lips with their fingers they were able to smoke so long as the moisture remained. The process was repeated as often as necessary so long as they wanted to smoke. This gave them a great deal of comfort. It was also possible, in cases in which the lower jaw was fixed or missing, for the patient to hold one nostril closed, and, by moistening the other nostril and putting the cigaret in it, he could smoke very nicely.

The mouth should be cleansed hourly with a warm salt solution. The 5 per cent. *eu-sol* solution used by the British is very effective in these cases. A compressed air spray is important.

Wounds on the surface of the face should have as little dressing as possible.

Wounds of the tongue were numerous. Bone fragments, teeth and bullets were commonly driven into and sometimes through the tongue. In one case the

tongue was more than two thirds severed in the region of the molar teeth. These injuries are not difficult to repair with proper instruments, and in no case was there failure of union.

Local anesthesia with procain was used frequently. This was a saving of time and was satisfactory. One of our greatest difficulties, with our very limited equipment, was to cleanse properly the wounded mouth. This work was carried on as best we could, and our patients were evacuated in good condition; but as Mobile Hospital No. 1 was an essentially front line organization, moving as many as fourteen times during the period of hostilities, our evacuation arrangements were very frequently interfered with, so that patients would have to be taken on motor trucks, ambulances or narrow gage railways, or in any way that it was possible to get them out and get them back. We were in no position to retain them after the period of danger from their wounds had passed. During the campaign, Mobile Hospital No. 1, with a bed capacity of 200, performed in all 6,048 major operations. From this you will see that we did not keep our patients for any great length of time; and owing to the impossibility of arranging proper care for mouth cases during the evacuation, patients with these injuries usually arrived with very considerable sepsis, which they did not have when they left us.

The great points to be observed in the front line work are the conservation of bone, mucous membrane and skin. Drainage must be carried to the extreme. All bone fragments that have live periosteum must be retained. One of the difficulties of this special branch of surgery, as with all others in military service, is the lack of complete understanding of the possibilities and the limitations in front line work as compared with that of the base.

I would suggest that all maxillofacial surgeons be required to be graduates both in medicine and in dentistry; or, in lieu of this, that a maxillofacial surgeon be given a course of training in oral surgery in a dental college, and that a dental maxillofacial surgeon be given a course in general surgery in a medical college. This work absolutely demands both a surgical and a dental training, combined with as much artistic ability as possible.

The conditions for maxillofacial work at Mobile Hospital No. 1 were extremely favorable, because we moved so frequently that we were not hampered with orders, and usually failed to receive detailed instructions until long after their period of usefulness had passed. The commanding officer, Col. Donald Macrae, Jr., gave every support to this department. This was of immense importance, because the specialist in a comparatively new department of war surgery encounters many difficulties that will not occur when a precedent has been established; and, in this particular instance, the precedent was not only the establishment of the specialty of the surgery of the face and jaws, but also the unusual arrangement of placing a dental officer in charge of a surgical department, to handle all cases of the maxillofacial type. Those who follow us in the next war should have comparatively little difficulty in beginning where we leave off.

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**Diphtheria.**—Diphtheria is probably a very ancient disorder. There are possible references to it in the Talmud, the Hippocratic collection and later Greek medical writers.—F. G. Clemow, *The Geography of Disease*, p. 131.

POPULARIZING A QUININ FORMULA  
FOR THE TREATMENT OF  
MALARIAL FEVER

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WITH COMMENT BY

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In the treatment of malarial fevers, the public health officer has seen cause for despairing of obtaining a complete cure. The cooperation of physician and patient in quinin administration seems impossible to secure; yet without this essential, shotgun therapeutics on the part of the physician, and self-medication on the part of the patient are the inevitable results. Still, for some reason, in face of criminal indifference in this regard, malarial fevers are undoubtedly being reduced in severity and in incidence.

The greatest dereliction consists in the insufficiency of the dosage of quinin and the aborted length of treatment. In various hospitals, and in private practice through the malarious districts of the South, the system of quinin treatment varies not so much in proportion to the needs of the individual patient as according to the individual tastes of the medical officer or family physician. In the main, the popular dosage (applied to adults without unusual idiosyncrasy) ranges from 12 to 20 grains daily for active cases, and then when clinical symptoms disappear, the treatment is discontinued without a consideration of subsequent microscopic examinations, and without anticipating the clinical instability resulting in a relapse.

These difficulties open the way to an effort toward standardization. The course of treatment here proposed is offered with a full realization of its inapplicability to special and complicated cases; and it is accompanied with the warning to the lay patient that it is not recommended in attempted self-medication without professional consultation.

The formula that we suggest does not take into account the special question of symptomatology and the algid forms. The severe cachectic cases and the like do not come within the scope of the treatment of this subject. It touches only the preponderance of acute forms without peculiar atypical symptoms. Nor is the matter of method of administration other than that by mouth brought into focus.

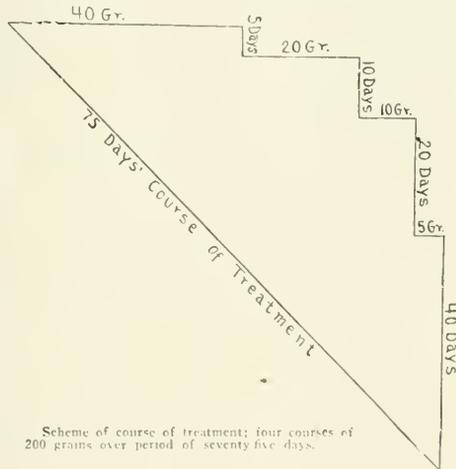
One must realize at the outset that the ideal formula must provide: (1) for the relief of the patient—the elimination of clinical symptoms; (2) for the destruction of plasmodia in the peripheral circulation tending toward the prevention of the formation of sexual para-

sites; (3) for the prevention of the production of quinin-inaccessible parasites (so-called resistant or quinin-fast forms), and (4) for the effectual inhibition of the recurrence of clinical symptoms accompanying relapse with the reinvasion of asexual parasites. With these ends in view, this arrangement of administration is proposed:

ARRANGEMENT OF COURSE OF TREATMENT

The course of treatment provides for the application of a minimum of seventy-five days in the administration of 800 grains of quinin bisulphate.

The formula is elaborated in a geometric progression, consisting of four courses of 200 grains each. A scheme of the formula is sketched in the accompanying chart. An analysis of the formula follows:



Scheme of course of treatment; four courses of 200 grains over period of seventy-five days.

1. *Forty grains daily for five days.*—Ten grains of quinin bisulphate should be given four times daily. At the end of this period there should be no severe paroxysms, no chills, and only young rings and mature gametocytes in the blood.

2. *Twenty grains daily for ten days.*—About the middle of this stage the patient should probably be out of bed and clinically and apparently normal; fevers and chills probably absent. With the exception of gametocytes, parasites will not be demonstrable microscopically.

3. *Ten grains for twenty days.*—Arsenic (Fowler's) or other tonic may be prescribed, if indicated. Only gametocytes remain in the microscopic examination. The patient should be on duty or able to resume normal activities, if necessary.

4. *Five grains for forty days.*—In this stage, not the least important, a 5 grain capsule of quinin bisulphate or its equivalent should be taken with a tonic accompaniment if indicated. This stage is marked by the apparent recovery of the patient. At this juncture a continuance of treatment should be strongly urged, especially in the benign types of malaria, for a period of two weeks or more. By this time, a microscopic examination reveals only rapidly disappearing or disintegrating gametocytes which may be considered potentially negligible. The sexual forms of tertian and quartan parasites are not demonstrable at this stage.

This system of medication is considered entirely feasible only with patients subject to practical control. In dealing with young persons and in chronic cases among adults, modified treatment must be given not represented here. It is observed that the weak link in the popularizing of the formula has always been the indifference of the physician and the patient toward continuing treatment long enough to insure absence of subsequent recrudescence of the initial infection. This feature can be overcome only under conditions approaching a military status. It is indicated in this connection that a sustained and effective treatment of malarial fever is equal to or superior to indifferent

quinin prophylaxis. At any rate, it is at present the more necessary of the two to solve on an experimental basis, on a larger scale than has been thus far possible.

#### DIFFICULTIES ENCOUNTERED

As regards the difficulties encountered in the treatment of malaria, probably the most essential point of view is the consideration of the chronicity of this insidious disease. It is a well known fact that the average patient, or, I think I may say, the majority of patients, cannot be induced to take sufficient quinin for a sufficient period to effect a cure, or at least to prevent a relapse in a reasonable time. This is especially appreciated by physicians in the Mississippi Delta, many of whom have unwittingly confessed to me that they themselves have harbored malaria parasites without attempting to rid themselves ultimately; and like the patients to whom they administer, are quite satisfied with a temporary cessation of symptoms to the point of the absence of febrile paroxysms. Therefore, it can hardly be expected that the laity will be readily converted to the proper standard of medication. It is a common experience that the chronic forms of malarial fever are developed through the fact that the patient is subjected to initial small doses of quinin and that the treatment is discontinued when the active symptoms disappear and the patient states that he feels better.

A systematic campaign of publicity along these lines would have far-reaching benefit, both for the physician and for the patients to whom they profess to administer. We cannot ascribe this condition entirely to ignorance, because too many exceptions have been encountered. I believe the term "fatuous indifference" would better apply. Needless to say, this situation has its sequel in the undermining of efficiency to an extent that is probably incalculable. Therefore, the conscientious sanitarian longs for any method that can be devised to ameliorate the conditions brought about through lowered standards.

#### THE LENGTH OF TREATMENT AND THE INITIAL DOSE

In this connection we must not overlook the moot point of what is the proper length of time to administer quinin. The period recommended in this paper may be felt to be inadequate, and its extension to the period of ninety days is judged to be safer. Another objection is anticipated in the heavy initial dosage recommended. This may be reduced, if necessary, to 30 grains of quinin after the second day without further modification of the formula. This change is not advised if the patient shows no distress toward the heavier dosage.

It is interesting to relate that in some experiments conducted at a government hospital in connection with the infectivity of malarial mosquitoes with *Plasmodium vivax*, it was observed that among fifteen persons who received initial infection from mosquito bites, the incubation period and the complete symptomatology could be followed perfectly. In every instance in which the period of treatment was less than two and a half months there followed a relapse. Among the latter were included four physicians who had volunteered for the biting experiments. The moral is obvious. Its application is as difficult as human nature is mysterious.

#### COMMENT BY DR. CARTER

The criticism of the author that the treatment usually pursued for an attack of malaria generally fails to eliminate the infection is true. This is disputed by no one.

It is unquestionably desirable to have a standard treatment in dosage, method of administration and duration of treatment which would (1) give the highest percentage of cures of malarial infections, and (2) be practicable for general administration.

*The two most important bench problems of malaria yet unsolved are to find (1) the best means of determining the existence of malarial infection in man, and (2) the best method of eliminating it.* This paper is an attempt to formulate the latter.

In my judgment, the basis of Mayne's formula for such standardization is sound, namely, heavy doses and confinement to bed in the beginning of the treatment of an acute attack, and continuation of the treatment after the disappearance of symptoms. As to what should be the preliminary high dosage; how long this should continue; what should be the diminution of dose in the continuation of treatment; whether the treatment should be continuous or intermittent and for how long the treatment should be continued, I have, indeed, opinions which are fairly consistent with this formula, but have not sufficient data for them to warrant their exclusive advocacy.

I do not think it would be advisable to publish this formula as being the method of treatment for the cure of malaria, because (1) we do not know that it is the best; (2) we could not say it was better than a considerable number of other formulas that would be at once brought out, some of which, as those advocating intermittent instead of continuous treatment, are radically different, and (3) it does not, so far as I know, rest on direct observation, giving the percentage of cures from its use, either absolutely or in comparison with other methods.

In 1913, a committee of the Southern Medical Association was appointed to standardize the treatment for the cure of malarial infection. It consisted of Craig, Bass, Deaderick, von Ezdorf and Krauss—all good men, unusually good men in that line. No report was made; at least I know of none; and this question was left indeterminate. Bass did formulate a method of treatment, however, for which he claimed much. Deaderick, Krauss and von Ezdorf (I don't know about Craig) were not inclined to admit these claims. Bass had read a paper which, as I recall, embodied much the same views as the one referred to above. He does not now hold his previous opinions of the efficacy of the method of treatment therein advocated.

Within the past three years much clinical experimentation has been done along this line by British physicians, both in England and in the Balkans. I may mention Ross, Stephens, James, Carter, MacFie, D. Thomson and others, men mainly well trained with much malarial experience. They have not been able to agree on any such formula for treatment, and few of them individually make very definite and decided claims for any special treatment.

Stephens, basing his observation on two rather small groups—seventy-two and eighty-seven cases, respectively—concludes that the same method of treatment (in this case 90 grains of quinin in solution on two consecutive days) was decidedly more effective in July

and August than in January to April. In the warm weather 60 per cent. of cures were obtained as against 3 per cent. in cold weather. Cases were accounted cured if there were no relapses either clinical or parasitic within sixty days, blood examinations being made daily.

I mention this just to show how inchoate is the subject from the standpoint of British workers.

I would then regard it inadvisable for the Public Health Service to endorse implicitly any formula as a standard for the treatment of malaria in the present state of our knowledge of this subject. I say this although I am in agreement with the basic plan of this formula and in general agreement with the details, and I am sure that if it were generally used, many cases would be cured which under the treatment they do receive are not cured. I am afraid, however, to recommend that the Public Health Service go on record as endorsing a specific formula for the cure of malaria until we know more about it both absolutely and as compared with other methods.

This subject was one of those put down for investigation by the National Malaria Committee ("research, clinical"), if it ever gets started.

#### PERSONAL OBSERVATIONS REGARDING THE TREATMENT OF GLAUCOMA\*

JOHN E. WEEKS, M.D.

NEW YORK

My object here is to give my personal impressions of the various forms of treatment for glaucoma that I have employed during a period of thirty-two years in the active practice of ophthalmology, all of which time I have diligently searched for efficient means to control hypertension.

The principal determining causes of hypertension as I regard them are:

1. Obstruction to the outflow of fluids from the interior of the eye by (a) inflammatory products, as the presence of fibrin in the aqueous, blocking the spaces of Fontana, or of non-diffusible substances, such as colloids or albuminoids, which do not readily pass through the filtration spaces (anterior chamber usually deep); (b) encroachment of the iris on the spaces of Fontana following increase in the size of lens or increase in the contents of the vitreous chamber (anterior chamber shallow); (c) the incarceration of the iris or the capsule of the lens in a cicatrix after traumatism, or wounds made by the removal of cataract or other operation opening into the eyeball (anterior chamber compromised); (d) development of iris cysts and tumors, or thickening of the iris; (e) increase in volume of the contents of the vitreous chamber by retinal or choroidal hemorrhages, or by intra-ocular growths.

2. Sclerosis affecting the lymph spaces at the sclero-corneal junction, as in lophthalmos or after interstitial sclerokeratitis (anterior chamber usually deep).

3. Increase in intra-ocular secretions, as in abnormal conditions of the vascular system (aortic insufficiency plus extensive temporary increase in arterial tension).

4. Retention of aqueous in the posterior chamber.

In at least 90 per cent. of all patients with "idiopathic" glaucoma, except in infantile glaucoma, there is a history of chronic constipation. The correction of this condition goes far to relieve hypertension.

In regard to range of tension as measured by the tonometer of Schiötz, I have seldom seen a normal eye with a uniform tension less than 12 or more than 27, the usual normal range being from 16 to 25. In pathologic eyes without perforation I have noted a tension of from 1, the lowest, to 130, the highest.

In "idiopathic" glaucoma, very marked variations in tension may take place. Thus, I have noted a tension of 40 in one eye of a patient and 50 in the fellow eye. On the succeeding day the tension was 22 degrees in both eyes, and on use of a 1 per cent. solution of pilocarpin once daily this tension has remained. In the case referred to there is slight nasal contraction of the fields, and the vision is a little less than normal.

#### MIOTICS

The miotics employed are, of course, pilocarpin and physostigmin (eserin). As adjuvants, jaborandi is used internally, opium at times, and also free catharsis. I have not found advantage in the combination of ethylmorphin hydrochlorid (dionin) with these remedies. The pilocarpin and physostigmin are usually dispensed in a sterile 3 per cent. solution of boric acid to avoid rapid deterioration of the solution. I have never experienced any bad results from the use of these remedies, if I may except a transient hyperemia of the iris in a very few cases after the use of physostigmin. Solutions of pilocarpin, if persisted in for some time, produce irritation of the conjunctiva in a small percentage of patients, but never any disease of the eyes.

Miotics have been employed in the way of a preventive as well as a corrective measure. Pilocarpin in strength of from one-third to 1 per cent. is prescribed in many cases in which the tension is at or near the upper limit of normal, in which the anterior chamber is shallow, and in which there is even slight cupping of the whole or a portion of the disk. The pilocarpin is used once a day, at night, on retiring, rarely twice daily, and the solution is freshly made once in two weeks. The treatment is continued a longer or shorter time, as may appear to be desirable.

It is a routine practice to test the tension of the eyes of all patients by digital palpation. If the tension appears to be above normal, or the history or the appearance of any part of the eye indicates hypertension, present or remote, a tonometric measurement is taken.

In all cases of tension above 25, as determined by the Schiötz tonometer, miotics are resorted to and an endeavor is made to keep the tension at or below that degree. The fields of vision for form and colors are taken from time to time, and the degree of vision is determined.

In regard to the effect of miotics, it has been possible in a number of cases of "idiopathic" glaucoma of various forms to keep the tension at about the upper limit of normal, and to hold it there for many years without deterioration in vision or loss of visual fields (Mrs. H., Rochester, nine years; Mr. C. F., New York, eleven years; and many others). In one case, that of Mrs. McC., after a period of two years of hypertension the tension became subnormal and the miotic was discontinued. Three years have passed, and the hypertension has not returned. In quite a high percentage of cases the hypertension may be controlled for a longer or shorter period, and then the fields and vision begin to fail in spite of increase in strength of the miotic, and operation becomes necessary.

\* Read before the Section on Ophthalmology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

There are but few cases of "idiopathic" glaucoma that are not more or less affected by the instillation of miotics, although it is frequently impossible to bring the tension down within the normal range, namely, from 16 to 25 mm. As an example of the great reduction possible, the following is a case in point:

CASE 1.—Mrs. S. consulted me, Feb. 5, 1919, with a tension of 110; the cornea was hazy; vision was perception of light. She was admitted to the infirmary. A 1 per cent. solution of physostigmin salicylate was instilled every two hours, and a calomel purge was given that afternoon, a saline the following morning, and  $\frac{1}{4}$  grain of morphin at night. At 2:30 p. m. the following day the tension was 23, and the vision was greatly improved.

In hypertension after cataract or other operation on the eyes, a high percentage of permanent relief is obtained by the use of miotics.

In regard to dosage, the strength and frequency of use is entirely regulated by the necessity, beginning with pilocarpin in 0.33 per cent. solution once or twice daily, increasing to 2 per cent., instilled as frequently as is required, or changing to physostigmin solution (the salicylate being used as a rule) varying in strength from 0.25 to 1 per cent., and instilling it from one to four or five times daily as required. If physostigmin, 0.5 per cent. used three times in the twenty-four hours, does not suffice to keep the tension at or below 25, I insist, with very few exceptions, on operation.

In secondary glaucoma the effect of miotics is seldom so marked as in the "idiopathic" cases. A reduction in tension of from 10 to 20 may often be obtained, but it will probably not be easily attained and is difficult to maintain.

Treatment by miotics in these cases, if the hypertension is above 35, is not of much value, as a rule, although there are exceptions.

For many years I have made it a routine practice, when time and circumstances permit, to try the effect of miotics in all cases of hypertension before advising operation. There are a number of conditions which may develop which cause me to decide that operation is desirable, and, when convinced that operation is the conservative course to pursue, I inform the patient that he must assume responsibility for the consequences if the advice is not followed. A diminution in the field of vision for form or colors, with or without enlargement of the blind spot, is an urgent sign, as is also a slight positive diminution of vision. It is allowable to permit a low degree of hypertension if no falling off in field for form or colors or diminution of vision can be detected, but such patients must be watched with great care to prevent irreparable damage through unexpected exacerbations in tension. Operation is advised if the patient is found to be inclined to irregularity in the use of the miotics, and in cases of contemplated long absence from efficient observation by a competent ophthalmologist.

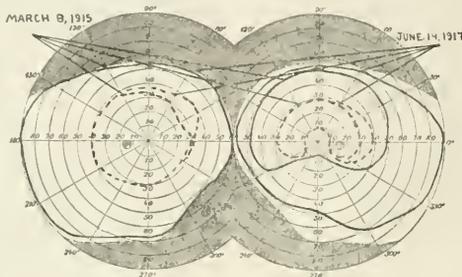
Experience has convinced me that early operation is desirable. The degree of vision present when a glaucomatous eye is not in a state of congestion is seldom

much better after operation; nor is a contracted field much enlarged. There are, of course, exceptions to this rule, but they are not great in number. Loss of field almost to the fixation point need not deter operation, as the fixation point will be included in the blind portion of the field much more quickly if operation is delayed than if operation is performed. Small retinal hemorrhages do not contraindicate operation if other conditions are urgent.

#### OPERATIONS

The operations to be employed must be determined by the characteristics of the individual case. Buphthalmos and other forms of "infantile" glaucoma are not, as a rule, satisfactorily treated with miotics, but in some cases miotics act very well.

CASE 2.—Miss A. R., aged 9 months, was brought to my office, Sept. 21, 1909, with buphthalmos affecting the right eye. The cornea was cloudy; the pupil dilated and oval; tension, + 2; vision, apparently, perception of light. Pilocarpin solution, 1 per cent., was instilled twice daily, increased sufficiently frequently to keep the pupil small. The cornea gradually cleared and vision improved. The tension decreased until it was but little above that of the fellow eye. Dec. 17, 1917, tension was a little above normal, vision, fingers at 18 inches. A few days later the buphthalmic eye sustained a blow, and detachment of the retina developed. Tension then fell below normal.



Fields in Case 3.—Form ———. Red .....

In buphthalmos, paracentesis may be resorted to in the early stage of the condition. When seen shortly after birth, the cornea will be more or less opaque, with stippled surface, except at the periphery. A small paracentesis performed at the limbus, the opening being made patent every five or eight days for a few times, as required, will cause the entire condition to improve. If followed by miotics, the result will often be quite satisfactory. When the patient has reached the age of from 4 to 8 years, trephining is the operation of choice, a trephine not more than 1.5 mm. in diameter being used. The anterior chamber will be deep, and a conjunctival flap of fair thickness can be obtained. A liberal piece of iris should be excised. A satisfactory case is the following:

CASE 3.—Miss Y. C., aged 18 years, came under observation. March 8, 1915. Buphthalmos was present in both eyes; vision, right eye, was fingers at 18 inches, eccentric; left eye 20/20 —; tension by Schiötz tonometer, right eye 63, left eye 46; right disk pale; the fields were as shown in the accompanying chart. March 9, 1915, trephining was done under ether, a 1.5 mm. trephine being used. June 14, 1917, vision in the right eye equalled fingers at 1 foot, eccentric; left eye 20/30 + +; tension, Schiötz, right eye 22, left eye 21. The fields were as shown. There was a relative central scotoma in the field of the right eye.

Neither iridectomy nor the Lagrange operation in buphthalmos is satisfactory because of the extreme thinness of the sclera and cornea, and because of the difficulty of obtaining a filtrating cicatrix without endangering the contents of the globe. The opening after a trephine operation has a tendency to enlarge by stretching. Consequently, a large trephine should not be employed.

In other cases of infantile glaucoma in which the globe is not enlarged, some other form of operative procedure may be employed.

In my practice, secondary glaucoma is encountered in about 4 per cent. of the cases of cataract extraction. In some of these cases the capsule of the lens appears to be the cause, as in the following case:

CASE 4.—Mr. W., aged 65 years, was subjected to combined extraction for mature senile cataract. Hypertension developed three weeks after the operation, which was not satisfactorily controlled by miotics. Tension reached 45 mm. of mercury. About one-fourth of the anterior portion of the capsule of the lens had been removed by the capsule forceps. The capsule at its upper equatorial area was caught in the cicatrix at the corneal limbus and apparently put on the stretch. Two well marked bands of capsule extended from the middle of the incision downward, diverging to the lower margin of the pupil. The tension was but little influenced by miotics. By means of a narrow cataract knife, the bands of capsule were divided. The divided ends separated widely, showing that they were in a state of tension. The hypertension of the globe was relieved and did not return.

It has occurred to me a few times that after a cataract extraction the iris on one or both sides of the coloboma in combined extraction and extraction after preliminary iridectomy has become incarcerated in the angle of the wound. Hypertension has developed subsequently in some of these cases. If the anterior chamber is opened at a suitable place and the columns of the coloboma on the incarcerated side are freely divided, the hypertension will be relieved in the majority of such cases. There are some cases of hypertension following cataract extraction, not due to either of these causes, which may be relieved by operation. In one patient coming to me after operation for the removal of cataract by a colleague, a trephining, made at the outer part of the coloboma, a 1-mm. trephine being used, gave permanent relief. In a case of simple extraction by me, hypertension developed about six weeks after the uncomplicated extraction. In my absence from the city, Dr. Herman Knapp performed the usual iridectomy, permanently relieving the hypertension. The patient was subsequently under my observation for eight years. The tension of that eye remained normal.

In secondary glaucoma accompanying acute or subacute iritis, the hypertension will as a rule subside spontaneously in a few days. At times, operative procedure becomes necessary. In these cases paracentesis, one or more times, followed by opening the wound every second or third day, is usually sufficient. The paracentesis should be made at the limbus, pushing a narrow flap of ocular conjunctiva before the point of the knife, so that the wound at the sclero-corneal margin will be covered when the knife is removed. Rarely an iridectomy upward is required.

The secondary glaucomas that follow sclerokeratitis, or after interstitial keratitis, are not usually successfully treated by a simple iridectomy. In these cases, since the glaucoma follows the partial closure of the lymph spaces at the sclero-corneal junction by the sclerosing process following the inflammation, a filtering cicatrix must be obtained by some form of operation in order to give permanent relief from the hypertension. Such a filtering cicatrix *must* be obtained in virtually all chronic cases in which the anterior chamber is deep.

The largest percentage of cases of glaucoma is made up, of course, of the "idiopathic" cases, conveniently

described as the acute, subacute and simple chronic cases. The acute cases frequently present a very high tension, ordinarily (if not treated) running a course of from two to three weeks, when the tension sinks approximately to the upper limit of normal, with more or less loss of vision. As a rule, I do not find it necessary to operate at the height of an acute attack, as in by far the greater number of cases the tension can be greatly lowered in a few hours by treatment. The treatment that is usually employed by me is, locally, physostigmin, 1 per cent., every hour, if tolerated (exceptions are very rare); systemically, a calomel purge, morphin hypodermically, and light diet. If after twelve hours there is no diminution in the tension, operation is performed. If the tension is subsiding, operation is postponed until the eye has become as nearly normal as possible, when a broad iridectomy is performed. This operation is with few exceptions all-sufficient in these cases. Posterior sclerotomy before the iridectomy is seldom necessary.

For the subacute and simple chronic cases of glaucoma I prefer an operation that will permit of the formation of a filtering cicatrix. Quite a large number of operations with this aim in view have been devised and practiced more or less extensively. Among them we may mention the operations of Colonel Elliot, Lagrange, Holth after 1908, Hubert, Verhoeff, and the operation of Holth before 1909 (iridencleisis). Ophthalmology owes much to Colonel Elliot and Professor Lagrange for the operations they have advocated, and for the extensive study and painstaking elaboration of their work. I have performed the Elliot trephining operation fifty-eight times. Unfortunately, I had intra-ocular hemorrhages follow in two cases, iritis in six cases, detachment of choroid in two cases, return of tension from blocking of the opening in a number of cases, and late infection in two cases. At present I limit the use of this method to buphthalmos, some cases with deep anterior chamber, and to cases of chronic simple glaucoma, mostly with relatively low hypertension. The Lagrange operation, which I have performed 269 times, is relied on for the forms of glaucoma other than those reserved for the Elliot operation. The operation is performed as described by Lagrange, except that the incision is seldom more than 5 mm. long (Lagrange advises 7 mm.). The shorter incision is employed to avoid the danger of prolapse of the head of the ciliary body or of the lens into the wound, and to lessen the possibilities of escape of vitreous. In this series of cases there has been deep intra-ocular hemorrhage once. The openings have been occluded by the falling forward of the head of the ciliary body in three. There has been loss of vitreous in three cases. Hypertension has recurred in a small percentage of dispensary cases because of inability to have the after-treatment followed up; but in private cases, hypertension has recurred to an extent to nullify the result in only four instances. There has been but one light case of iritis and no case of late infection.

In employing this operation the after-treatment is very important. Massage should be employed daily, beginning forty-eight hours after the operation in all cases in which the tension is not subnormal, for the purpose of gently forcing a very small quantity of the aqueous through the scleral opening, causing the conjunctiva covering the opening to bulge slightly. The massage should be continued a few days or weeks, as

is found necessary, to secure a filtering cicatrix. The patient can be readily instructed how to perform the massage, and the after-treatment can then be conducted without the presence of the surgeon. The results in private patients have been most satisfactory. It is my opinion that the Elliot operation will give a higher percentage of permanent relief of hypertension in patients who cannot have satisfactory after-treatment, as in dispensary practice; but in private practice a greater percentage of satisfactory results, in the class of cases mentioned, can be obtained by the Lagrange method.

Eyes with "idiopathic" glaucoma of the nonacute type are subject to degenerative changes even after the correction of the hypertension, and we must not expect as high a percentage of such eyes to retain the vision present after a successful operation as would obtain after iridectomy for other conditions. The results of early operation are the most satisfactory. Eyes with advanced degenerative changes, particularly the chronic cases in which atrophy of the optic nerve is considerable, not infrequently continue to degenerate, but more slowly, after hypertension has been completely and permanently relieved.

46 East Fifty-Seventh Street.

#### ABSTRACT OF DISCUSSION

DR. WILLIAM CAMPBELL POSEY, Philadelphia: I believe that operation should be performed: 1. In all cases of acute and subacute glaucoma and in all chronic cases on the manifestation of any inflammatory glaucomatous symptoms. 2. In all cases of chronic glaucoma in which there is doubt of the patient's cooperation in the persistence in the miotic treatment throughout the remainder of life. This includes practically all hospital cases and such private cases as may be of a weak and vacillating disposition. 3. In all cases of chronic glaucoma when the patient resides at such a distance from proper ophthalmic care that he is unable to report at sufficiently frequent intervals for the supervision necessary in the proper and safe carrying out of the miotic treatment, or for operation in the event that inflammatory symptoms arise. 4. In all chronic cases under fifty-five years of age, an operation on the most affected eye is advised, miotics being employed in both the operated and unoperated eye for the remainder of life. Operation on the second eye should follow if subsequent observation shows that vision is maintained better in the operated than in the non-operated eye. 5. In all cases of chronic glaucoma, without regard to age or the development of the disease, in which miotics have been given a faithful trial for at least six weeks or two months, as evidenced by the constant maintenance of pupillary contraction to almost pinpoint size, and in which vision and the field of vision show progressive deterioration.

After a very limited experience with the Lagrange operation (eight or nine cases) and a wider, but still in comparison with Dr. Weeks a restricted experience with the trephining operation, I have returned to iridectomy, as both the Lagrange and Elliot operations seemed, in my hands, at least, to be attended with greater danger to the eyes. I speak particularly or remotely after trephining. There are certain cases of secondary glaucoma in which the trephining operation is in my judgment to be preferred to other forms of operative procedure, and I agree with Dr. Weeks in thinking it the operation of choice in laphthalmos.

DR. E. E. BLAAUW, Buffalo: Ellett refers to the silent iritis. Diagnosis of silent iritis can be made, but there is no other symptom whatever. Atropin should be used but I do not know for how long. Dr. Knapp instills atropin right after the operation. The question is, should we do a partial iridectomy or a complete iridectomy. Silent iritis is due to chemicals in the aqueous.

DR. D. T. VAIL, Cincinnati: Conjunctivitis which almost simulates trachoma, renders the continuous use of a drug prohibitive. In one case having this to contend with, and finding it impossible to carry out an operative plan of treatment, I made up a prescription of eserin in the usual way and incorporated in that 1 grain of camphor with sufficient alcohol to dissolve the solution and told the patient to use it and report. He came back after three months without renewal, and the conjunctiva was free from any sign of those follicles which are so characteristic of eserin where it irritates. Since then I prescribe 1 grain of camphor, with sufficient alcohol for solution. I have not used the eserin since. If we are to believe what we are told by Crookes and others, glaucoma following cataract is sometimes due to epithelial cells, or transplantation of them into the anterior chamber, it spreads, and ultimately lyses the cornea and the structures behind it, resulting in an inveterate form of glaucoma, which ends in enucleation. Since returning from India I have employed the Graefe knife which performs a double function. First, we avoid the introduction of these cells to a large extent, and having introduced the knife into the anterior chamber, laying it horizontal to the tangential surface of the cornea, we can find the extreme edge of the angle, something which cannot be done with a keratome.

DR. L. WEBSTER FOX, Philadelphia: We are greatly indebted to Dr. Weeks for his valuable contribution on a subject that has placed all ophthalmic surgeons on their mettle. I wish to act as his supporter in many of the details he has given us, both from the medicinal and surgical viewpoint. We must look on glaucoma cases with fear and trembling. We are dealing with a condition which presents many pathologic phases, and if the patient lives long enough, the case generally ends in degeneration of the vision and eyeball. I have scheduled my cases under four heads: First, cases where there is only a suspicion of glaucoma, and which require internal and local treatment. Second, cases in which local medical treatment (instillations of pilocarpin or eserin) fails to hold the field of vision, and in these cases we resort to operative procedure. I prefer the Elliot method here. If it fails to hold I supplant it by an anterior sclerotomy, and this operation may be repeated until the tension is not only reduced, but kept down. Third, the Lagrange operation, in my experience, is preferable to the Elliot in such cases where the visual field has decreased suddenly and where cupping of the disk is manifest. Fourth, a perfectly performed operation is that where the keratome has been used with a long incision, well back in the sclera, combined with a broad iridectomy. To me the keratome is the one instrument that has so thoroughly proved its value that I am surprised to hear criticism of its use. I only use a Graefe knife in the sclerotomy and Lagrange methods.

DR. WALTER R. PARKER, Detroit: What operation shall we do when we are forced to operate? If any of you had glaucoma, your operation of choice would be an iridectomy. We all know, however, that in some cases equally perfectly performed iridectomies do not give equally good clinical results. If we can select the cases which can be benefited by iridectomy, and leave the other cases to Lagrange or trephining, or other operations, then our operations would succeed better. I have divided these cases into anterior and posterior simple glaucoma. As you all know, there are two general lines of flow of the lymph in the eye, the so-called posterior route and the anterior route. With patulous lymph spaces, the flow will be interior, and there will be a tendency for the lens to follow this flow, and the anterior chamber will be lessened in depth. On the other hand, if the anterior spaces are blocked, and the posterior are patulous, the anterior chamber will remain relatively deep. If the anterior spaces are patulous, the iridectomy will do no good. If the posterior spaces are involved an iridectomy is contraindicated; on the other hand, if the anterior are involved, then it is indicated. I have tried to classify all my simple cases into one or another of these groups. I cannot give you the increase off-hand but the number of cases was much increased after the iridectomies, and held its own in the trephinnings.

DR. JOHN E. WEEKS, New York: In employing this operation the after treatment is very important. Massage should be employed daily, beginning forty-eight hours after the operation in all cases in which the tension is not subnormal, for the purpose of gently forcing a very small quantity of the aqueous through the scleral opening, causing the conjunctiva covering the opening to bulge slightly. The massage should be continued a few days or weeks, as is found necessary, to secure a filtering cicatrix. The patient can be instructed how to perform the massage, and after treatment can then be conducted without the presence of the surgeon. The results in private patients have been most satisfactory. It is my opinion that the Elliot operation will give a higher percentage of permanent relief of hypertension in patients who cannot have satisfactory after-treatment, as in dispensary practice; but in private practice a greater percentage of satisfactory results, in the class of cases mentioned, can be obtained by the Lagrange method. Eyes with "idiopathic" glaucoma of the nonacute type are subject to degenerative changes even after the correction of the hypertension, and we must not expect as high a percentage of such eyes to retain the vision present after a successful operation as would obtain after iridectomy for other conditions. The results of early operation are the most satisfactory. Eyes with advanced degenerative changes, particularly the chronic cases in which atrophy of the optic nerve is considerable, not infrequently continue to degenerate but more slowly, after hypertension has been completely and permanently relieved. Dr. Fox regards glaucoma as a serious condition. Since I have adopted the method described in my paper I feel certain of relieving hypertension in from 60 to 70 per cent. of the cases. Referring to what I would prefer personally, or choose in an operation on my own eyes, I never recommend an operation that I would not consent to or would not have made on my own eyes under similar circumstances.

## THE SOLUBILITY OF INTESTINAL IPEACAC PREPARATIONS \*

TORALD SOLLMANN, M.D.  
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The reputed value of ipeacac against intestinal amebas was originally based on its oral administration. Its nauseant and emetic actions, however, constituted serious drawbacks to its use. The coating of pills with salol is not always satisfactory, although, with due care, it appears to be quite feasible.<sup>1</sup> The hypodermic injection of emetin hydrochlorid avoids the local actions; but used thus, it often fails to rid the patient of amebas, especially if he is a chronic carrier. Attempts have therefore been made to solve the problem by the use of emetin compounds that, while insoluble in the stomach, would be soluble in the intestine. The basis of these attempts lies in the difference between the reaction of the stomach and that of the intestine.

### EMETIN BISMUTH IODID

Emetin bismuth iodid is described in New and Non-official Remedies and a further description is found in the report of the Council on Pharmacy and Chemistry for 1918.<sup>2</sup> Emetin in this form is only slightly soluble in water and dilute acids, but dissolves quite freely in 1 per cent. sodium bicarbonate. It is evidently some-

what soluble in the stomach, and accordingly produces some digestive disturbances, although these are much less severe than with ipeacac proper.<sup>2</sup>

### ALCRESTA IPEACAC

Alcresta ipeacac is an adsorption product of ipeacac and fullers' earth (hydrous aluminum silicate) especially prepared according to the method of J. U. Lloyd, who discovered that practically all alkaloidal salts are adsorbed by this powder and are thereby rendered insoluble in neutral or acidulated water.<sup>3</sup> This finding was confirmed by Gordin and Kaplan.<sup>4</sup> The alkaloids can again be dissolved by treatment with chloroform in the presence of fairly strong alkalis.

Tablets of alcresta ipeacac were described<sup>5</sup> in N. N. R., 1917, on the basis of the claims of the manufacturers that their alkaloids "are physiologically inert as long as they remain within the stomach, and are rendered active when set free in the alkaline media of the intestine." This was interpreted to mean that they are insoluble in the reaction of the stomach, but become soluble in the intestine.

### RELATIVE SOLUBILITY OF EMETIN BISMUTH IODID AND ALCRESTA IPEACAC IN DIGESTIVE SOLVENTS

An attempt was made to demonstrate the assumed behavior of these preparations in the stomach and the intestine. The gastric reaction was represented by 0.2 per cent. hydrochloric acid; the intestinal reaction by 1 per cent. sodium bicarbonate.

The experiments were made as follows: The powders were shaken thoroughly with the solvent, filtered, and the filtrate acidulated with hydrochloric acid, if necessary, and tested with mercuric potassium iodid (Mayer's reagent). Solution of the alkaloids is indicated by the occurrence of a turbidity or precipitate when the reagent is added.

TABLE 1.—PRELIMINARY COMPARISON OF THE SOLUBILITY OF EMETIN BISMUTH IODID, AND OF IPEACAC ADSORPTION PRODUCTS

	Solubility in 0.2% Hydrochloric Acid	Solubility in 1% Sodium Bicarbonate
Emetin bismuth iodid (0.05 gm. + 10 cc. of solvent)	Slight	Very considerable
Ipeacac—Lloyd's reagent (2 cc. 20% tincture, 10 cc. 0.2% hydrochloric acid, 1 gm. Lloyd's reagent)	None	Very slight
Ipeacac (animal charcoal) (as preceding, except that the charcoal is used in place of Lloyd's reagent)	Considerable	Very slight

The details are shown in Table 1. Briefly, the experiments showed that emetin bismuth iodid is almost but not quite insoluble in the acidity of gastric juice, and that it is freely soluble in the alkalinity of the intestinal juice. This is as was expected. The adsorption product of ipeacac and Lloyd's reagent, however, was insoluble not only in the acid medium but also in the bicarbonate. Charcoal, incidentally, did not adsorb the alkaloids effectively even from acid solution.

The insolubility of the adsorption product in bicarbonate seemed so important a contradiction to the clinical use of the product that the investigation was extended to the commercial tablets, and was modified in various directions.

\* From the Department of Pharmacology of the Western Reserve University School of Medicine.

<sup>1</sup> The investigation was supported by a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Simon, S. K.: Comparative Value of Ipeacac and Its Alkaloids in Treatment of Intestinal Entamoebiasis, *J. A. M. A.* **71**:2042 (Dec. 21) 1918.

2. Report on Emetin Bismuth Iodid, *J. A. M. A.* **71**:2013 (Dec. 21) 1918.

3. Lloyd, J. U.: *J. Am. Pharm. A.* **3**:625, 1914; **5**:301, 1916.

4. Gordin and Kaplan: *J. Am. Pharm. A.* **4**:667, 1914.

5. They were dropped during from N. N. R. during that year because of "exaggerated, misleading and harmful" therapeutic claims (Report of Alcresta Ipeacac, *J. A. M. A.* **69**:1373 [Feb. 20] 1917).

## SOLUBILITY OF ALCRESTA IPECAC IN ALKALINE SOLVENTS

Three specimens of alcresta ipecac tablets were used in these experiments. One specimen was submitted by the manufacturers in 1915; the others were purchased recently in Chicago and Cleveland. The statements that follow may be regarded as holding true of all three specimens, unless exceptions are mentioned. Several specimens of emetin hydrochlorid were used for purposes of comparison.

It may be mentioned that 0.2 per cent. and 0.5 per cent. hydrochloric acid fail to dissolve any of the alkaloids, even on incubation; that is, the filtrates are unchanged by the mercuric potassium iodid reagent.

## SOLUBILITY IN SODIUM BICARBONATE

The alcresta ipecac samples were powdered and mixed with from 0.5 to 1 per cent sodium bicarbonate, from 10 to 100 c.c. per tablet, and filtered either at once or after being allowed to stand up to four days.

The filtrate (which was always distinctly alkaline to litmus) was then acidulated with hydrochloric acid and tested for dissolved alkaloids by the mercuric potassium iodid reagent. The results (Table 2) were

TABLE 2.—SOLUTION OF IPECAC ALKALOIDS IN SODIUM BICARBONATE

Preparation	Dilution	Concentration of Sodium Bicarbonate	Length of Contact	Result with Mere. Pot. Iod.
Emetin HCl.....	1:100,000	1%	Short	Marked turbidity
Emetin HCl.....	1:100,000	Supersaturated	Overnight	Marked turbidity
Alcresta tablets, 1 tablet				
Samples	per c.c.			
All three.....	100	1%	1 day	Clear
Cleveland.....	10	0.5%	1 day	Clear
Cleveland.....	10	1%	Short	Clear
Cleveland.....	10	1%	1 day at 39 C.	Clear
Cleveland.....	10	1% + 0.5% bilin	1 day at 39 C.	Clear
All three.....	10	1%	4 days	No change at once, but slight turbidity on standing

absolutely negative, with the possible exception of the specimens that had stood four days, in which a part of the bicarbonate may have been converted into carbonate.

Theoretical objection could be made to these experiments on the assumption, first, that emetin is liberated, but is insoluble in bicarbonates, and second, that the reagent is too insensitive to reveal small quantities of dissolved emetin.

Neither assumption is tenable. As for the solubility of emetin in bicarbonate: the experiments of Table 2 show that emetin is sufficiently soluble in bicarbonate for the solution to give a marked precipitate with Mayer's reagent. In fact, a 1:10,000 solution of emetin is not precipitated by the addition of sodium bicarbonate; whereas sodium carbonate or hydrate produce turbidity. Stronger solutions were not tried. The delicacy of Mayer's reagent is such that a drop added to 5 c.c. of the emetin hydrochlorid solutions gives turbidity with a 1:100,000 solution and precipitation with a 1:10,000 solution. It should also be noted that the addition of bile salts does not increase the solubility of the alcresta ipecac in bicarbonate solution.

There is a further possibility, namely, that the emetin is liberated by the bicarbonate from the adsorbent, but for some reason fails to dissolve. This assumption is vague, and even if tenable, there would seem to be no practical advantages in "liberating" an alkaloid, except for the purpose of dissolving it. However, to dispose

of the suggestion, and to check up the results, the alcresta ipecac-bicarbonate mixture or the residue remaining after the filtration of the bicarbonate solution was extracted with ether. The ether was separated, filtered and evaporated, and the residue taken up with dilute acid and tested with Mayer's reagent. The results (Table 3) are uniformly negative and confirm that the emetin of the alcresta ipecac-bicarbonate mixtures is also insoluble in ether.

TABLE 3.—ETHER EXTRACTS OF ALCRESTA IPECAC-BICARBONATE MIXTURES

Alcresta Tablets (1 per test)	Bicarbonate solution (c.c.)	Concentration of Bicarbonate (c.c.)	Length of Contact	Ether Extract of Mixture or Residue	Result with Mayer's Reagent
All three.....	10	1%	4 days	Residue	0
All three.....	10	1%	Short	Mixture	0
All three.....	100	1%	1 day	Mixture	0
Cleveland.....	6	0.5%	1 day	Residue	0

## SOLUBILITY OF ALCRESTA IPECAC IN STRONGER ALKALIS

It appeared from these experiments that the assumption of the intestinal liberation of emetin from alcresta ipecac is untenable. It was therefore thought that a test of the effect of somewhat stronger alkalis on alcresta ipecac might prove instructive. For this purpose, the residues remaining after the fruitless extraction with bicarbonate were treated successively with sodium carbonate, added to 0.5 or 1 per cent., and then with sodium hydroxid, added to 0.5 per cent. The mixtures were extracted at each stage with ether, and this was filtered, evaporated, acidulated and tested as usual. The results are shown in Table 4. They indi-

TABLE 4.—SOLUBILITY OF ALCRESTA IPECAC IN STRONGER ALKALIS \*

Alcresta Tablets	Sodium Bicarbonate, 1%	Sodium Carbonate 0.5 to 1% to Residue	Sodium Hydroxid 0.5% to Residue
All three specimens 1:10 c.c.	Clear	Slightly turbid	Large precipitate
1915	Clear	Very slightly turbid	
Chicago	Clear	Clear	
Cleveland	Clear	Considerably turbid	

\* Reaction of ethereal extracts of the solutions as stated in the columns, with Mayer's reagent.

cate that the emetin, although not liberated by the sodium bicarbonate, is indeed liberated to some extent by sodium carbonate, and much more by sodium hydroxid.

## PRECIPITATION OF ALKALINE EMETIN BY LLOYD'S REAGENT

The assumption that alkaline emetin is soluble in the presence of Lloyd's reagent was further tested directly by shaking alkaline solutions of emetin with Lloyd's reagent. It was found that this removed the alkaloid just as completely as from acid mediums, and rendered it insoluble, not only in watery solutions, but even in ether.

The experiments were made by adding alkalis to a 1:100,000 solution of emetin, till these contained 1 per cent. respectively of sodium bicarbonate, sodium carbonate and sodium hydroxid.

The solution in bicarbonate was clear; that in carbonate had a slight precipitate; that in hydroxid was slightly turbid, with a rose tinge.

Half of each sample was shaken with Lloyd's reagent. The reaction remained alkaline to litmus in

every case. Samples of the mixtures were then filtered, acidulated and tested with Mayer's reagent. The remainder of each mixture was then shaken out with ether, the ether filtered, evaporated, acidulated and tested with Mayer's reagent.

TABLE 5.—LLOYD'S REAGENT OF ALKALINE SOLUTIONS OF EMETIN\*

	Sodium Bi-carbonate	Sodium Carbonate	Sodium Hydroxide
	Direct Test	Direct	Other Ext.
Mixtures without Lloyd's reagent	Marked turbidity	Turbid	Other Ext. Considerably turbid
Mixtures with Lloyd's reagent	Clear	Clear	Clear Very slightly turbid

\* Mayer's test of dissolved alkaloid applied to the acidulated filtrates.

The results, shown in Table 5, prove clearly that Lloyd's reagent binds emetin in alkaline solution.

ACTION OF IPECAC ALKALOIDS WITHOUT SOLUTION

When the insolubility of the *alcresta* ipecac alkaloids became apparent, this information was communicated to the manufacturers. In their reply they conceded this insolubility and added: "We do not state that the ipecac alkaloids are soluble in a solution of the alkalinity of intestine, but only that they exert their physiological effect in the intestine and, as you of course understand, solubility in water is not necessary in order to bring about absorption from the intestinal tract."

These statements cannot be accepted. I doubt very much whether any substance can be absorbed, undissolved, from the intestine. Solubility in water, of course, has no bearing on the case, for I have aimed to imitate the solubility characters of the intestinal fluid.

It appears equally doubtful whether, undissolved, insoluble and adsorbed emetin can kill amebas. I tried to approach this problem by testing the toxicity to earthworms; but the low toxicity of emetin for these animals (they survive 1:10,000) rendered this impracticable.

The pharmacologic evidence indicates quite strongly that the emetin-*alcresta* ipecac is quite inactive in the digestive tract of dogs. Fantus<sup>6</sup> found that a doubled fatal dose of ipecac produced no effects of any kind when mixed with fullers' earth. Eggleston and Hatcher<sup>7</sup> likewise found no effects whatever from doses of *alcresta* ipecac that would have been fatal had a pure ipecac been administered.

This is as far as the positive evidence at present extends. Ordinarily, it would not be expected that a substance that is quite insoluble in the intestine, and that has completely lost its effects on the intestinal cells, which are ordinarily very sensitive to it, should still be effective on amebas, which are ordinarily affected only by high concentrations. Such a contradiction should demand a very careful and critical reexamination of the clinical evidence. As I am not in a position to undertake this, I must leave the subject in this incompleated state.

CONCLUSIONS

Emetin bismuth iodid is only slightly soluble in fluids of the acidity of the stomach, but freely soluble in fluids of the alkalinity of the intestine. These findings

agree with the clinical data, namely, that it is an effective amebicide, but is not altogether devoid of gastrointestinal irritation.

The alkaloids of *alcresta* ipecac are entirely insoluble, both in acid and alkaline solutions of physiologic concentration. The solubility is not improved by the addition of bile salts or of albumin.

The pharmacologic literature of *alcresta* ipecac confirms that the emetin remains entirely inactive.

RELATION OF TEETH, TONSILS AND INTESTINAL TOXEMIAS TO DISEASES OF THE EYE\*

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The presence and fatality of diseases whose essence is toxemia make them a subject of prime importance to the whole medical profession. I have selected the subject of focal infections for this paper, for the reason that it is a field in which I have long been interested, having read a paper<sup>1</sup> on this subject before the New York Institute of Stomatology, at the New York Academy of Medicine, in October, 1910. My belief has grown stronger and stronger that there is not sufficient attention paid to focal infections as a real cause of diseases of the eye. The epoch-making work of Rosenow<sup>2</sup> on the transmutation and selective localization of pyogenic organisms in the various tissues of the body has revolutionized some of our ideas of etiology and pathology. The experimental and clinical investigations of Brown and Irons<sup>3</sup> have been especially valuable to us, and we know now that the eye may suffer from such infections, as well as joints, muscles, nerves and blood vessels. Wescott,<sup>4</sup> Haskins,<sup>5</sup> Harrison<sup>6</sup> and others have recently presented interesting articles in this connection.

What I now wish to do is to bring to your attention the grouping of the most potent focal infections which we encounter in the practice of ophthalmology. For the lack of a better classification I call them the "three T's," which stand for teeth, tonsils and toxemia of the intestinal tract.

Every patient who comes to my office must stand the "acid test" of the three T's, and the same routine is carried out, as far as possible, in my clinic at the New York Eye and Ear Infirmary. It takes only a few minutes to subject patients to this examination, provided there is a laboratory man at hand, yet how often it is overlooked and forgotten. If one has the three T's well in mind constantly, there is no chance to overlook any of the great sources of focal infections.

\* Read before the Section on Ophthalmology at the Seventy-third Annual Session of the American Medical Association, Atlantic City, N. J., June, 1912.

<sup>1</sup> Because of lack of space, this article is abbreviated in THIS JOURNAL. The complete article appears in the Transactions of the Section and in the author's prints. A copy of the latter will be sent by the author or by THE JOURNAL on receipt of a stamped address and envelope.

<sup>2</sup> Bell, G. H. Ocular Manifestations of the Peripheral Abscesses of the Fifth Cranial Nerve, *M. Rec.* 79: 863 (May 14).

<sup>3</sup> Rosenow, E. C. Iritis and Other Ocular Lesions on Intracutaneous Injection of Streptococci, *J. Infect. Dis.* 17: 403, 1915.

<sup>4</sup> Brown and Irons: The Aetiology of Iritis, *Tr. Amer. Oph. Soc.* 1916, p. 495.

<sup>5</sup> Wescott, C. D.: Inflammations of the Eye and Local Infections, *Railway S. J.* 22: 457, 1916.

<sup>6</sup> Haskins, W. H.: Diseases of Eye in Focal Infections of the Teeth, *Dental Cosmos* 58: 1039, 1911.

<sup>6</sup> Fantus, Bernard: Fullers' Earth; Its Adsorptive Power as a Test of Acid Value for Alkaloids, *J. A. M. A.* 61: 1838 (May 20) 1915.

<sup>7</sup> Eggleston and Hatcher: *J. Pharmacol. & Exper. Therap.* 7: 241, 1915.

The ramifications of the three T's are so interwoven that it is impossible for me to dissociate them. In thinking of one in connection with a patient the other two always come into my mind. In other words, they go hand in hand. This paper is written with the understanding that, when necessary, syphilis, gonorrhoea, and an occasional sinus or tuberculous trouble must be eliminated or excluded.

#### THE TEETH

Much has already been written, and much more can be written about dental infections as a cause of diseases of the eyes. Too much stress cannot be laid on a thorough examination of the teeth, which includes: (1) inspection of the mouth; (2) palpation of the gums, and (3) roentgenograms of all the teeth, dead or alive, pivots, arches and bridges.

Barker<sup>7</sup> calls attention to the fact that "serious arthritis, osteitis, osteomyelitis, periostitis, myositis, embolic pneumonia, pleuritis, endocarditis, neuritis, neuralgia, iritis, anemia, septicemia and pyemia may, in certain cases, have their origin in oral sepsis." And I believe there is a growing tendency to look on the same etiologic factor as contributory in many instances of chronic degenerative diseases like arteriosclerosis and arterial hypertension.

CASE 1.—A man, aged 22, came to my clinic at the New York Eye and Ear Infirmary, July 15, 1917, with plastic iritis in both eyes. When first seen, both pupils were contracted and the aqueous was cloudy. There was severe pain in both eyes, considerable exudation in the left pupillary space, and marked ciliary tenderness and injection. The patient was ordered into the hospital at once and had the usual treatment for iritis. The Wassermann test was ++++. Inunctions were started. As the teeth were badly decayed, fourteen of them were extracted during his first ten days in the hospital. Improvement was so rapid that I decided to discontinue the inunctions. The patient made a rapid recovery, leaving the hospital at the end of four weeks. He had gained 4 pounds in weight in the nine weeks that elapsed after he had the teeth extracted. His vision is now normal in both eyes. He was given seven inunctions while in the hospital. I proposed to treat him for constitutional syphilis, but wanted first to see what would happen after the removal of these septic roots, before going on with the treatment for syphilis. The result was most happy. I showed this patient to the section on Ophthalmology at the New York Academy of Medicine, Nov. 19, 1917.

CASE 3.—L. F. C., aged 37, sent to me by Dr. H. H. Forbes, July 27, 1917, was complaining of failing vision in the right eye. With correction, he had vision: O. D., 20/200; O. S., 1/20. On examination, I found that he had an exudate choroiditis and large floating opacities in the vitreous of the right eye. His tonsils had been removed by Dr. Forbes. On examining his mouth, I found his gums very much inflamed, and on the right side, at the root of one of the molars, there was a gum boil. There was also a bridge in his mouth. I devised an immediate roentgenogram of his teeth, which showed, for one thing, that there was an old root in the gum of one of the central incisors, which had been pulled long before; also that there was an abscess cavity at the root of two of the upper molars on the right side. The root of the incisor was extracted; also two molars were pulled, and the bridge was removed. All of this work was done in the summer of 1917. The patient's Wassermann test and urine were negative, and he had no internal treatment. The man had been improving ever since the dental work was done; July 5, 1918, he came to me with a vision in the right eye of 20/20 with correction.

Any part of the eye may be attacked as a result of dental infection, but by far the greatest number of

cases show the iris, ciliary body, choroid or cornea to be affected.

Lewis<sup>9</sup> reports two cases of retinal hemorrhage due to bacterial toxins, and sets forth a new conception, namely, that in these cases there occurs an absorption into the blood of a soluble protein poison, usually given off from focal infections, which has a solvent effect on the intercellular cement substance of the cell wall, and that the hemorrhage is not due to alteration of the blood pressure, but to local lysis in the wall itself. It seems to me that Lewis' theory of this new pathology is a correct one, and will in the future explain many obscure cases of recurrent retinal hemorrhages which, in the past, have been diagnosticated as due to tuberculosis.

In operations on the eyeball when pyorrhea alveolaris is present, or when I suspect any trouble with the teeth, I always begin by referring the patients to an up-to-date dentist, who at once starts his treatment. When the dentist has finished with the patient, I generally wait from four to six weeks before operating, so as to try to eliminate all toxins from the system. Even in glaucoma I wait, if it is possible, to eliminate the three T's. All of this may seem heroic, but let me assure you that we are dealing with an arch enemy not to be trifled with, and my success in treating patients along these lines impels me to go forward.

#### THE WAY TO "GET RIGHT" ON THE DENTAL QUESTION

To my mind, the way to get at the dental problem correctly is to start with children in the schools, as complete and proper mastication cannot take place unless the mouth is in a healthy condition. Education along dental lines and in dental hygiene is just as necessary as education of the mind. Children who never use a tooth brush are constantly coming to my clinic. All they get here in our public schools in the way of dental hygiene is what they call "the tooth brush drill." What we really need here in New York and elsewhere are dental hygienists or dental dressers, to inspect the mouths of these schoolchildren regularly and systematically; to detect irregularities of the teeth; to detect cavities by probe and mirror; to chart defects correctly; to select temporary teeth for extraction; to clean the scale from the teeth; to extract the temporary teeth, and to apply various tonics to the gums when inflamed and, above all, to educate the children in "dental hygiene." Women who do this work are given a nine months' course at Columbia University; then they stand an examination and are given a diploma as "dental hygienists." These dental dressers are, of course, to work under the supervision of some up-to-date dentist who can inspect their work from time to time. In this way the city would not be put to any great amount of expense, and the children would be well taken care of and receive scientific treatment. This work is all the more important when we stop to consider that at least 70 per cent. of our schoolchildren have defective teeth, that all defective teeth are injurious to health, and that some of them are a deadly menace to their owners.

#### EYESIGHT OF SCHOOLCHILDREN

The dental dressers could also be taught to test the vision of all schoolchildren regularly, and those with defective eyesight could be referred to the clinics, as

7. Barker, L. F.: Oral Sepsis and the Digestive Apparatus, South. J. A. M. A. 7: 481 (Jul.) 1918.

9. Lewis, F. P.: A Bacterial Toxin as the Cause of Retinal Hemorrhage, J. A. M. A. 70: 1813 (June) 1918.

nothing handicaps a child's progress in education more than poor eyesight. Hints and pamphlets on the care of the eyes and the teeth should be published for distribution among the schoolchildren and the mothers. The pamphlets could also outline the diet for these children, and call the attention of the mothers to the harmful effects of sugars and candies.

The publishing of the pamphlets, the issuing of charts to be hung in the schoolrooms, and the preparing of exhibits to be used in the schools are some of the things which the dental dresser could do.

These suggestions of mine are all educational, and should be a part of the regular course of every child from the kindergarten until the day of graduation.

Diseases of middle life are fast increasing. They are microbial, of a chronic, recurring character, and are carried into the blood stream from a few foci, the mouth being the source of the greatest danger.

#### THE TONSILS

The tonsils, on account of their position and structure, are more prone to infection than almost any other organ in the body. Because of their position, they come in contact with the various species of bacteria in the mouth cavity. More important than this, however, is the deposition of these bacteria with the food, in the lumina of the crypts. They therefore receive and transmit in many cases some infectious process.

Ziegler<sup>11</sup> reported a case of marked papilledema in a child, which was persistent for over a year, and which subsided and cleared up after the removal of the tonsils. This septic condition of the tonsils was well illustrated in a case of a physician which King<sup>12</sup> reported. The patient had arthritis and heart and kidney trouble with episcleritis. He was unable to attend to his professional duties. The whole systemic involvement was cleared up by the use of vaccines and the enucleation of the tonsils. I had the pleasure of seeing this physician eighteen months after operation. He had resumed his practice and had had no recurrence of any of his old troubles. He had gained in weight and was feeling fine.

When the tonsils are involved, anything less than the radical treatment is of little value. This was thoroughly demonstrated by Case 5.

CASE 5.—Miss C. R., who first came to me, July 5, 1918, complained of "red eyes," as she called it, and had been under treatment for several years by two competent oculists. There was at this time marked redness and congestion of the bulbar conjunctiva, with some edema and some follicles on the palpebral conjunctiva. I examined the patient's eyes for retraction, and found that her error had been properly corrected. Looking her over for the three T's, I found that her teeth were excluded, but on examining her throat, it developed that she had two large, juicy tonsils which projected way beyond the pillars of the fauces. She was told that nothing could be done for her until her tonsils were removed. That day, the first time I had ever seen her, she was sent to consult a nose and throat specialist, and her tonsils were enucleated the next day. Her progress has been very marked ever since the operation, and now, six months afterward, "the red eyes" have disappeared, and she no longer has any chronic conjunctivitis. She remarked to me, "You are the first doctor who ever examined my tonsils." Think of it, a woman 25 years old with a low grade conjunctivitis, which had extended over a period of several years, who had never had her throat examined!

Osborne<sup>13</sup> thinks that a very large proportion of thyroid disturbance is caused by mouth and throat infections.

Recently Gardiner<sup>14</sup> has called attention to the fact that he has seen two typical cases of exophthalmic goiter which were permanently cured after one year's observation with the rest cure and the enucleation of the diseased tonsils. He also states that Morse was able to cultivate *Streptococcus viridans* from the thyroid glands removed from two typical cases of goiter.

Errors of diet and pyorrhea alveolaris are the starting points of nearly all cases of hyperacidity, hypoacidity and toxemia of the intestinal tract. How often is the dietetic condition discussed with our patients unless they have some obscure eye disease? How often do we demand of new patients coming to our offices an examination of the urine? I hold that every patient should be examined for the three T's and along these lines. How many of us warn patients against the excessive use of cane sugars, glucose and carbohydrates? When we stop to consider that after the Revolutionary War, the estimated consumption of sugar in the United States was only  $7\frac{1}{2}$  pounds per capita per annum, whereas in 1914, the per capita used amounted to about 90 pounds, as Joslin<sup>15</sup> says, "the marked increase in the consumption of sugar is appalling." He continues: "Since 1900 it has increased 17 per cent., and the mortality from diabetes mellitus has doubled in that time. Such a marked alteration in the diet of the nation is noteworthy and deserves attention."

It is in these civilized food products that we must look for the agents that are responsible for autointoxications from which the human race now suffers. The carbohydrates taken as sugars and starches are digested by the ptyalin of the saliva, and amylase, maltase and lactase of the pancreas, and the invertin of the intestinal juice, so that they are all reduced to a state of monosaccharides. Some of them are further broken up by bacteria,<sup>17</sup> with the formation of lactic acid, alcohol, marsh-gas, hydrogen and butyric acid. In other words, there is nothing in the human stomach to render it physiologically assimilable. It is attacked there by bacteria which oxidize it and convert it into highly irritable organic acids and several alcohols. If taken in solution on an empty stomach, or when the food is passing into the small intestine, it becomes a food product, as the inverted ferments of the intestine break it up into glucose and levulose sugars, which are assimilable. If taken, however, with food which must remain in the stomach one or more hours, then sucrose becomes a foreign body, is acted on by bacteria, and its ultimate products become important factors in the production of our metabolic diseases.<sup>18</sup>

As Hawk<sup>19</sup> says, "Chemically considered, the carbohydrates are aldehyd or ketone derivatives of complex alcohols." I think two things, therefore, are necessary for sugar fermentation; undigested sugar free in the stomach or intestine, and the bacteria in sufficient quantity to attack it. Overfeeding with sugar either given as too much food as a whole, or as too high sugar percentage, will cause fermentation. We must bear in

13. Osborne, O. T.: Tooth Infections, New York M. J. 107: 385 (March 2) 1918.

14. Gardiner, H. C.: The Medical Treatment of Graves' Disease, New York State J. M. July, 1918, p. 267.

15. Joslin, E. P.: The Treatment of Diabetes Mellitus, Ed. 2, p. 446.

17. Matthews, A. P.: Physiological Chemistry, Ed. 2, p. 446.

18. Deeks, W. E.: Gastric and Duodenal Ulcers, New York M. J. Nov. 30, 1912, p. 1103.

19. Hawk, P. B.: Practical Physiological Chemistry, Ed. 5, p. 11.

11. Ziegler, S. L.: The Chemistry of Metabolism in Its Relation to Ocular Diseases, Ann. Ophth., April, 1911, p. 250.

12. King, J. J.: Further Observations on the Connell-King Diplococcus Throat Infections, J. A. M. A. 68: 91 (Jan. 13) 1917.

mind that the gastric juice is not only a secretion but also an excretion, and anything that goes into the stomach that will produce fermentation will generally produce hyperacidity and will have a tendency to give us the acid stools.

CASE 7.—A man, aged 20, who came to my clinic with vision: O. D., 20/20; O. S., 20/200, complaining of poor vision in the left eye. There was a circumcorneal injection of blood vessels of the left eye. The cornea was hazy, with few spots on Descemet's membrane, and the pupil was contracted. One could see that the eye was in a state of low grade inflammation. The teeth were negative as far as we could make out, although a roentgenogram of them was ordered. A Wassermann test was also taken. The tonsils had been removed when he was a boy. On getting his personal history, it developed that he had eaten about half a pound of chocolate every day for the last six months. He was a helper on an express wagon and visited many candy stores. He was taken off the sweets and given some atropin and hot bathing for his eye. He continued with his work.

Two weeks later roentgenoscopy of the teeth and the Wassermann test were negative; the urine was also negative, except for ++++ indican. The patient continued to improve, and at the end of three months was entirely well, with a vision of 20/30. One year has now elapsed and he has had no return of his malady. There is no doubt that this patient was suffering from sugar poisoning.

Dietitians are not all agreed as to the value of sugar. I hold and believe that it is a toxic substance, and that children, as well as adults, should be deprived of its use, so far as possible.

We see the baneful effects of candy and sweets in children coming to us with eczematous keratoconjunctivitis, one of the commonest diseases of the eye. It is a common disease in more senses than one, for it is common among the common people. The sight of a dirty and slatternly mother dragging two or more children equally dirty and slatternly, with eyes tightly closed is, unfortunately, too frequent in our outpatient clinics, and forms a sad picture which is familiar to us all. To my mind, the phlyctena, which is characteristic of the disease, is the ocular manifestation of a toxemia arising from some focus situated somewhere in the body. It is interesting to note that all of the children have gastro-intestinal disturbances, and the great majority of them have indican in the urine. This toxemia of the gastro-intestinal tract is brought on by the excessive use of candy and sweets, and bad teeth. Some of these unfortunate children also have adenoids and tonsils, which must be removed. I know that a great many observers claim that there is a good deal of evidence to show that a tuberculous focus exists somewhere in the body. I do not think that their reasoning is sound. I hold that the three T's play the important part in the etiology of this disease. When the cause of the trouble is removed and these children have local treatment for their eyes, they get well.

Hill<sup>20</sup> has found that the stools of breast-fed babies are normally quite strongly acid in reaction, owing to the large amount of sugar and fat in breast milk. In severe cases of sugar fermentation, Hill recommends alkali treatment. He also maintains that a baby can take relatively more sugar than an adult, as the assimilation limit is much higher in infancy. Case 8 is most interesting, as it clearly shows the results of sugar poisoning:

CASE 8.—Mrs. A. G., aged 27, married, came to me, Oct. 1, 1918, complaining of her vision being fogged, and of being unable to read. She had been under my care for her eyes

for several years, and her vision in the past had always been normal. Her vision at this time was 20/200 in each eye. The pupils reacted sluggishly to light. Pressure on the eye-balls gave her pain. Her fields for form were normal with a central color scotoma for red, extending from the blind spot to the fixation point. The scotoma was more or less circular in shape, and not oblong, as we generally see in toxic amblyopia due to tobacco poisoning. There was no contraction of the peripheral field. Both fundi were normal. The optic disks were not swollen or edematous. She gave a history of consuming large quantities of sweets in the form of candy—about half a pound a day—and of drinking at least three ice cream sodas a day. I had a chemical analysis made of the blood and the urine. She was given a dose of castor oil, which has great power to sweep the intestine clean, after which I ordered a strict diet, without any sugars or sweets, and she was given one bottle of Bulgarian bacilli three times a day before meals.

October 6, the report on the blood was that it was normal except for high blood sugar, from 0.15 to 0.18 per cent. The urine showed high specific gravity, 1.027, with a positive reaction for sugar, and high indican reaction. I thought from the start that I was dealing with a case of hyperglycemia, and these tests were still more convincing.

The average glucose content of normal blood is about 0.1 per cent. This increase in the blood sugar was brought about by the increased ingestion of carbohydrates in the form of sweets, for the reason that after the ingestion of large amounts of sucrose or glucose, causing the assimilation limit to be exceeded, and alimentary glycosuria will arise.

November 1, I saw the patient again, at which time her vision was 20/70 in both eyes. The treatment was continued. The urine was examined again for sugar, but was negative. The diet was continued.

The patient was seen from time to time, and on December 1 her vision was normal again and she could read Jaeger No. 1.

This case is undoubtedly one of autotoxemic amblyopia, due to the anomalies of metabolism. The opportunity was afforded for the production of toxic substances through the instrumentality of the sweets. Most candies contain inverted sugars and commercial "glucose," which are readily fermented either by bacterial action or by means of enzymes or activating bodies or agents. It is interesting to note right here that two fifths of all the sugar that is consumed is eaten in the form of candy. The most frequent occurring examples of such a disturbance of vision is found in diabetes mellitus, in which we have constantly high blood sugar.

I hold that every case of retrobulbar neuritis should have a chemical analysis of blood and urine, even if the patient smokes and drinks. Estimations of the blood sugar are, undoubtedly, of great value in the treatment of these cases of toxic amblyopia.

There are two ways in which the sight may become affected in toxic amblyopia—endogenous or exogenous: the endogenous toxins being found in connection with hyperglycemia, diabetes mellitus, uremia, the puerperal state, or a septic process somewhere in the alimentary canal, while exogenous toxins are tobacco, ethyl or methyl alcohol, and numerous other substances.

Collins and Mayou state that the poison either acts on the ganglion cells of the retina or their synapses, or by the production of ischemia which interferes with their nutrition.

It is interesting to note also that Adams<sup>21</sup> of Oxford, in speaking of twenty-nine acute cases of retrobulbar neuritis, states that two thirds of these were in females between 15 and 30 years of age.

<sup>20</sup> Hill, L. W.: Sugar in Relation to Infant Feeding, Boston M. & S. J. 179: 1 (July 4) 1918.

<sup>21</sup> Adams, P. H.: Some Points in Retrobulbar Neuritis, with Special Reference to Prognosis, Brit. J. Ophth. 2: 522 (Oct.) 1918.

It is interesting to note that a substance which has been occasionally found in the lens, and which does not occur under normal conditions, is sugar.<sup>23</sup> Its presence in the lens in cases of diabetic cataract has attracted the greatest attention. Professor Kuhne was able to demonstrate it. It is also interesting to note that Lohmeyer<sup>24</sup> succeeded in demonstrating the presence of sugar in the vitreous taken from two human beings who had just died of diabetes. Deutschmann<sup>25</sup> proves the presence of sugar in the aqueous and vitreous of the body of a diabetic whose lens also contained sugar. This work by these investigators is most timely and most interesting, and only goes to show that sugar can leave the blood stream and may attack any of the tissues of the eye.

#### HOW BAD TEETH AFFECT THE ALIMENTARY CANAL

Pyorrhea alveolaris, or Riggs' disease, is not only a serious condition, but also is very prevalent. This chronic disease loosens the teeth in the gums, or rather strips the gums from the teeth, so that they drop out, and mastication becomes impossible. But even more disastrous to health than the inability to masticate properly are the effects of the continued ingestion of toxic material which the pyogenic germs have developed. This toxic material, and bacteria mixed with the food, pass into the alimentary tract and bring about gastro-intestinal autointoxication which, in turn, is responsible for a large number of grave conditions. This is one reason why the teeth should be thoroughly investigated in every patient coming to us, whether we suspect a septic process in the alimentary canal or not, as pus may be swallowed with the food over long periods, or metastatic infections may occur. Barker says that some cases of gastric and duodenal ulcers are secondary to oral sepsis.

Of course, the examination of the urine of all new patients coming to the office is imperative. It is also essential to have the indican content of the urine. This gives a rough index of the extent of the putrefactive process in the intestine. It is therefore the duty of every physician, whether he be specialist, general practitioner or surgeon, to examine the urine of all new patients coming to his office, and to demand a urinalysis of all old patients once a year. I cannot lay too much stress on the importance of having the urine of all patients examined, and I think that the failure on the part of the physician to do this is simply inexcusable.

Joslin says that "the time is not far distant when the progressive dentist, even, will demand a urinary report of all his patients." I am convinced that the indican reaction is passed over too lightly by physicians in general. Soper<sup>26</sup> says: "I have often noted the good effects produced in certain cases of toxic headaches by sharply limiting the protein and reducing or omitting sugar from the dietary. Patients of this class usually present excessive indicanuria, much colonic flatus, froth, and fermentative feces. Moreover, they are in the habit of consuming large quantities of cane sugar."

Apropos of the carbohydrate element, the work of Pemberton<sup>27</sup> is especially interesting. He produced

good results in cases of rheumatoid arthritis by a radical reduction of carbohydrate in the dietary.

Hagelberg<sup>28</sup> found an abnormally high sugar content in the blood in twenty-six cases of arteriosclerosis. A thorough examination of urine and feces, and a chemical blood examination will give us a reliable index of the putrefactive condition in the intestinal tract.

Why the optic nerve should be affected in some cases of gastro-intestinal autointoxication, the uvea in other cases, the cornea in some and the vitreous in still others, I am not able to state, nor am I able to state just how the conditions are brought about. We must all admit, however, that toxemia may result from chemical changes in the intestinal contents, and that absorption of protein toxins from the intestinal tract does take place, and that the blood stream is the carrier of the infection, the three common foci being the teeth, tonsils and the intestinal tract.

#### SUMMARY AND CONCLUSIONS

*The Teeth.*—1. If the teeth are properly treated from the outset, they will not abscess. If we do our part, Nature will do hers. That is the reason why we must start with the children in the schools.

2. These suggestions on my part are educational, and should be a part of the regular course of every child, from the kindergarten age until the day of graduation.

3. I strongly urge the country to "get right" on the dental question.

5. Modern dentistry is relieving the world of much misery, by the watchful care of the foci connected with the teeth, and the time is not far distant when modern dentistry will be made a department of medicine.

7. While many of the results of oral infection are apparent to the eye, the deep-seated and hidden foci, which are frequently the most virulent, are entirely hidden and can only be revealed by the roentgenogram.

8. Diseases of middle life are fast increasing and, to my mind, the mouth and the diet are the sources of the greatest danger.

9. As complete and proper mastication cannot take place unless the mouth is in a healthy condition, I hold that a dirty mouth is one of the greatest menaces of the human race.

*The Tonsils.*—1. The tonsils receive and transmit, in many cases, some infectious process. Because of their position and structure, the tonsils are more prone to infection than many other organs in the body. Because of their position, they come in contact with various species of bacteria found in the mouth. More important than this, however is the deposition of these bacteria with the food which we find in the lumina of crypts.

2. It has been demonstrated that the tonsils are the principal foci of infection in the throat carriers of hemolytic streptococci.

3. All patients coming to the office should be examined for diseased tonsils.

4. When the tonsils are diseased, anything less than the radical treatment is of little value, as they are carriers of infection.

*The Alimentary Canal.*—1. Focal infections, especially those of the teeth, tonsils and alimentary canal, to use the words of Professor Osborne of Yale, are "no fad," but realities to be looked for and eradicated, if we are to cure our patients.

23. Stricker, L.: *The Crystalline Lens System*, 1898, p. 67.

24. Lohmeyer: *Beitrag zur Histologie und Aetiology der Erworbenen Linsenstaare*, *Zschr. f. rat. Med. New Series*, p. 99.

25. Deutschmann: *Zur Regeneration des Humor aqueus*, *Arch. f. Ophth.*, 24: 99.

26. Soper, H. W.: *Autointoxication in Chronic Constipation*, *J. A. M. A.* 40: 1511 (Nov. 30) 1917.

27. Pemberton, R.: *Metabolism and Rheumatoid Arthritis*, *Am. J. M. Sc.* 15: 351 (March) 1916.

28. Hagelberg, M. *Berl. klin. Wchrschr.* 39: 197 (Sept. 1914); *abstr. J. A. M. A.* 59: 1753 (Nov. 1) 1914.

2. Errors of diet and pyorrhea alveolaris are the starting points of nearly all cases of hyperacidity, hypo-acidity and toxemias of the intestinal tract. Children are often improperly fed, with the result that about 70 per cent. of schoolchildren have dental cavities; and when decay sets in early, the teeth become septic, poisoning the food eaten, so that systemic infection is frequent. Decayed teeth afford a ready passage into the system for disease germs. Large numbers of children have tuberculous glands which, in my opinion, are incident to such foci.

3. Sugar, chemically, is a solid alcohol. From a local little used product it has become the universal condiment in the food of the civilized races. It is used in man's drink, in his food and as his refreshment between meals, not only in solution, but also in the form of the ubiquitous candies of commerce. We must also bear in mind that two fifths of all the sugar consumed is eaten in the form of candy.

4. Dietitians are not all agreed as to the value of sugars. I hold and believe that they are toxic substances, and that children as well as adults should be deprived of their use as far as possible, as they are chemical alcohols. When the hydrochloric acid of the gastric juice is diminished in quantity (hypo-acidity), as it may be in many cases of functional or organic disease, there is no check to the growth of the microorganisms in the stomach; then the sugars are acted on by the bacteria, and fermentation takes place, with the formation of large amounts of such substances as lactic acid and butyric acid; in some cases a pyloric spasm is produced, thereby more markedly increasing fermentation and acidity with their end-product results. Ilawk says that there are certain of the more resistant spores which even the normal acidity of the gastric juice will not destroy.

5. It is difficult for me to avoid the conclusion that the unrestricted use of all carbohydrates must be deleterious to the human economy.

6. If the sugar poison can invade the aqueous, the vitreous and the nutritive stream of the lens, then why can it not produce an inflammatory process in any of the tissues of the eye? On account of the insidious onset, the cause of the trouble is liable to escape recognition unless the dietetic condition is kept well in mind.

7. We must educate our patients to look after their diet, teeth and tonsils, and impress on them the great importance of having their urine examined once a year. In obscure conditions of the eye, we must go a step farther and have the feces of the patient examined, to see if the stools are toxic, and last but not least, to insist on a chemical examination of the blood, as a thorough investigation of the urine, feces and blood will give us a reliable index of the putrefactive condition of the intestinal tract.

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#### ABSTRACT OF DISCUSSION

DR. HIRAM WOODS, Baltimore: I believe absolutely in the possibility of a dental origin of ocular lesions. Dr. Bell has called attention to a matter of great importance clinically, but it is apt to lead us into a lot of speculative pathology. The clinical importance is twofold: (a) Our patients will not get well unless we find the cause of the eye disease; (b) in the present state of our knowledge, little more than a therapeutic experiment is at command. We give the patient the benefit of our best judgment and go over everything we think causative. Then we act. But can we tell, before our

therapeutic test, how near right we are? Dr. Bell mentions a case of obstinate episcleritis. It resisted everything until the pyorrhical condition of the gums was removed. That was the cause. I had a patient with episcleritis who had had all his teeth extracted, except four. The attacks of episcleritis continued. Then another dentist removed all the bridge work. He still has episcleritis. In this case the teeth were not the cause, in spite of the dead roots showing infection. Sometimes we find more than one cause, as one of Dr. Bell's cases illustrated. With pyorrhea or dead teeth in a syphilitic patient, for instance, there is usually nothing in the appearance of the eye to guide us in determining the etiology. If we assume dental origin, we may deprive a patient needlessly of a very useful part of his anatomy. Dr. Bell uses the expression "rheumatic iritis." We should get rid of this term. Both rheumatism and iritis are infections, and do not bear a causative relation to each other. They are due to the same cause. As to the tonsils, they are universally recognized as a portal of entry for infection. Grant distal manifestation of focal infection and a tonsillar cause is admitted. Yet even so, tonsils may be removed for ocular troubles without benefit. It is another diagnostic pitfall. Before the removal of a tonsil solely for ocular disease, there should be, as far as possible, an exclusion of other causes and a bacteriologic examination of the crypt content. Finally, Dr. Bell discusses intestinal autointoxication as a cause of eye disease. He speaks of it as a toxemia. I was much surer some years ago, than now, about the causative relation between intestinal absorption and eye lesions. Dr. Bell is right in associating recurrent phlyctenular ophthalmia with intestinal disorders.

DR. JOHN E. WEEKS, New York: In a considerable number of cases of autointoxication, by regulating the diet, we were able to cure fifty-three out of fifty-five patients who had inflammatory conditions of the deep structures of the eye. Eliminate or limit the quantity of sugar; give meat. We were never intended to eat sugar. It has only been a diet for a couple of centuries. Sugar causes fermentation and the generation of acids, which affect the eye and other structures.

DR. F. PARK LEWIS, Buffalo: I think I have absolutely demonstrated the effect of dental infections in the production of iritis. About two months ago in a case of recurrent iritis, working in conjunction with a group of men, a suspected tooth was found to have a root abscess. It was extracted under aseptic precautions. It was crushed, and from the canal was taken a culture which proved to be almost an absolutely pure *Streptococcus viridans*. Injections were made into the abdomen and the ear vein of a full grown white rabbit and within twelve hours there developed a definite iritis, with little ocular congestion, nor was there any congestion of the retinal vessels. After four days the inflammation began to recede and a large dose was given which killed the rabbit. The eye was then removed under aseptic precautions and a portion of the iris was dropped into culture medium. We reproduced *Streptococcus viridans*. The organism was also found in the iris tissue. This demonstrated absolutely for the first time, as far as I know, the selective affinity of the organism found in dental root abscess for the special structure which had been affected in the individual from which the tooth was taken.

DR. CLARENCE A. VEASEY, Spokane: The most remarkable demonstration of the direct influence of dental infections in the production of ocular disease I have ever had the opportunity to observe was in five cases of ophthalmoplegia interna. One of the patients was treated by the former usual methods for several weeks and others were treated for a somewhat shorter period without the least appreciable improvement. In from two days to one week after the removal of the focus of infection every patient had entirely recovered. Four of the cases were due to chronic infection of the faucial tonsils and one was due to a focal infection in a tooth because of a partially filled canal. In the latter case no pus was found; but a roentgenogram revealed a rarified area at the root of the tooth, and the canal was then discovered to have been filled only partially. I have also

observed several cases of high blood pressure, some with marked pulsation of the retinal arteries, minute hemorrhages and acute nephritis. These conditions disappeared within a short time after the removal of the focus of infection. My own observations, like those of others, would seem to indicate that many ocular affections, formerly classed as idiopathic, are in reality due to a focal infection somewhere in the body; and in any given case, whether or not there appears an apparent cause, thorough examinations should be made to discover whether in addition to the apparent cause there may not be some focus of infection.

Dr. M. C. ROSE, New York: J. Forbes Ross of London has repeatedly demonstrated that he can modify the surgical scar by increasing or decreasing the potassium salts given the patient. In eye work where prompt, perfect healing is so essential the study of every detail should be our aim. Further confirmation of the value to ophthalmologists of the study of diet can be found in the experiments of A. H. Clark of Baltimore. In the treatment of some of the pus invasions by vaccines, the reaction and coagulability of the blood is so important, that if the blood has not the right reaction, they fail to give results. Give the patient lemon juice and the vaccines will produce results. Experience of over twenty years has shown that every inflammation, from the top of the head to the sole of the foot, makes greater headway in an acid body; so it has been my custom to stop excess of sugar, oranges, grapefruit, wine and beer, reduce the quantity of protein food, and to administer alkalis, such as potassium bicarbonate or sodium bicarbonate; stop when the body is slightly alkalinized. Dr. Mendel of Yale showed how cases of xerophthalmia and other eye diseases developed in children whose diet was defective in fats and vitamins. The eyes were quickly made well by the addition of chicken liver and cod liver oil to the diet. Laboratory workers have demonstrated that the amount of end-products of protein digestion (uric acid, ureacreatinin) excreted by the kidneys may bear no constant ratio to the uric acid, urea and creatinin content of the blood. Clinical workers have demonstrated, with the help of the laboratory, that the excess of the end-products of protein food in the blood bears a definite relation to sickness and disease; and the amount of the end-products excreted by the kidneys often bears no constant relation to the condition of the patient. Creatinin is the easiest of the end-products of protein to be eliminated by the kidneys. So a constant excess of creatinin in the blood from 6 to 10 per cent. shows that the kidneys are hopelessly damaged, and the prognosis must be bad. Creatinin is produced from tissue cells, and Lusk tells us that the quantity of creatinin eliminated is independent of the quantity of protein intake, and the same holds true, as a rule, for uric acid; but urea output can be increased or decreased by regulating protein diet. Since the protein output in the urine may bear no constant ratio to the excess of protein end-products which may be in the blood, and since the excess of protein products circulating in the blood bears a constant relation to certain degenerative diseases of the eye, I would recommend routine blood examinations in degenerative eye conditions.

Dr. FREDERICK F. FEELE, Lincoln, Neb.: Dr. Bell's summary of the present status of focal infections as related to eye diseases deserves consideration. Too much emphasis cannot be placed on the necessity of finding all sources of infections. The fact of a positive Wassermann does not mean that iritis is due to syphilis. Brown and Irons in their report of 109 cases of iritis found that seventeen were due to combined causes. I have seen numerous cases of iritis or uveitis in syphilitic individuals, who had either resisted the ordinary specific treatment or had recurrences, clear up apparently permanently by removal of the teeth or tonsils. A large number of old scleritis patients are without teeth, but I think free from a return of that painful affection. As to intestinal toxemia, as far as I can learn, the view seems to lean more toward the idea that this factor belongs in the same category as rheumatism and is an incident of the same causal agent of the eye disease. Brown and Irons unqualifiedly present this view. They failed to find one case out of 100 in which focal infection was absent,

and conclude that the intestinal toxemias were due to the same focal infection as the iritis. Dr. F. Park Lewis agrees with this view in an article which he read two years ago, in speaking of the etiology of lenticular changes. He states that every patient with striae in the lens is suffering with a greater or lesser degree of intestinal indigestion, with the resultant absorption of toxic products. It seems to me that in view of the well known necessity and value of a certain percentage of sugar in the diet of infants and growing children, it is a reasonable conclusion that a certain amount is allowable in any dietary. Our aim should be rather a well balanced ration in a quantity suitable to the needs of the individual. I assume that if the ordinary amount of sugar is not assimilable, a focal infection might be responsible for such failure. I would in this instance extract the abscessed tooth, but not the "sweet" tooth.

Dr. JAMES J. KING, New York: The importance of tonsillar infection in relation to eye diseases was first impressed on me in 1914. A doctor had a severe tonsillitis in April. Three weeks later he developed episcleritis, multiple arthritis, nephritis, myocarditis and endocarditis. Those conditions persisted for eight months despite treatment by many able specialists. In December, 1914, he consulted me in relation to his tonsils as a causative factor of his trouble. Three eminent laryngologists had told him his tonsils were negative. On taking cultures of the tonsils I found a virulent infection and advised the use of autogenous vaccines and then the removal of the tonsils. This advice was followed, and in one month all of his symptoms had disappeared. Today, after an interval of four and one-half years, he is a well man.

Dr. H. B. LEMERE, Omaha: In the West we practice triology, we extend our practice to the ear, nose and throat, so that we form from our own findings a concrete idea of the nose and throat in connection with eye disease, and I now have added diagnostic stomatology as necessary for proper diagnosis and treatment of eye conditions. Unless we can interpret our own roentgenograms of the alveolar processes, we will fail to get the infected foci removed in many cases. We will have to help, at times, dentists who are not well grounded in pathology, even though they may be skilful mechanically, and this we shall fail to do unless we can discuss intelligently with them the films and the appearance of the alveolar processes. Many of these focal infections are secondary to primary foci; as, for example, infected tonsils from bad teeth or maxillary sinus empyema from an infected tooth, and these secondary infections may in turn cause ocular disease. Dr. Knapp's paper seems to indicate that in sympathetic ophthalmia the injured eye may be regarded in the light of a secondary focus. I want to endorse what Dr. Park Lewis said, that each case must have some one responsible for results, and one man must have authority over and direct all the energies of the workers in the different branches. In a pronounced ocular affection the internist, the laryngologist and the dentist must all be subordinate to the oculist, as the eye condition is the one of paramount importance.

Dr. OLIVER TYDINGS, Chicago: When we recognized that these troubles were only local symptoms of systemic disease, we made a large advance. Fifteen years ago I reported a case of iridocyclitis which had developed for a long time and which I was unable to relieve. The man was cured by a rectal surgeon. Fifteen years ago, in the course of a discussion on a paper by a New York surgeon, I exhibited some instruments and spoke of the enucleation of tonsils. I was informed that my method was exceedingly crude; that it had been used and abandoned some eleven hundred years prior. I am glad to see that some New York surgeons are following in those footsteps now.

Dr. S. LEWIS ZIEGLER, Philadelphia: I do not wish to belittle the importance of focal infections, but I think we should also take notice of the disturbing influence of sub-oxidation. My attention has been called particularly to it as the causative factor in many ocular lesions. The case of papilledema which Dr. Bell quoted from one of my papers as resulting from infected tonsils was due to tonsils that were enlarged and acted as an obstruction to breathing. The

same causative factor existed in several cases of Mikulicz's disease which I published some years ago. There was no bacteremia shown in these cases. The patients were all cured by correction of the respiratory error. In one case it was enlarged tonsils and in another it was nasal obstruction. The question of diet is also very important. In cases of ulcerative keratitis in children it has been my custom for many years to say "no tea, no coffee, no cakes and no candy." I think this error starts in the stomach, passes on to the nose, and thence through the tear duct into the eye. We must, therefore, consider the importance of these underlying conditions as the result of dietetic errors. I think that while the bacteremia problem should be studied carefully, we must likewise consider the chemistry of the system. In other words, if the chemistry of the system is perverted by bacteria, well and good; but we must consider all the factors involved.

DR. GEORGE HUSTON BILL, New York: We all now agree as to the value of eradicating infections in the teeth and tonsils. The question of food intoxication is the most important subject before the medical profession today, as it is the starting point of all our troubles in the gastro-intestinal tract and also the starting point of pyorrhea alveolaris. The human race now suffers more than ever from diseases of middle life and I believe that it is the civilized food products, errors of diet and bad teeth and tonsils that are the causes of the trouble. It is the acid fermentation and acid intoxication produced by sugars and sweets and excessive use of carbohydrates. When sugar is fermented by bacteria, acids are formed. These may be divided into two groups. The volatile acids, such as formic acid, acetic acid and butyric acid, and the nonvolatile acids, such as lactic acid; the volatile acids are formed in large amounts and are the ones that do the most harm. Too much acid causes fermentation, hurries food out of the stomach into the intestines, chemical changes take place, poisons and toxins are formed, which, once absorbed into circulation, cause auto-intoxication. Therefore, we must eat base forming foods. There are a lot of things which we cannot prove in medicine; but that should not deter us from going forward. The process of elimination of focal infections is good enough for me when I can not obtain positive proof. The remedy for all these troubles must be found in the field of the cause. We must investigate the teeth and tonsils and correct the errors of diet. In the treatment of our eye diseases, we should have at our elbow the internist, so as to confer and consult with him. By this means we can hope to attain proficiency in diagnosis and have the proper conception of treatment in all eye conditions.

## AN EXPERIENCE WITH EPIDEMIC MENINGITIS\*

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AND

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In spite of some recent publications, the value of the agglutination test as a check on the efficiency of meningococcus serum has not been given the proper clinical appreciation. Regarding this, our experience with some forty-five cases of epidemic meningitis may be of interest.

When the Army of Occupation entered Coblenz, sporadic cases of meningitis appeared, never two in the same company or neighborhood. All patients, whether brought in late or early in the disease, were at once put on the usual treatment, which consisted of

intraspinal and at times intravenous injections of serum. This product, that of an American commercial firm, was five months old and dated good for another month.

At this time Captain Leon Unger of Chicago, who in France had had considerable experience with this disease, urged that in clinical value the American serum was vastly inferior to that of the Pasteur laboratories.

In spite of our immediate requisition, however, the French serum was somewhat delayed, so that before its arrival we had had ten patients. Our results with

CULTURES OF ORGANISMS OBTAINED FROM SPINAL  
FLUIDS\*

	N	A	B	C	D	E	F	G	H	I
76	+++	+++	+++	---	---	---	---	---	---	---
75	+++	+++	+++	---	---	---	---	---	---	---
74	+++	+++	+++	---	---	---	---	---	---	---
73	+++	+++	+++	---	---	---	---	---	---	---
72	+++	+++	+++	---	---	---	---	---	---	---
71	+++	+++	+++	---	---	---	---	---	---	---
70	+++	+++	+++	---	---	---	---	---	---	---
69	+++	+++	+++	---	---	---	---	---	---	---
68	+++	+++	+++	---	---	---	---	---	---	---
67	+++	+++	+++	---	---	---	---	---	---	---
66	+++	+++	+++	---	---	---	---	---	---	---
65	+++	+++	+++	---	---	---	---	---	---	---
64	+++	+++	+++	---	---	---	---	---	---	---

\* The letters in the captions indicate the various serums: A, Pasteur serum, November, 1918; B, Pasteur serum, December, 1918; C, American commercial serum; D, Rockefeller Institute, regular type serum; E, Rockefeller Institute, paratyphoid serum; F, Rockefeller Institute, paratyphoid serum; G, normal horse serum; H, normal salt solution; I, Pasteur serum, 1917.

these were most depressing. Try as we might, in spite of intraspinal injections, often three times within twenty-four hours, the disease progressed steadily and rapidly, absolutely uninfluenced by our efforts. Of the first ten patients, nine died, and the only one who recovered was a young soldier with an exceedingly avirulent infection during the course of which he never lost consciousness. On him, treatment apparently had little influence. He never seemed better or worse or in any way affected by the therapy, but dragged on a rather slow and often interrupted convalescence.

Then came the shipment of French serum. It was dated as manufactured October, November and December, 1918. To our chagrin, however, it failed us completely, and the next patient, like the others, progressed steadily to his death.

A survey of this new serum, however, gave us some hope. The nurse in charge of the ward, Miss Edith Kingsley, noted that in this shipment, by an oversight, a carton of vials, dated 1917 instead of 1918, had been overlooked, and just by chance the first sample taken had come from this particular carton. Of course, we discarded this at once and used the new Pasteur product.

Never have we witnessed such a striking result from a change in therapy. Patients continued coming from all parts of the Army of Occupation to a total of forty-five. There was no change in our technic. Intraspinal injections were given twice, and in the most desperate cases, three times a day. Intravenous injections were only rarely employed. Never has a therapeutic test been more definite, more conclusive. With the advent of the new serum our mortality, almost 100 per cent., changed to a recovery of 100 per cent. Every patient progressed satisfactorily, uneventfully with no complications, to perfect health. Epidemic meningitis, from a gruesome, depressing and repulsive disease, became after only a few treatments a relatively mild ailment.

The agglutinating properties of the various serums were examined by one of us (J. S. R.) without any knowledge as to the clinical results. In the accompanying table the numbers represent cultures of the organisms obtained from spinal fluids of the various

\* From Evans in Hospital No. 2 and No. 49, Third American Army, Coblenz, Germany, Lieut.-Col. Robert B. Hill, commanding.

patients. The agglutinations were done in February, 1919. The clinical observations extended from January to April, 1919.

A later check on the New York State Board of Health serum showed it to be satisfactory both in its agglutinating properties and its clinical results.

CONCLUSIONS

From a study of these forty-five cases, one arrives at the following conclusions:

1. Bacteria may vary according to geographic location. Perhaps our first serum failed because, in its manufacture, strains or organisms indigenous to Germany and France were not included. This, at any rate, is a theoretical possibility.

2. A conclusion of vital clinical importance is that if a patient with epidemic meningitis does not respond at once to intraspinal treatment, one should not temporize. The agglutinating property of the serum against the patient's own organisms should be tested, and if the laboratory evidence is unfavorable, more satisfactory serum should be procured at once.

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THE INFLUENCE OF HIGH AIR TEMPERATURE ON TUBERCULOSIS

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It is generally taught that man is a homothermal organism, that he has a wide range of adaptability to external atmospheric conditions, that his mean daily temperature varies between 98 and 99 F., this being subject to minor variations according to age, exercise, altered respiration, period of the day, food metabolism, etc. Some observers, nevertheless, have shown that there is a certain relationship between the body and atmospheric temperatures. Hermans<sup>1</sup> records that in crowded theaters and churches his own body temper-

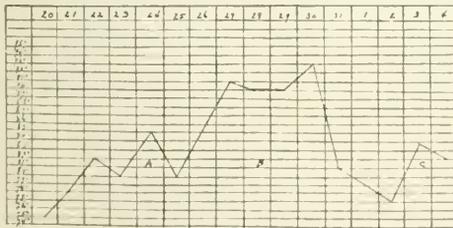


Chart 1.—Average mean daily air temperature, July 20 to Aug. 4, 1916, taken from the U. S. Weather Reports for Chicago; B, principal heat wave; A and C, minor heat waves preceding and following it.

ature rose. Castell and Chalmers<sup>2</sup> observe that if a person, lightly clad and in good health, places himself in the hottest part of an engine room on a steamer in the Red Sea, it will be found that for a short time his temperature remains normal, but in due course of time his temperature will gradually rise to 102 F. or over, when the person breaks off the experiment because of the accompanying general distress, after which his

temperature slowly returns to normal. Haldane,<sup>3</sup> investigating the influence of high air temperatures, observes noticeable elevations in the body temperature when a person is subjected to still, elevated and saturated atmosphere. Likewise, Lee<sup>4</sup> has seen the temperature of a normal adult rise 6 F. during a stay of three and one quarter hours in an atmosphere averaging 104.7 F. with 95 per cent. humidity.

Under normal conditions, heat loss of an average man is accomplished by radiation and conduction, 65

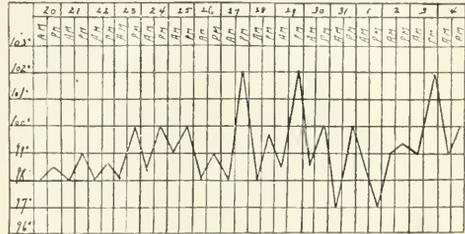


Chart 2.—Temperature chart of a patient from the tuberculosis ward showing rises of 2 F. above his usual course of the disease on days of the principal heat wave and the succeeding minor heat wave.

per cent.; by evaporation from the skin, 15 per cent.; by evaporation from the lungs, 15 per cent.; by heating respired air, 2.5 per cent., and by heating excreta, 2.5 per cent. (Stewart<sup>5</sup>). But when the body is subjected to high temperatures, heat loss from radiation and conduction is reduced to a minimum. The heat regulating mechanism continues for a while to dissipate the heat through the other functions which commonly play a minor part and which thus have the burden of heat dissipation thrown on them. Should the heat regulating mechanism become impaired or fail under the unfavorable atmospheric conditions, heat stroke or heat exhaustion may result.

The direct cause of heat stroke and exhaustion is heat, as given by Rogers,<sup>6</sup> who states that when it is found that heat stroke in India is commonest in the three hottest months and in the geographic groups where heat is fiercest, it seems not unlikely that heat, pure and simple, is the chief factor. The predisposing causes have variously been given. Manson<sup>7</sup> summarizes them as all physiologic depressants, notably intemperance, fatigue, overcrowding, unsuitable clothing, malaria, acute disease, and also chronic organic disease of the important viscera.

The study of the effects of high air temperatures on a normal healthy person may be conducted with reasonable accuracy; but any attempted observation on the effects of high air temperatures on a person having any of the predisposing causes gives rise to a multiplicity of difficulties. Especially is this true if the observed predisposed factor in itself may give rise to an elevation of temperature. However, certain observations made at the Cook County Hospital, Chicago, during July and August, 1916, are worth noting.

During the last five days of July, 1916, Chicago was in the midst of a heat wave which was unusually

3. Haldane, J. Hyg. 5: 494, 1905.  
4. Lee, Science 44: 185, 1916.  
5. Stewart, Manual of Physiology New York, 1918.  
6. Rogers, Leonard, Fevers in the Tropics, Ed. 2, London, H. Kegan Paul, 1910.  
7. Manson, Sir Patrick, Tropical Diseases, Ed. 5, London, Cassell & Co., 1914.

1. Hermans, Arch. f. Hyg. 1: 1, 1883.  
2. Castell, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, 1st ed., London, Tindall & Cox, 1913.

compressive. The mean daily temperature for July 27, 28, 29, and 30, was from 90 to 93 F. During this time there was 100 per cent. sunshine, the average hourly wind velocity was 6, and the average relative humidity was 58. The principal heat wave was preceded and followed by minor heat waves whose mean daily temperatures were about 85 F., each being of short duration.

In Chart 1, *A* represents the preliminary heat phase; *B* the principal heat wave, and *C* the succeeding heat phase. During July, 1916, there were admitted to Cook County Hospital 158 patients suffering from heat stroke and heat exhaustion. Among the patients suffering from heat stroke there were admitting temperatures of 110 to 114 F., as reported elsewhere (Gauss and Meyer).

Totally independent, however, of the patients admitted as frank heat stroke cases, there were observed rises of temperature in various patients of the hospital which seemed unusual for the expected course and duration of their disease. Thus, in the contagious ward there were numerous instances of elevation of temperature in children who were convalescent and in whom no rise of temperature was expected. Likewise, in the general medical ward there were observed

to run an even protracted course, and there are few or no crises and lyses to cause marked fluctuations of fever curves. The history of every patient in the tuberculosis ward was examined, and the patients who were in for the entire period of fifteen days from July 20 to Aug. 4, 1916, were selected for observation. Fifty-six cases were thus obtained. The morning and afternoon temperatures of the entire fifty-six patients were averaged for each day and plotted (Chart 3). It is thus seen that in the five days preceding the heat wave, July 20 to 25, the average afternoon temperatures varied between 99.5 and 100 F., in the five days of the heat wave, July 26 to 30, the afternoon temperatures varied from 100.5 to 100.8 F., and in the five days after the heat wave the afternoon temperatures varied between 99.7 and 100 F. The striking factor is that during the heat wave the average afternoon temperature was 100.62 F. compared to 99.8 and 99.86 F. for similar periods preceding and following it.

We conclude that the increased temperatures for July 26 to 30 probably were caused by the high air temperatures and unfavorable atmospheric conditions.

## Therapeutics

### THE TREATMENT OF EPIDEMIC MENINGITIS

Extensive outbreaks of epidemic meningitis in the different armies during the past five years have stimulated an intense study of the disease here and abroad. As a result, much valuable information regarding etiology, epidemiology and treatment have been acquired. It is desirable that advantage be taken of the lessons from this experience in the management of the disease in peace conditions. Up to a short time before the war began a single type of meningococcus was generally accepted as the cause of epidemic meningitis. Dopter was the first to classify meningococcus-like organisms into distinct types. In connection with a recent very lucid description of the manner in which the types of meningococcus came to be recognized, he<sup>1</sup> has described in detail the modifications which have resulted in the treatment of meningitis. Four types of meningococci are now generally recognized, designated as Types A, B, C and D. Type A appears to have been the common one before the war, being found according to Dopter in from 95 to 96 per cent. of the cases. Of the other types, sometimes called parameningococci, B is most common, C and D exceptional. Infections by Type B increased during the first two years of the war, and at the end of 1917 about 50 per cent. of the cases in the French army were of this form. Each of these various types of organism is affected only by its own specific serum. A case of meningitis caused by the Type B meningococcus is not influenced by a serum prepared from Type A organisms. Consequently it has been necessary to prepare serums from each type of organism for use in the treatment of meningitis due to the corresponding type.

For the most efficient serum treatment of epidemic meningitis, two things now appear essential: (1) an accurate biologic determination of the type of organism concerned in the individual case, and (2) the

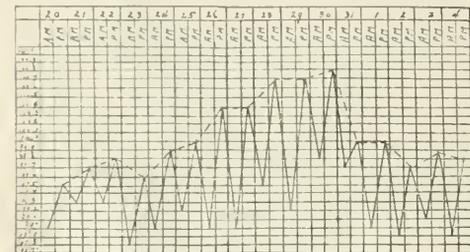


Chart 1.—Averaged morning and afternoon temperatures for July 20 to August 4 for the fifty-six patients from the tuberculosis ward. The afternoon temperature curve (broken line) bears a relative resemblance to the atmospheric temperature curve.

rises in temperature among some of the old heart and kidney cases, and the same may be said of some of the other wards. In the tuberculosis ward, certain patients had rises of temperature of 2 to 3 F. above that due to the usual course of the disease, which corresponded in time with the principal heat wave and the succeeding phase. Chart 2 is a representative instance. This is offered as an interesting coincidence of increased fever on days of severe atmospheric conditions. There are too many factors that may cause a rise of fever in a tuberculous patient for one to draw hasty conclusions from a single case.

If an observation could be obtained on a sufficiently large series of patients, however, such that the individual causes are of lesser importance than the external factor influencing the whole group, then a satisfactory observation might be made. The tuberculosis ward was selected for this study because it was desired to observe the temperatures in patients for a period of fifteen days; five days preceding, five days of the heat wave, and five days succeeding it; and the tuberculosis ward offered the best material. Most of the patients have chronic advanced tuberculosis, their fevers tend

<sup>1</sup> Gauss, H., and Meyer, K. A.: *Am. J. M. Sc.* 154: 554 (Oct.) 1917.

1. Dopter, C.: *Recent Work on Cerebrospinal Fever*, *Lancet*, French Supplement, 1: 1075 (June 21) 1919.

administration of the serum prepared from the corresponding type. Dopter is not in favor of using polyvalent serum except as a measure of precaution until the laboratory examination has determined the type present in the case. As soon as the type is known, the corresponding monovalent serum should be substituted. He believes that "too much polyvalency might conceivably involve risk of diminished potency." Those who have treated meningitis with serum have observed that occasionally cases occur which are not appreciably benefited by the polyvalent serum used, and in such cases the spinal fluid does not clear up nor do the meningococci decrease in the fluid, as is usual in most cases. Sometimes another make of polyvalent serum may be active, and it is advised to make use of this expedient, with the hope that a strain of meningococcus corresponding to the one causing the infection may have been among those employed in preparing the serum. At best this is not satisfactory. It is much to be desired that serums should be prepared from the several types so that they may be available for cases which do not respond promptly to the polyvalent serums. Accurate differentiation of the type of infecting organism by biologic tests is essential before the treatment can be carried out with a high degree of precision. It has been found that the cases prevailing in a group of individuals both in the meningeal exudate and in the nasopharynx of carriers are usually of one type. Mathers and Herrold<sup>2</sup> found that, in a camp near Chicago, almost 86 per cent. of the cases of meningitis were due to Type A (Group 1), and in the city of Chicago at the same time more than 86 per cent. of the cases were due to Type B (Group 2). If investigation revealed the prevalence of one type in a community or epidemic, a serum high in immune bodies for that type would be reasonably used for routine treatment if it were not feasible to make a biologic differentiation in each case. As the abnormal conditions of army camps disappear, it will be of interest to note whether the prevailing type of meningococcus will again be the Type A, as was apparently the case before the war. Study of cases of epidemic meningitis has served also to emphasize the fact that the meningococci are found not only in the meninges, but also often in the blood, joints, etc. When serum is injected intraspinally, it rapidly passes into the circulation; but it is desirable to secure a greater concentration of antibodies in the blood than is secured in this way. This can be brought about by intravenous or intramuscular injection of serum. It would probably be a useful practice to combine intramuscular with intraspinal injection in all cases. When intravenous injections are used, all precautions to avoid anaphylactic shock should be taken.

Dopter also discusses the procedures to be adopted when serum treatment is unsuccessful. Mechanical conditions brought about by the inflammatory process in the meninges interfere with the free passage of the serum, which thus is limited in its action to a portion of the arachnoid space. In the early stages of meningitis, the serum injected by the lumbar puncture needle passes freely through the spinal and cerebral subarachnoid spaces and the communicating cavities. When the inflammatory exudate begins to organize, obstructions to the flow of serum are formed, and free circulation is interfered with. The obstruction may be

spinal, at the base of the cranium, or at the foramina leading to the ventricles. When the arachnoid space has been blocked, the serum must be injected by routes other than the lumbar one, the site of the obstruction determining the position of puncture. With spinal obstruction, dorsal or cervical puncture is employed. When there is basilar obstruction which separates the spinal from the cranial cavity, the purpose is to introduce serum directly into the arachnoid spaces of the base. This is accomplished by sphenoidal puncture, passing through the most external portion of the sphenoidal fissure. When the meningitis extends from the subarachnoid space to the ventricles of the brain, there is added a ventriculitis or ependymitis. Obstruction is easily produced at the narrow foramina opening into these cavities of the brain. The clinical course in such cases is usually as follows: Early in the history of the case, the symptoms are relieved by spinal injections of serum. After a few days, symptoms recur, temperature rises, headache becomes intense, and the patient becomes drowsy and intermittently delirious. Lumbar puncture yields clear or turbid fluid free from meningococci, which escapes only drop by drop. The patient grows gradually worse, becomes emaciated, muscular atrophies and contractures develop, and death terminates a chronic course. In such cases an early diagnosis of ventricular lesions is rendered more difficult by the fact that at about the corresponding time serous meningitis from the foreign serum introduced is liable to occur and to give rise to almost identical symptoms. Direct puncture of the ventricles involved, and the introduction of serum, is indicated as soon as a diagnosis is made. Experience in direct injection of the ventricles is limited; but accumulating evidence indicates that this procedure will be found of much value in many cases in which cure is not obtained by the usual method of treatment with lumbar puncture.

If an intolerance to serum develops so that serum treatment must be discontinued, two methods of treatment appear to possess some value: One is the production of "fixation abscess" by subcutaneous injection of 2 c.c. of spirits of turpentine. The other is the use of an autogenous vaccine, consisting of from 100 to 500 million meningococci killed by heat at 55 C. Dopter is favorably impressed by vaccine treatment in cases that do not respond to serum.

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

**TYPHOID VACCINE.**—(See New and Nonofficial Remedies, 1919, p. 292).

The Gilbland Laboratories, Ambler, Pa.

*Typhoid-Paratyphoid Bacterial Vaccine Immunizing*—Marketed in packages of three 1 c.c. ampules, one containing 250 million each killed paratyphoid A and B and 500 million killed typhoid bacilli and two containing 500 million each killed paratyphoid A and B and 1,000 million killed typhoid bacilli, suspended in physiologic sodium chlorid solution containing 0.4 per cent. trisresol, in packages of three 1 c.c. syringes, one containing 250 million each killed paratyphoid A and B and 100 million killed typhoid bacilli and two containing 500 million each killed paratyphoid A and B and 1,000 million killed typhoid bacilli, suspended in physiologic sodium chlorid solution containing 0.4 per cent. trisresol.

<sup>2</sup> Mathers, George, and Herrold, R. D.: Observations on Meningococcus Carriers and on the Bacteriology of Epidemic Meningitis. *J. Infect. Dis.* 22: 523 (June) 1918.

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SATURDAY, OCTOBER 11, 1919

## THE OAT AS HUMAN FOOD

The sentiment once expressed in the English dictum that oats are food for horses in England and for men in Scotland has persisted in many quarters until the present day. The necessities of war time, coupled with the strongly supported exhortations of the U. S. Food Administration, induced thousands of persons to accept the common cereal grains as of similar values, so far as their nutrient virtues are concerned. But peace time is at hand once more, and the barriers built by the national needs of 1917-1918 are being let down. Old time preferences and prejudices are likely to return to their previous prominence, except so far as the newer lessons have produced a satisfaction with the enforced changes.

Wheat is already rapidly regaining its pristine favor. What will happen to the temporary enhanced popularity of the other cereals remains to be ascertained. In the choice between corn, rice and oats, none of which are preferable bread grains, geographic and racial traditions will doubtless continue to dictate the decision, as they have done so long in the past. We have already called attention to Sherman's<sup>1</sup> demonstration of the excellent utilization and nutritive efficiency of maize (corn meal) when its protein is supplemented with about 10 per cent. of the nitrogenous components of milk. In collaboration with Winters and Phillips,<sup>2</sup> he has prepared a comparable report on the oat proteins. The severity of the test is indicated by the fact that the food consisted essentially of oatmeal cooked with starch in thin, hard "scones" and eaten with apple and sugar, with and without milk. When the diet contained 100 c.c. (3 $\frac{1}{3}$  fluidounces) of milk a day, a daily intake of protein amounting to even less than 0.6 gm. per kilogram of body weight sufficed to maintain a nitrogen balance. Without the supplementary virtue of the milk this record could not be attained.

However, as these investigators conclude, in the maintenance metabolism of adults, as shown by the

nitrogen balance experiments, the proteins of oats and maize are of virtually equal nutritive efficiency. This study by Sherman and his collaborators indicates that "for the purposes of practical dietetics, equal weights of oat and maize proteins may be regarded as essentially equal in value, and even the minimum amount of milk which can possibly be regarded as permissible, in the light of our present knowledge of nutrition, will apparently so supplement the proteins of either the maize or oat kernel as to make them function with an efficiency comparable with that of the average protein of mixed diet in the maintenance metabolism of man." No one will be so rash, at the present day, as to maintain that the cereals per se are perfect foods. Their shortcomings in respect to various nutrient virtues have repeatedly been rehearsed in THE JOURNAL. Nevertheless, the time has passed when we are justified in pointing to any of the commonly used cereals as nutritively obnoxious, as "heating" or as inherently detrimental to health. Science confirms what experience frankly teaches, that all these cereals have a useful place in the human dietary. Maize need not be relegated to the pig-pen, nor oats to the stable.

## THE RAILROADS AND THE PUBLIC HEALTH

To those who regard war as a great disabling mill and contemplate with horror the casualty list of more than a quarter of a million of soldiers in the United States Army during the recent campaign, the statistics of disability and death chargeable to such peaceable agencies as the railroads may be extremely disconcerting. There is food for reflection in the announcement that the railway lines under government control in 1917, employing approximately two millions of persons, mostly men, injured more than 194,000 persons.<sup>1</sup> Approximately 63,000 of the people injured were more or less severely crippled, and more than 10,000 were killed.

These are not figures rendered high by some fortuitous circumstance. The same incidence of railroad casualties is repeated year after year during war and peace alike. According to Census Bureau statistics,<sup>2</sup> the deaths in 1917 from railroad accidents and injuries surpass all others from external causes except in the case of accidental falls and suicides. The casualties of the European war have furnished the occasion for the development of reconstruction plans whereby the disabled are restored to health or returned to careers of comfort and usefulness. An official<sup>3</sup> of the railroad administration has sanely remarked that, having as an example the activities of the government in its efforts to salvage the wounded and sick of the Army and Navy during the war which is just passing, we should be

1. Sherman, H. C., and Winters, J. C.: *J. Biol. Chem.* **35**: 307 (1918). The Defense of Corn — a War Time Food, editorial, *J. A. M. A.* **74**: 11 (Oct. 5) 1918.

2. Sherman, H. C.; Winters, J. C., and Phillips, V.: Efficiency of Oat Protein in Adult Human Nutrition, *J. Biol. Chem.* **39**: 53 (Aug.) 1919.

3. The statistics are given on authority of the chairman of the Committee on Health and Medical Relief, U. S. Railroad Administration, *Pub. Health Rep.* **34**: 1469 (July 4) 1919.

2. Principal Causes of Death in U. S. Registration Area, *Pub. Health Rep.* **34**: 1474 (July 4) 1919.

derelict if we ignored the humane and economic problem raised by railroad casualties.

Aside from such obvious considerations, the railroads are concerned in less direct ways in many other problems that involve the public health. Railroad construction is responsible for many impediments to natural drainage, whereby pits and ditches become breeding places for mosquitoes. In this way the continuance of malaria, a preventable disease, may be facilitated. Inspection of railways in the South has shown this to be something more than a chance supposition.

The danger of pollution of water supplies through the unsatisfactory methods of sewage disposal on moving trains has often been agitated. The committee on health of the U. S. Railroad Administration has directed attention to the less appreciated situation with respect to toilet facilities in stations and terminal buildings. As every traveler in large cities must know, these facilities are used quite as much by the nontraveling public as by the patrons of the railroads. This statement might be extended to include hotels and similar semipublic buildings. Private corporations are thus compelled to face problems in sanitation that they should not be expected to meet. Problems of transportation are intimately connected with the daily lives of the public. The vehicle should be as sanitariously safe as the home.

#### THE INFLUENCE OF THE NERVOUS SYSTEM ON THE SECRETION OF URINE

When nerves supplying the kidneys are sectioned or stimulated, changes in the flow of urine and in the output of its various constituents are likely to occur. These phenomena, long known, have been interpreted by some investigators to indicate a specific influence of the nervous system on the secretory function of the kidneys. Perhaps the most definite assumption in this respect relates to the splanchnic nerves, to which a specific secreto-inhibitory influence has at times been ascribed. When the renal nerves are cut on one side a larger volume of urine flows from the kidney involved. This manifestation, together with alterations in the relative proportions of urinary constituents, has led certain observers to conclude that the changes cannot be explained solely as the result of vasomotor changes; hence they must be attributable to effects directly on the renal cells. Several years ago, Asher and Pearce<sup>1</sup> believed that they had discovered secretory fibers in the vagus nerve, because stimulation below the level of the cardiac branches augmented the rate of urinary secretion. Pearce<sup>2</sup> has subsequently concluded that the results claimed are doubtful because there is no

increase in oxygen consumption (an index of augmented cellular activity) under the foregoing conditions.

The classic example of the salivary glands which respond so promptly and characteristically to nervous stimulation, quite aside from the changes thereby induced in the blood supply, has naturally prepared physiologic investigators to expect a comparable nervous secretory mechanism elsewhere in the domain of glandular performance. The question involved is, furthermore, fundamentally important from many standpoints. The pharmacologist is interested to know whether the nervous system and the drugs whereby he influences the latter can bring about the production of urine through specific cellular action much as do certain chemical substances, like caffeine, which are carried directly to the secretory apparatus by the circulation. The pathologist is also concerned with the precise part played by the nerves in relation to the kidney substance; and the surgeon should also know definitely what a damage to the renal innervation may be expected to occasion. Marshall and Kolls<sup>3</sup> have reinvestigated the problem. Their experimental results show that the changes caused in the secretion of the kidneys after section of the splanchnic nerve on one side are, in all respects examined, similar to those caused by changes in the blood flow through the kidney. Comparable variations can be produced by compression of the renal artery. Urine flow depends more on the rate of blood flow than on blood pressure in the kidney. The effect of section of the splanchnic nerve is an increased blood flow through the kidney, which is responsible for the changes in secretion. Hence, to quote the conclusion of Marshall and Kolls verbatim, it appears that the burden of proof still rests with those who would assign a specific secreto-inhibitory action to the splanchnic nerve aside from the changes which it causes by being the chief vasomotor nerve to the kidney. As long as the changes produced can be explained entirely as vasomotor phenomena, it is unnecessary to invoke a specific secretory action for the nerve.

This conclusion must not be interpreted to signify that the renal nerves are without profound effect on the excretion of the urine. The sole contention is that the effect is not a direct one on the renal cells. Further evidence of the probable correctness of the non-specificity of the nervous influences is found in the fact that adequate renal function has been main-

1. Marshall, E. K., Jr., and Kolls, A. C.: Studies on the Nervous Control of the Kidney in Relation to Duration and Urinary Secretion. I. The Effect of Unilateral Excision of the Adrenal, Section of the Splanchnic Nerve and Section of the Renal Nerves on the Secretion of the Kidney. II. A Comparison of the Changes Caused by Unilateral Splanchnotomy with those Caused by Unilateral Compression of the Renal Artery. III. The Effect of Nectin on the Secretion of the Two Kidneys After Unilateral Section of the Splanchnic Nerve. IV. Unilateral Ligation of One Branch of One Renal Artery and Unilateral Splanchnotomy. V. Chloral and Sulphate Diuretics after Unilateral Splanchnotomy. *Am. J. Physiol.* **49**: 107, 317, 326, 333, 339 (July 1, 1914).

<sup>1</sup> Asher, L., and Pearce, R. G.: *Zitsch. f. Biologie*, **63**: 183, 1914.  
<sup>2</sup> Pearce and Carter: *Am. J. Physiol.* **28**: 350, 1915. Pearce, R. G., in Muddel, J. J. R.: *Physiology and Biochemistry in Modern Medicine*, St. Louis, C. V. Mosby Company, 1919, p. 419.

tained in animals after the kidneys have been entirely extirpated and then replaced. In such circumstances, of course, the nervous connections have been completely interrupted. The facts cited, furthermore, do not in any way negate the current contention that different substances may produce their diuretic effects in unlike ways. It is commonly agreed that in sulphate diuresis, for example, changes occur in the kidney itself, whereas in chlorid diuresis, changes in the blood supply to this organ are primarily responsible. Sulphate diuresis, in which the renal cells are involved, is accompanied by increased oxygen consumption in the kidney—a result not observed in the diuresis affected by chlorids. Similarly, Marshall and Kolls report that after section of the splanchnic nerve on one side, sodium chlorid produces a greater diuresis on the side operated on than on the normal one. Sodium sulphate, on the other hand, produces an almost equally good response from each kidney. Likewise, compression of one renal artery limits the diuresis from sodium chlorid much more than it does from sodium sulphate.

#### NEWLY ESTABLISHED FACTS IN THE PHYSIOLOGY AND PATHOLOGY OF THE DUODENUM

Although the small intestine has long been considered the seat of important functions related to digestion and absorption, the clinical interest with respect to it has usually been primarily medical rather than surgical. Since various digestive secretions pour into the upper portions of the intestine, either from the intestinal cells themselves or from the secretory ducts that enter this organ from the pancreas and liver, the changes that are brought about thereby in the chyme are of considerable physiologic significance for the organism. Surgical experiences have been responsible for the gradually acquired belief that the small intestine is something more than the locus of these enzymatic reactions and food absorption. Extensive resections of the bowel have almost always been attended with subsequent nutritive difficulties; and the untoward consequences of acute obstruction in the small intestine, together with the fact that such interference in the upper portions of the bowel are always more serious than in the portions farther along the alimentary tract, have raised the question of a possible specific nondigestive function of the small intestine and the duodenum in particular.

Not long ago, in referring to the observations published in *THE JOURNAL* by Moorhead and Landes<sup>1</sup> to demonstrate that duodenectomy is compatible with life and perfect health, in the dog, for short periods at least, we pointed out that such experiments, along with many others, definitely disposed of the alleged rôle of

the duodenum in relation to diabetes. Further observations made by Mann and Kawamura<sup>2</sup> at the Mayo Clinic not only verify the conclusions already reached but extend the basis for them. The duodenum was removed from the dog, cat, hog, goat and monkey. Careful studies of the dog did not reveal any noticeable changes following the duodenectomy. The animals remained in good condition. Examination of the blood showed it to be normal with regard to cell counts, hemoglobin, carbon dioxide combining power and hydrogen-ion concentration. The roentgen ray showed the course of a standard barium meal to be virtually the same as in a normal dog. The authors add that experiments on the other species have been too recent to allow conclusions to be drawn, but it would seem that the removal of the duodenum in the hog is as innocuous as its removal in the dog. No data have been secured to show that the duodenum is of great importance in any of the species used.

With respect to the obscure rôle of the small intestine in the development of the toxemia following intestinal obstruction, light is also beginning to emerge out of the controversial darkness that has obscured the subject in recent years. Few subjects in experimental surgery and pathology have been the occasion of such lively debate and marked contrasts of opinion. On the one side was the assertion that the mucosa of the upper duodenum has a specific vital function aside from its ordinary digestive and secretory activities, and that disturbance of this function rapidly causes death. From such a standpoint it would be conceivable that obstruction or injury to the duodenum might upset the essential performance of an organ indispensable to life. The new findings regarding the possibilities of harmless duodenectomy negative such a hypothesis.

Opposed to this assertion has been the assumption that the obstructed intestine is the seat of the formation of toxic products. Here, again, there has been no unanimity as to the genesis and nature of the postulated poisons. Are they the results of a perverted mucosal metabolism in necrotic tissue? Do bacteria play a part in their production? Out of the hitherto prevailing uncertainty which the experimental efforts of a considerable number of American investigators have only slowly succeeded in dispelling, a few salient facts seem to be established. These have been summarized recently by Dragstedt, McClintock and Chase<sup>3</sup> of the State University at Iowa City. It now seems improbable that the mucosa cells are ever concerned with the manufacture of a toxic secretion. The presence of bacteria in the lumen of the intestine is necessary for the production of the characteristic toxic substances, and in their absence these substances do

2. Mann, F. C., and Kawamura, K.: An Experimental Study of the Effects of Duodenectomy, a Preliminary Report, *J. A. M. A.* **73**: 878 (Sept. 20) 1919.

1. Moorhead, J. J., and Landes, H. E.: Duodenectomy, *J. A. M. A.* **72**: 1127 (April 19) 1919. Duodenal Diabetes—an Exploded Fallacy, *Current Comment*, *ibid.* **72**: 1692 (June 7) 1919.

3. Dragstedt, L. R.; Dragstedt, C.; McClintock, J. T., and Chase, C. S.: Intestinal Obstruction, II. A Study of the Factors Involved in the Production and Absorption of Toxic Materials from the Intestine, *J. Exper. Med.* **30**: 109 (Aug. 1) 1919.

not form. They are produced by the action of the intestinal bacteria on proteins or their split products. In the absence of food, gastric juice, bile or pancreatic juice, these bacteria can produce the characteristic toxic substances from the intestinal juice or from the proteins of desquamated mucosa cells.

It appears, however, that something more than the production of poisonous bacterial products is necessary in the genesis of toxemia associated with intestinal injury or obstruction. These products must be absorbed before they can unfold their toxic manifestations. Various investigators, notably Hartwell<sup>4</sup> and Murphy,<sup>5</sup> have demonstrated that the toxic contents of the lumen of the obstructed intestine are not absorbed through a normal mucosa. As Dragstedt, McClintock and Chase have likewise noted, injury to the mucosa cells, either as a result of the sudden distention brought about by conditions of obstruction or by any other factors that interfere with the blood supply to the mucosa, is an important factor in the absorption of toxic substances from the intestine.

Granting the sequence of events which include the injury to the mucosa, the formation of toxic bacterial products from proteins or their derivatives, and the consequent existence of conditions favorable to absorption thereof, it becomes evident that the exclusion of the bacterial contamination ought to remove the most serious factor in the sequence of detrimental features. Sterile loops have indeed proved nonnoxious where otherwise toxemia might have been anticipated. The hope of securing a destruction of the ever-present intestinal bacteria is not promising. The Iowa investigators report that it is impossible to sterilize the intestine by the use of chemical antiseptics, even when these are applied directly to the mucosa of isolated segments. The burden of drainage, careful manipulation and avoidance of injury as far as possible is thus thrown on the surgeon in the management of the difficulties just referred to.

4. Hartwell, J. A., and Hoguet, J. P.: *Am. J. M. Sc.* **113**: 357, 1912; *Experimental Intestinal Obstruction in Dogs*, *J. A. M. A.* **59**: 82 (July 13) 1912; Hartwell, J. A., *J. Exper. M.* **18**: 139, 1913; Hartwell, J. A.; Hoguet, J. P., and Beckman, F.: *An Experimental Study of Intestinal Obstruction*, *Arch. Int. Med.* **13**: 701 (May) 1914.

5. Murphy, F. T., and Brooks, B.: *Intestinal Obstruction*, *Arch. Int. Med.* **15**: 392 (March) 1915.

**Public Health Nursing.**—There should be very close cooperation between visiting nurse associations and boards of health. There must be no friction. Nurses working under private associations doing tuberculosis, child welfare, ophthalmia and venereal disease nursing should realize that their work is a very important part of the board of health work, and that it can be done best by close team work. An efficient board of directors can be of great value to the nurse and the board of health in developing the work and caring for community problems. Cooperation with the doctors is easily established through the general efficiency of the nurses. There is no group of people who value public health nursing quite as highly as the really competent physicians of the community. Nurses and social workers should work together. The nurse should not do social work when there are social workers to do it, and the public health teaching should be done by the nurse—M. McGee, *The Commonwealth* **6**: 107 (May-June), 1919.

## Current Comment

### SELF-SACRIFICE IN THE WARFARE AGAINST DISEASE

To facilitate the investigation of some of the threatening infectious diseases that were a source of concern to our medical forces during the war, a number of men volunteered as subjects for inoculation with virus suspected of carrying the etiologic agent of disease. This is not the first time that American manhood has responded so magnanimously to the call of science and preventive medicine. The story of Agramonte, Lazear, Carroll and Reed, who sacrificed themselves in the attempt to discover the mode of transmission of yellow fever, is known to all. While their achievement was not acclaimed with flags or with personal rewards, nevertheless their scientific work and heroism will remain a credit to experimental medicine for all time. Two groups of men modestly made a great sacrifice for their country and for mankind in connection with scientific investigations during the great war. One group offered themselves as subjects for the study of the mode of transmission of trench fever, one of the great puzzles that threatened to work great havoc among the forces at the front. As trench fever apparently is not transmissible to animals, the recourse to human subjects became imperative. The volunteers lent themselves to the demonstration that the blood of trench fever patients is infective, in order to ascertain what element of the blood contains the virus and to discover the relation of the louse to the dissemination of the disease. The story of some of these endeavors and sacrifices has been recorded in the report of the medical research committee of the American Red Cross.<sup>1</sup> It deserves to be told along with the exploits on the Marne and in the Argonne. "Words fail," says the official report, "in attempting to express admiration of the morale and courage of the volunteers. They have more than done their part in addition, by endeavoring to aid in the accuracy of the experiments." Surely such men deserve official recognition for "the sacrifices they have endured in order to save the manpower for the army and to relieve the sufferings of their fellow men." Today trench fever can be controlled. Another volunteer sacrifice has been recorded in the efforts of the army medical staff to find a method of preventive inoculation against measles. No physician need be reminded of the dangers to which this disease subjected millions of men in the two years just past. Here again, in time of need, to quote Major Sellards,<sup>2</sup> who conducted the tests, the individual soldier was found ready and willing to offer his services and accept such risk as was inherent in these inoculations. The nation as a whole may well join a grateful medical profession in reiterating the words of the Surgeon-General to men who, having seen the serious consequences of measles in camp life, for no reward to themselves, gladly accepted the risk simply from a

1. *Trench Fever*, Report of Commission, Medical Research Committee, American Red Cross, New York, Oxford University Press, 1918.

2. Sellards, A. W.: *Transmissibility of Measles Inoculum, with Illustrations from Measles Patients*, *Bull. Johns Hopkins Hosp.* **30**: 57 (Sept.) 1919.

desire to be of service. Aside from the possible danger and suffering, there was the actual discomfort of long isolation cheerfully and conscientiously borne. To these loyal men has gone this tribute:

The Surgeon General has been informed of the fact that you volunteered for the measles investigation. He desires to express to you his appreciation of the patriotism and devotion to duty that you have shown and to assure you that your contribution to the cause is appreciated by him just as much as was the bravery of the men who went into the fight in France.

#### QUARRY ACCIDENTS IN THE UNITED STATES

Mining has long been regarded as one of the most dangerous as well as laborious occupations. It is characterized by an exceptional liability to accidents which have been a source of solicitude to students of occupational hygiene. Thanks to the serious consideration given to the subject in many countries by those responsible for the public health, as well as by those to whom the accidents represent an economic factor, the introduction of more effectual safeguards has reduced the hazards considerably. Quarrying is usually classed in the category of industrial dangers along with mining. The Bureau of Mines, which now compiles statistics of the quarry accidents in the United States, reports that these likewise are showing a decrease in the fatality rate.<sup>1</sup> In 1917, the latest year for which data are available, more than 80,000 men were engaged as quarry employees. The number killed per thousand 300-day workers was 1.83 in contrast with an average of 2.19 for the five years preceding. The number of nonfatal injuries, however, has not thus decreased. Out of the various causes of injury in and about quarries, falls and slides of rock or overburden take first place, for they are responsible for more than one quarter of the fatalities. Explosives rank second in respect to danger. Like the schoolboy who manipulates firecrackers, the quarry employee is all too forgetful of the charge and returns too soon to the place of hazard. Premature shots also play havoc with each group of persons. Accidents in haulage claimed 16 per cent. of the fatalities, the further causes including a miscellaneous group of sources of occasional danger. To the intelligent employer and foreman such statistics should prove to be a valuable guide toward the field for future safety work.

#### TOXIC POTATOES

It is well known that the green and growing parts of the common potato may contain a toxic glucosid, solanin. The edible part, or tuber, of the potato is not likely to exhibit any significant amount of this substance after it has passed the young stage. From time to time, however, the literature has contained reports of severe intoxications in man which seemed to be associated with the use of potatoes as food. One might readily conjecture in such cases that the vegetable was merely the conveyor of the harmful agent—that some adventitious poison or microbial fac-

tor had become associated with the potato. In most of the cases recorded, chemical examinations of the latter have been lacking for the particular instances in which it was under suspicion. A recent outbreak of poisoning in which the circumstances clearly implicated the potatoes occurred in Leipzig. The symptoms elicited were characteristic and included abdominal pains, vomiting and diarrhea—manifestations described for previous outbreaks. A chemical analysis of a sample of the same lot of tubers was carried out by Rothe<sup>1</sup> at the hygienic institute of the University of Leipzig. The analysis disclosed, the fact that they contained as much as 0.43 gm. of solanin per kilogram of potato, whereas harmless ones usually contain not more than one tenth of this quantity.<sup>2</sup> It should be noted, however, that potatoes which have developed sprouts may, when examined along with the latter, exhibit somewhat larger quantities. In dietary practice, however, the sprouts are removed prior to the culinary use of the tuber. Toxicologic tests on man have demonstrated that as little as 0.2 gm. of isolated solanin may provoke untoward symptoms. This quantity or more might actually occur in the quantum of potatoes that an adult might consume with his meals in the course of a single day. Hence the possibility of solanin poisoning must be reckoned with when potatoes prematurely harvested are used as food.

#### PROPHECY?

The *British Medical Journal*, in its issue of September 20, states editorially that "General Leonard Wood has been nominated as Republican candidate for the presidency of the United States."

### Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

#### ILLINOIS

**Midwife Fined.**—Mrs. Esther Eichenberg, a midwife of Chicago, is said to have been fined \$50 and costs, September 20, for practicing medicine without a license.

**Smallpox at Roodhouse.**—It is reported that sixty-five cases of smallpox have been discovered at Roodhouse, and that state health officials are enforcing strict quarantine and vaccination.

**Second Home Nursing Class Begins.**—The second class in training women in the practical art of home nursing, under the auspices of the department of health of Chicago, started, October 5, at 1358 West Fulton Street, with an enrollment of more than 800.

**Traveling Health Clinic.**—The Cook County traveling health clinic of the Chicago Tuberculosis Institute, during the last four months, has visited thirty-six towns, and has held 111 clinics at which 841 persons have been examined; of these, 352 came for examination of the chest.

**Physician Committed to Jail.**—It is reported that Dr. Franklin J. Oshay of Ladd was arrested and fined \$225 for continuing the practice of medicine after his license had been

1. Fay, A. H.: Quarry Accidents in the United States During the Calendar Year 1917, Technical Paper 213, Bureau of Mines, Washington, D. C., 1919.

1. Rothe, J. C.: Ueber Erkrankungen nach Genuss von solaninhalten Kartoffeln., *Ztschr. f. Hyg.* **88**: 1, 1919.

2. Meyer: *Arch. f. Exper. Path. u. Pharmacol.* **36**.

revoked by the Department of Registration and Education of Illinois. On failure to pay the fine he was committed to the county jail to serve it out.

**Personal.**—Dr. Walter H. Meents, Chicago, for the last six years instructor in surgery in Rush Medical College, has recently been appointed assistant professor of surgery in the University of Illinois College of Medicine.—Dr. Wilson R. Abbott, Springfield, October 6, succeeded Dr. Leo J. Jacobson as clinician to the Cook County traveling health clinic of the Chicago Tuberculosis Institute.

**Honors to Medical Officers.**—Thirty-one members of the Sangamon County Medical Society who served in the world war were guests of honor at a banquet given by several professional brethren at the St. Nicholas Hotel, Springfield, September 23. Dr. John W. Kelley was toastmaster.—Members of the Peoria County Medical Society gave a dinner at the University Club, October 7, in honor of the members of the society who served in the army during the great war.—The twenty-six medical service men of Vermillion County were honored by a banquet given by the Vermillion County Medical Society, in Danville. Dr. Jasper M. James, Henning, president of the society, presided as toastmaster.

**Recent Developments in Tuberculosis Campaign.**—Appropriations and tax levies totaling considerably more than \$1,000,000, to be used exclusively in tuberculosis work, were made by the boards of supervisors in thirty-two counties in September. In four of these counties tuberculosis sanatoriums are either in operation or well under construction. The funds provided in September will assure the building of fifteen additional sanatoriums next spring. In the remaining counties where the appropriation was not sufficient to provide funds for building next year, the money will be used to finance community nursing service, to operate free tuberculosis clinics and dispensaries and to lay the ground work for sanatoriums to be constructed in 1921. This activity by the various county boards is the result of a far reaching educational, publicity and health promotion campaign conducted by the Illinois Tuberculosis Association and its several local societies. The appropriations and tax levies referred to above are made under the provisions of the county tuberculosis sanatorium law which makes it compulsory on county boards to levy taxes for tuberculosis work whenever the proposal has been carried at a general county election. Among the many noteworthy sections of this law is that which completely removes the tuberculosis campaign from any vestige of pauper relief. The personnel of the board in charge of the funds must have no connection with the management of the almshouse or the county farm and the sanatoriums constructed by the board must be entirely distinct and separate in every way from any institution dealing with indigent cases. It is the spirit of the law that the sanatoriums, clinics and nursing service financed through funds thus provided by taxation following a popular referendum, shall be for the free use of all the tuberculous people of the county in the same way that the public schools, the police and fire departments and the public libraries are for the free use of all the people.

#### MARYLAND

**Personal.**—Harry B. Gantt, Capt., M. C., U. S. Army, Millersville, who for the last two years has been serving on the staff of the Tooting Military Hospital in London, has been transferred to Germany for special duty at Evacuation Hospital No. 27, Coblenz.—George Walker, Col., M. C., U. S. Army, Baltimore, who went to France with the Johns Hopkins Hospital Unit and was placed in charge of sanitation and venereal disease problems at debarkation ports, and who, since the signing of the armistice, has been in England engaged in similar work, has returned home on leave.

**Six Months' Record of Presbyterian Dispensary.**—With a total of 13,308 admissions to the dispensary for the first six months of this year the semiannual report of the activities at the Presbyterian Eye, Ear and Throat Hospital, just made public, reveals a splendid growth in the important work of the East Baltimore institution. During the first six months of the year alone nearly as many patients were treated for all ailments as during 1918, when a total of 15,345 were admitted. Of that number 850 were assigned to beds, where they spent an aggregate of 1,857 days. The unusual number of 4,703 new cases applied for treatment.

**Quarantine Lease Approved.**—The treasury department has approved the new lease with Baltimore city for the quaran-

time station and its continued operation by the U. S. Public Health Service. The secretary of the treasury also renews the agreement on the part of the government to buy the station and its equipment for \$177,000 as soon as Congress makes the appropriation. Under the terms of the new lease the government is to send to the city for persons having smallpox or other maritime quarantinelike diseases and to treat them at a cost of \$1 a patient per day. For the use of the station and grounds, the government will pay the city the nominal rent of \$1 a year during the life of the lease.

**Conference on Tuberculosis.**—Militancy in the state fight against tuberculosis was the keynote of an all-day conference for better health in Maryland held in Baltimore under the auspices of the Maryland Tuberculosis Association during the past week. This meeting formally launched the Red Cross Christmas Seal campaign. Sir Arthur Newsholme, resident lecturer on public health administration in the School of Hygiene and Public Health, was the principal speaker and favored the adoption of the militancy in gaining the attention of the public and the legislators to this campaign for the public health. Dr. William H. Welch also addressed the conference and emphasized the facts that Maryland has always been a leader in the fight against tuberculosis; that the first meeting of the National Tuberculosis Association was held here; that the first tuberculosis exhibit was held here under Dr. Fulton's direction; that the Maryland Association was the first to engage a tuberculosis nurse, which was the beginning of the public health nurse of today, and that Maryland was a leader in institutional segregation of tuberculous patients. At the morning session, Dr. Martin F. Sloan, Baltimore, superintendent of Endowment Sanitarium, startled the conference with the statement that perhaps 27 per cent. of the new cases of tuberculosis developed from influenza and that influenza at the present time was perhaps the greatest single predisposing cause of tuberculosis.

#### MASSACHUSETTS

**The Study of Influenza.**—The establishment of a fund of \$50,000 by a corporation, which suffered heavy losses as a result of the epidemic last year, is responsible for the research work at Harvard University Medical School to prevent the recurrence of the disease. The greater portion of the fund will be used by Milton Joseph Rosenau, professor of preventive medicine and hygiene, and his assistants in research work as to the cause, prevention and complications of the disease.

**Hospital to Open.**—The Brooks Cubicle Hospital, Brookline, a temporary structure with ten cubicles, and named in honor of Dr. William A. Brooks, surgeon general of Massachusetts, who was one of the leaders in last year's fight against influenza, was opened, October 6. The hospital is intended primarily for pneumonia patients, but will be used for influenza patients if necessity arises and will be headquarters for antiinfluenza work throughout the state. Dr. Thomas M. Durrell, Somerville, is chief of the medical staff.

**Hugh Cabot to Leave Boston.**—Dr. Hugh Cabot, Boston, at present clinical professor of genito-urinary diseases in Harvard University School of Medicine, chief surgeon of the surgical service at Massachusetts General Hospital and director of clinics of the state board of health, who went to England in 1916, with the Harvard Unit and commanded General Hospital No. 22, British E. F., with rank of lieutenant-colonel, and was made Companion of the Order of St. Michael and St. George, has been appointed chief surgeon at the University of Michigan, Ann Arbor, and will take up his new duties early next year.

**Personal.**—Dr. Ernest L. Hunt has been appointed director of surgical service and Dr. Edward B. Bigelow, director of medical services at the Worcester Hospital, and will give their entire time to the service of the hospital.—Dr. Henry A. Christian, Boston, Hesse professor of the theory and practice of physic in the Harvard University Medical School, and physician in chief of the Peter Bent Brigham Hospital, has been granted leave of absence to serve for a year in Washington, D. C. as chairman of the division of medical science, National Research Council, and began this work, October 1.—Dr. Isaac Alczar, Roxbury, Boston, has returned after sixteen months' service in Palestine as eye, ear, nose and throat specialist with the American 7th Airborne Unit for Palestine, working under the British Expeditionary Forces.—Dr. Thomas F. Kenney has been appointed chief medical inspector of the public schools of Worcester.—Dr.

Nathaniel P. Freed, Lynn, has been appointed medical examiner (coroner) for the Ninth Essex District to take the place of Dr. J. Armand Bedard, who has resigned to take up Red Cross work in France.—Dr. Joseph B. Howe has been appointed associate medical examiner (coroner) for the Second Berkshire District to succeed Dr. John Flynn, Boston, whose term has expired.—Dr. Joel E. Goldthwaite, who was in charge of the Development Battalion of the Twenty-Sixth Division, was presented with the Distinguished Service Medal by Major-General Clarence R. Edwards, September 20. The citation read, "The award is made for special work in organizing the development section in France."

#### MICHIGAN

**Statistician Dead.**—Herman F. Boldt, Detroit, since 1893, statistician of the local board of health, aged 63, died at French Lick, Ind., September 13.

**Personal.**—Dr. James H. Wellings, after more than thirty years of practice in Lansing, has moved to Hollywood, Calif., where he purchased a winter home some time ago.—Dr. Albert H. Garvin has been appointed head of the new tuberculosis sanatorium for Detroit, which is under construction at Northville.

#### MINNESOTA

**Southern Minnesota Medical Meeting.**—The annual meeting of the Southern Minnesota Medical Association will be held in Mankato, December 1 and 2, under the presidency of Dr. Henry W. Meyerding, Rochester.

**Physicians Plan Sanatorium.**—At a meeting of the Range Medical Association held at Virginia, September 5, the chief subject of discussion was the establishment of the proposed sanatorium for St. Louis County, which it is expected will be erected on the range.

**Personal.**—Dr. John E. Soper, Minneapolis, has been elected chairman of the Theodore Peterson Post of the American Legion.—Dr. Brent V. Bates, Wheaton, has received the Distinguished Service Cross, which was awarded for unusual bravery while under fire, in October last. Captain Bates and a number of volunteer stretcher bearers had been ordered to fall back on account of heavy fire, but remained, and evacuated all the wounded safely before daylight.

**Dreyer Lectures in Medicine.**—A special series of three lectures will be given at the Institute of Anatomy, Minneapolis, by Dr. Georges Dreyer, professor of pathology, Oxford University, at 4 p. m., October 8, 9 and 10. The subjects of the lectures are:

October 8, "Some General Principles in Mathematics and Their Application to Medicine."

October 9, "Their Principles in the Study of Respiration and Circulation."

October 10, "Their Relation to Metabolism in Health and Disease."

#### NEW YORK

**Typhoid on Long Island.**—An epidemic of typhoid fever is reported in Port Jefferson and vicinity, where twenty cases are reported, with thus far, one death.

**New York State's Potential Loss in Population.**—In a statement issued, October 2, Dr. Hermann M. Biggs, state commissioner of health, estimates that the state has sustained a loss of approximately 90,000 population in the past eighteen months, which is attributable to the influenza epidemic and the decline in the birth rate. The marked decline in the birth rate is due partly to war conditions and partly to the influenza epidemic, and the loss due to this cause is placed at 36,000. There was an excess mortality of 51,000 due to the influenza epidemic, which would bring the total loss to nearly 90,000. The birth rates for July and August were 18.7 and 18.8, respectively, the lowest since reliable data have been available. The death rate for July and August was likewise the lowest on record.

#### New York City

**Harvey Society Lectures.**—The first lecture of the Harvey Society series will be delivered at the New York Academy of Medicine, October 18, at 8:30 p. m., by Lieut.-Col. Georges Dreyer, M.D., professor of general pathology in Oxford University, on "Biological Standards and Their Application to Medicine."

**Women Physicians at Academy of Medicine.**—The delegates to the International Conference of Women Physicians

now in session in this city were the guests of the Women's Medical Association of New York City at the Academy of Medicine, the evening of October 1. Dr. Emily Dunning Barringer, president of the association, presided. The guests were welcomed by Dr. George David Stewart.

**Personal.**—Col. Fred H. Albee sailed on the *Mauretania*, October 2, as official representative of the Medical Corps of the U. S. Army to the Interallied Congress in Rome. He expects to return about November 1.—Dr. George W. Jean has located in Santa Barbara, Calif.—Dr. John C. Murphy, for several years visiting gynecologist to St. Johns and the St. Louis city hospitals, has been released from military service.

**Plan to Enlarge Beth Moses Hospital.**—The Beth Moses Hospital at Stuyvesant Avenue and Hart Street, Brooklyn, which will be completed by Jan. 1, 1920, now plans to erect another wing which will provide an additional 150 beds. Up to the present time \$300,000 has been expended on the hospital and another \$150,000 will be needed before the hospital is opened. A campaign to raise this sum was begun, October 1. Dr. Isaac Levin is president of the hospital.

**Health Department Favors Daylight Saving.**—At a hearing held before the board of aldermen, October 3, regarding the proposed daylight saving ordinance, Health Commissioner Royal S. Copeland headed a delegation that advocated the passage of the measure. In his arguments in support of the ordinance he said he represented the 700,000 poor children of the tenements and that this additional hour of sunlight is a great benefit to them. He expressed the opinion that the benefits accruing to public health are alone sufficient ground for the passage of the ordinance.

**Women's Motor Corps Will Assist Health Department.**—Dr. Royal S. Copeland, health commissioner, announces that Col. Helen Bastedo, commander of the Motor Corps of America, has placed at the disposal of the health department the entire transport service of her organization. Dr. Copeland states that the services rendered by the Motor Corps throughout the epidemic of influenza last year in conveying doctors, nurses, invalids, and food supplies was a great help, and that the services of the organization will be utilized in a similar way in the event of an epidemic this year. The facilities that have been made immediately available will be used for the transportation of drug patients to the narcotic hospital on North Brothers' Island.

**Diseases Under Investigation at the Rockefeller Institute.**—The Hospital of the Rockefeller Institute for Medical Research confines its work to selected cases that bear on a limited number of subjects chosen for investigation. In line with this policy a bulletin has been issued stating that during the autumn and winter the diseases that will be the subject of special study are as follows:

1. Acute lobar pneumonia and other acute pulmonary infections, influenza, bronchitis, bronchopneumonia, etc. 2. Cardiac disease, especially the more advanced stages of heart failure. Patients showing completely irregular pulse and suffering from fibrillation of the auricles are especially desired. 3. Acute rheumatic fever, patients with acute polyarthritis and children with recurring endocarditis, pericarditis, and myocarditis of supposed rheumatic origin, and those with chorea, polyarthritis and acute cardiac complications. 4. Nephritis. It is desired to admit patients with acute nephritis and young persons or those in early adult life suffering from chronic nephritis of only moderately severe grade. Physicians desiring to send such patients should communicate with the resident physician.

**Institutional Treatment of Drug Addiction.**—The *Weekly Bulletin* of the department of health of October 4 reports that, though the department's Riverside Hospital in which drug addicts are being treated, has been in operation for only a month, its methods have been attended with marked success. The capacity of the hospital is 323 men and 100 women. To date, more than 500 of these patients have been taken entirely off the drug to which they have been habituated and more than 200 of these, apparently cured, have been discharged to their homes. The treatment consists of elimination and reduction of the drug on admission to from 1½ to 3 grams a day. Morphine is used in the hospital irrespective of the drug to which the patient is habituated. At the end of four or five days scopolamine anesthesia is produced by hypodermic administration, and the patient then taken entirely off his drug, which in more than 99 per cent. of the cases treated has been heroin. The report states that the striking result of the treatment is the demonstration of the rapidity with which the drug may be withdrawn entirely, without disturbance of the patient's well-being and without producing nervous manifestations.

OHIO

**Dr. Holmes to Retire from Practice.**—Dr. Christian R. Holmes, dean of the Medical College of the University of Cincinnati, who is now under treatment in a hospital in New York City, has announced his intention of retiring from practice and will devote his entire time to the work of the college.

**Personal.**—Dr. Otto T. Behrer, Dayton, has been appointed city chemist by the Cincinnati Board of Health, succeeding Dr. E. M. Meyer, retired.—Dr. John McCartney, Girard, the oldest medical practitioner of Trumbull County, was given a surprise party at his home, September 25, in honor of his eightieth birthday anniversary.

**Hospitals Registered in Ohio.**—Registration blanks are now being sent out to all hospitals and dispensaries in the state, asking for details as to number of beds available, kind of cases taken, etc. A bill passed at the last general session of the Ohio legislature requires that this information shall be collected and collated by the state department of health. Maternity hospitals have been registered and licensed in Ohio for a number of years, but this is the first time that full information has been sought concerning the number and kind of hospitals and dispensaries operating in the state.

**District Society Meeting.**—At the annual meeting of the Second Councilor District Medical Association at Dayton, September 25, Dr. Harrie B. Martin, Springfield, was elected president; Dr. Elmer R. Arn, Dayton, secretary, and Dr. Herbert C. Hanning, Dayton, treasurer. A course of graduate instruction under the direction of medical teachers of national repute was conducted under the auspices of the Councilor District Society, September 22 to 26. This course was made available to the 500 physicians practicing in the eight counties included within the district.

**Trachoma Clinic in Portsmouth.**—Surg. John McMullen of the United States Public Health Service is holding a very successful trachoma clinic in Portsmouth. A survey of all the schoolchildren is being made by Drs. Joseph L. Goodwin and Ross Hopkins of the Public Health Service and state department of health, respectively. So far, among Portsmouth schoolchildren less than 1 per cent. have been found to have trachoma, while in the rural schools the percentage has reached 3. More than forty patients were present the first day of the clinic, and the attendance has continued high. This is the second trachoma clinic to be held in Ohio; the first was held at Waverly in Pike County two years ago. There is now evidence that some of the river counties in Ohio are just as much affected by trachoma as are counties in Kentucky, and the Ohio State Department of Health is planning a campaign of detection, education and prevention.

**Public Health Organization in Ohio.**—The counties in Ohio are organizing rapidly under the Hughes Act, a bill passed by the last general session of the Ohio legislature. Each county will be known as a general health district and will have a full-time health commissioner, public health nurse and clerk. Each city having a population of 25,000 at the last federal census will be known as a municipal health district. The mayors of municipalities and presidents of township trustees of a county constitute the district advisory council which appoints a board of health of five members, two of whom shall be physicians, one a lawyer, one a farmer, and the fifth not specified. So far, eighty-four of the eighty-eight counties have organized and appointed a board of health, and in thirty-eight counties the board of health has organized and made a budget. All of the budgets so far reported call for a larger organization than the minimum prescribed by the Hughes Act. The demand for public health nurses is especially large, many counties asking for six or seven. The salaries apportioned for health commissioners are adequate, and experienced men should be secured. These are appointed from civil service lists of candidates examined by the state civil service commission. In only one county has there been definite opposition to the Hughes Act, and provision is made for the state health commissioner to appoint a board of health when the local authorities fail or refuse.

PENNSYLVANIA

**New Society Organized.** The physicians of the Allentown and Eastern hospitals and St. Luke's Hospital, Bethlehem, have organized a clinical society with Dr. Edgar M. Green, Easton, president, and Dr. William L. Estes, Jr., South Bethlehem, secretary and treasurer.

**Hospital Notes.**—The State Hospital, Nanticoke, has received thus far \$40,000 in its drive for \$75,000 for the erec-

tion of the nurses' home.—The Fountain Springs State Hospital raised \$4,000 in one day for the equipment of a new ward.—The people of Pottsville are contemplating the erection of an addition to the home for nurses to cost \$60,000.—Trustees of the State Hospital, Hazleton, are planning to build a nurses' home to cost \$75,000, of which \$25,000 has been given by the state.

**Hospitals Attack Suit Against State Aid.**—September 30, thirty-six attorneys representing hospitals and homes from all parts of the state appeared before Judge Kunkel and Judge McCarrell of the Dauphin County Court at the hearing on the suit instituted to prevent the state from paying funds to sixty-six institutions to which the last legislature voted appropriations. The suit seeks to restrain the state from paying out its funds to the various institutions named, all of which are sectarian, was filed by Willis Collins of Delaware County, representing the antisectarian appropriation association. About \$2,000,000 is involved.

**Personal.**—Dr. Walter Lathrop, surgeon-in-chief of the Hazleton State Hospital, who has been ill for three months and has undergone several surgical operations, has gone to the seashore for recuperation, and the work of the institution is in charge of Dr. Robert A. Ganghan, assistant surgeon.—Dr. Edgar B. Doolittle, Hazleton, who has been seriously ill at his home, is reported to be improving.—Dr. William D. Cleland, Harlansburg, who moved recently to New Castle, has been appointed medical director of the New Castle public schools.—Drs. Calvin L. Johnstonbaugh, Bethlehem, and Irvin D. Metzger, Pittsburgh, have been appointed members of the state bureau of medical education and licensure.—Dr. Lyndon H. Landon, formerly surgeon to the Carnegie Steel Company and more recently connected with Base Hospital No. 115 at Vichy, France, has been elected general and neurologic surgeon on the staff of the Western Pennsylvania Hospital, Pittsburgh.—Dr. Davenport Hooker has been appointed head of the Pittsburgh School of Anatomy and professor of anatomy in the University of Pittsburgh.—Dr. Harry G. Clarke, Pittsburgh, has been appointed superintendent and medical director of the City Poor Farm, Mayview.

Philadelphia

**Nurses to Go to China.**—After serving fifteen months overseas with the Jefferson Hospital Unit, three Philadelphia nurses will leave, October 10, for duty in the Shanghai Hospital.

**Course in Public Health Nursing.**—The Visiting Nurse Society has offered a two months' course in public health nursing to pupil nurses of the hospitals of Philadelphia. Eleven pupil nurses from various city hospitals have already applied. This course is only open to pupil nurses during their last year of hospital training, and should these nurses desire to take up a postgraduate course at the Pennsylvania School of Social Service on their graduation from the hospital, they will be given credit for the work done while attending class at the Visiting Nurses' Society.

**Personal.**—Dr. J. Thompson Schell, chief surgeon of the Northwestern Hospital, sailed for London, October 2.—Dr. Charles K. Mills, chief of staff at the Philadelphia General Hospital and founder of the neurologic department of that institution, has resigned after forty-two years' service. Dr. Mills will continue as consultant to the neurologic department.—Dr. James W. McConnell, head of the neurologic department at the University of Pennsylvania and for many years connected with the Philadelphia General Hospital, has been appointed to succeed Dr. Charles K. Mills.—Dr. Eugene J. Ansis, professor of pathology and bacteriology in the school of medicine at Temple University, delivered the introductory address, October 2, to the students of the department of medicine, dentistry and pharmacy of that institution in the college building, Eighteenth and Buttonwood streets. Dr. Ansis has just returned from overseas service. He was professor of pathology and bacteriology in Baltimore, at the American University for the expeditionary forces.

CANADA

**Personal.**—Dr. Norman K. Wilson has returned from overseas and resumed practice in Toronto confining his work to diseases of the nose and throat.—Dr. Edwin C. Beer, Brandon, Man., lately medical officer to the Royal Flying Corps, has commenced practice in Toronto.

**University News.**—There are more than 400 entrants in medicine in the University of Toronto. The total registration to date in McGill University, Montreal, is more than

200 in all faculties.—Drs. Henry T. Machell, Allan M. Barnes, Geoffrey Boyd, and others have resigned from the teaching staff of the department of medicine of the University of Toronto.

**Hospital Items.**—General Mewburn, minister of militia for Canada, announced in the House of Commons, recently, that that total number of Canadian hospital patients still overseas was 126; he also announced that there were still 6,598 hospital patients in the military hospitals throughout Canada.

—Dr. Duncan A. L. Graham, the newly appointed professor of medicine in the University of Toronto, has been appointed chief physician to the Toronto General Hospital; Dr. John A. Ollie is to have charge of the heart clinic; Dr. Fred W. Rolph of the gastro-intestinal department; Dr. Galdwin W. Howland of nervous diseases; Drs. George S. Young and George S. Strathy of general medicine; Dr. Harold C. Parsons of tuberculosis; Dr. Charles K. Clarke of the psychiatric department; Dr. Robert D. Rudolf of therapeutics, and Dr. William Goldie in charge of indoor patients' ward. No surgical appointments have yet been announced.

#### GENERAL

**Warning.**—It is reported that a man representing himself as a physician is making the rounds of physicians' offices in the East, with an electrical diagnostic set on which he collects a deposit, promising delivery in five days. The delivery is not made. He claims to come from Springfield, Mass., and is said to be wanted by the police.

**Medical Periodicals Delayed by Strike.**—The medical periodicals published in New York City have not appeared for the week of October 4 on account of the strike of certain organizations of printers and employees which have tied up completely the offices in which they are employed. It is expected that 152 weekly periodicals published in New York City will fail to come out this week.

**Relief of Civilian Employees.**—A bill providing that civilian employees of the federal government suffering with tuberculosis shall be admitted to the hospitals of the Army, Navy and U. S. Public Health Service has been reported by the Senate Committee on Public Health and Quarantine with the recommendation that it pass. It was introduced by Senator Morris Sheppard of Texas, and has the indorsement of the U. S. Public Health Service.

**Gynecologists Organize World Body.**—At the conference of gynecologists held in Brussels, Belgium, the last week in September, the International Association of Gynecologists and Obstetricians was organized, and it was decided to hold the first meeting in America, 1922. The following officers were nominated: president, Dr. Franklin H. Martin, Chicago; secretary-general, Dr. Frank F. Simpson, Pittsburgh; counselors, Drs. J. Riddle Goffe, New York, Thomas J. Watkins, Chicago, and George Gray Ward, Jr., New York.

**American Public Health Association Meeting.**—The American Public Health Association will hold its forty-eighth annual meeting in New Orleans, October 27 to 30. Committees of specialists have been organized to answer questions and give advice on milk supply, influenza, public health nursing, tuberculosis, health legislation, water supply, industrial hygiene, child hygiene, malaria, personal hygiene, etc. An important part of the program will be the papers and discussions on the coordination and enlargement of federal health activities.

**Tuberculosis Foes Meet.**—At the meeting of the Mississippi Valley Conference on Tuberculosis, held in Des Moines, Iowa, September 22 to 24, under the presidency of Sherman Kingsley, Cleveland, the following officers were elected: president, Dr. John H. Peck, Des Moines, Iowa; vice president, W. McM. Miller, St. Louis; secretary, Dr. Arthur T. Laird, Duluth, Minn., and counselors, Sherman Kingsley, Cleveland; Dr. James W. Pettit, Ottawa, Ill.; Dr. Ethan A. Gray, Chicago; R. J. Reed, Des Moines, Iowa (re-elected); Dr. Eugene B. Pierce, Howell, Mich.; Dr. Alfred Henry, Indianapolis, and Mrs. P. Wanzel, Armour, S. D.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Methodist Hospital, Philadelphia, \$1,000, by the will of Louise M. Pepper.

St. Vincent's Hospital, New York, \$5,000; New York Foundling Hospital, \$1,000; Columbus Hospital, St. Elizabeth's Home for Crippled Children, St. Ann's Convalescent Hospital, New York Institute for Blind, Home of Rest for Consumptives, and New York Skin and Cancer Hospital, each \$500, by the will of Margaret A. Howard.

Presbyterian Hospital, New York, \$200,000, and Sloan Maternity Hospital, \$80,000, by the will of General Horace W. Carpenter.

Presbyterian Hospital, New York, \$2,000, by the will of Miss Mary M. Roberts.

**Clinical Congress to Meet.**—The ninth annual meeting of the Clinical Congress of the American College of Surgeons will be held in New York, October 20 to 24, under the presidency of Dr. William J. Mayo, Rochester, Minn. The program includes papers by Sir Anthony Bowlby, London, on "Fractures of the Femur"; Harvey Cushing, Boston, on "Brain Tumor Statistics"; Alexis V. Moschowitz, New York, on "Empyema, with Particular Reference to Its Pathogenesis and Treatment"; George W. Crile, Cleveland, on "Surgical Treatment of Exophthalmic Goiter"; Sir Robert Jones, Liverpool, England, on "Stiff and Flail Joints"; Otto P. Geier, Cincinnati, on "The Physician and Surgeon in the Industrial Era"; Dr. John B. Deaver, Philadelphia, on "The Acute Abdomen"; Major Gillies, R. A. M. C., Sidcup, England, on "Plastic Operations for Facial Burns," and C. Jeff. Miller, New Orleans, on "Radiotherapeutic and Other Methods for Treatment of Cancer of the Uterus."

**Investigation and Prevention of Influenza.**—The Senate Committee on Public Health and National Quarantine has made a favorable report to the senate on a measure introduced by Senator Warren G. Harding of Ohio for the investigation and prevention of influenza and similar diseases. The committee has recommended that the appropriation for this work be \$1,000,000 instead of \$5,000,000 as provided in the measure as introduced. The committee also adopted an amendment providing "that any allotment of funds to universities, colleges or other suitable research institutions shall not be limited to any one school of medicine." The work is to be carried on under the supervision of the U. S. Public Health Service. The medical departments of the Army and Navy are authorized to cooperate in the work of "investigating influenza and allied diseases, in order to prevent their causes and prevent their spread." The secretary of the treasury is authorized to expend a part of the money appropriated for research work on this subject in such research institutions as are qualified. The measure is now on the senate calendar for consideration and may be called up for action at any time.

**Prevention and Control of Drug Addiction.**—A bill to provide aid from the United States government for the several states in the prevention and control of drug addiction and the care and treatment of drug addicts has been reported favorably by the Senate Committee on Public Health and National Quarantine. The measure as amended by the committee appropriates a sum of \$3,000,000 for the fiscal year ending June 30, 1920, and \$2,000,000 for the year ending June 30, 1921, to be available for the various states when they have raised an amount equal to that requested of the federal government. The expenditure of 10 per cent. of the annual appropriation is authorized to collect and spread information in regard to the care and treatment of drug addicts and for administration purposes. The bill has the indorsement of Secretary of the Treasury Carter Glass who has said that "it will meet what must be regarded as a critically serious situation developing out of enforcement of amendments to the Harrison Narcotic Act." The war and navy departments are authorized to transfer temporarily hospital buildings and equipment for the care and treatment of drug addicts. The various state boards of health or narcotic commissions are expected to cooperate with the U. S. Public Health Service in taking advantage of the provisions of the measure. It may be called up for action by the senate whenever the senate is considering general legislation. The bill was introduced by Senator Joseph I. France of Maryland, chairman of the Senate Committee on Public Health and Quarantine, by which committee it was reported favorably.

#### FOREIGN

**Nurses Win Greek Decorations.**—Eight nurses of the American Red Cross have been decorated by King Alexander of Greece with the Medal of Military Merit for their work in fighting the typhus epidemic in Macedonia.

**Mobile Hospital Functioning in Roumania.**—The autochir, the mobile hospital purchased by the American Red Cross for the American E. F., at a cost of \$400,000, has been sent to Roumania. It was intended for France, but the signing of the armistice ended the need there, and when Queen Maria of Roumania appealed for help from the Red Cross, it was decided to send it to the aid of that diseased and impoverished nation. The hospital was sent by ship from America

to Bologna, Italy, and thence on its own wheels to Bucharest under the care of Col. George de Tarnowsky of the American army. The autochir consists of a roentgen-ray truck, an electrogenic group with accessory parts, a heating plant, a rolling machine-shop, an electric lighting plant, an operating room with plate glass cabinets containing every known surgical instrument, ambulance trucks containing beds for twenty patients, four ambulances capable of accommodating six severely wounded or twelve slightly wounded men, tent hospital trucks, an acetylene truck for lighting the hospital, store-room trucks with large supplies of blankets, cots, sheets, dressings and drugs. There is also a large truck which contains sleeping rooms for physicians, nurses and interns. Eighteen huge trucks resembling American moving vans constitute the complete hospital. It has moved up near the Roumanian army, where it is functioning with speed and efficiency.

**Hospitals in Siberia.**—Col. R. B. Teusler, Red Cross commissioner to Siberia, has recently reported on the American Red Cross hospitals in that country.—In response to the dire need caused by the epidemics of typhus, cholera and pneumonia, a new hospital was established at Irkutsk.—There is a 100 bed hospital in Tchilyabinsk in the Ural Mountains, which was opened by the American Red Cross and later became an important base hospital for the all-Russian government.—At Omsk, the capital of the Kolechak government, a 1,000-bed hospital is being operated, and at Petropavlovsk a typhus hospital was equipped and given to the government.—There is a 200-bed hospital at Tomsk, given to the government by the University Clinic and operated by the Red Cross.—At the request of the mayor of Novonikolaevsk, the Red Cross opened a hospital in the Commercial Club of that city, which operated during the typhus epidemic.—Important work in the extermination of contagious diseases was done by the Red Cross workers at Siberian railway stations. Delousing plants, disinfecting apparatus and clothing dispensaries were conducted.—An antityphus train traveled over more than 4,000 miles in Siberia to stop the spread of typhus, and is now being operated under direction of the same American Red Cross workers on the Perm front. The expense of this train was at first assumed by Allied sanitary commissions and was managed by the American Red Cross, which now has assumed the entire responsibility of the train.—At the request of the Czecho-Slovak national council, work was started by the Red Cross in eastern Siberia. A commission consisting of twenty-five physicians and thirty-five nurses was sent at once to that portion of the country. This group has since been augmented, and a large staff is now at work among the Siberian population.

**LATIN AMERICA**

**Election of Officers.**—The Medical Society of Valparaiso, Chile, has elected the following officers: president, Dr. Vicente Dagnino; vice president, Dr. Guillermo Munnich; secretary, Dr. Gastón Lachaise, and treasurer, Dr. Miguel Manriquez.

**Child Hygiene in Peru.**—Under the title "Asociación protectora de la Infancia" there has been formed at Lima, Peru, a child hygiene association. Its officers include the following: president, Dr. R. Neuhans; vice president, Dr. Oscar Miro Quesada; secretary, Dr. Carlos Enrique Paz Soldán, and treasurer, Mr. Carlos D'Almeida Argote.

**Anniversary of the Medical Society of Santiago de Chile.**—The Medical Society of Santiago, Chile, celebrated last September the fiftieth anniversary of its foundation. In connection with the celebration there was published a special number of the *Revista Médica de Chile* which is the organ of the society. The officers of the society for the year 1920 are as follows: president, Dr. Germán Valenzuela B.; vice president, Dr. Luis Vargas Salcedo; secretaries, Dr. Hugo Lea Plaza and Dr. Engenio Cienfuegos, and treasurer, Dr. Juan D. Montenegro.

**Typhus Fever in Chile.**—According to a statement published by the Department of Interior of Chile, there were admitted to the hospitals at Santiago, Chile, from October, 1918, to June 30, 1919, 4,235 cases of typhus fever of which 852 died. During the first fifteen days of July there were 190 cases admitted with thirty-three deaths. During the first six months of the year 1919 the general mortality at Santiago was 9,993 exceeding by 2,249 the number of deaths for the same period in 1918. This increase is due to the present epidemic of typhus fever. The data collected by the Department of Public Health show that the disease has been endemic in Chile for the last thirty years.

**CORRECTION**

**Error in Article on Extra-Uterine Pregnancy.**—In the article by Dr. Alfred C. Beck, Brooklyn (THE JOURNAL, September 27, p. 963), the legends of Charts 2 and 3 are reversed. That which appears under Chart 2 should accompany Chart 3, and vice versa.

**Government Services**

**Personnel of the Army Medical Corps**

On Oct. 3, 1919, the Medical Corps contained 4,837 medical officers, a decrease from the previous week of 459. The Reserve Corps contained 3,509 officers. The total number of officers discharged since the beginning of the war is 27,622.

**MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY**

<b>CALIFORNIA</b>		<b>MINNESOTA</b>	
Los Angeles—McDonald, T. G.	St. Paul—Benep, L. M.		
San Francisco—Goetsch, A.	<b>NEW JERSEY</b>		
Vian, B. H.	Garfield—Bleasby, C. B.		
<b>CONNECTICUT</b>		<b>OHIO</b>	
Meriden—Healy, J. B.	Cleveland—Linden, J. E.		
<b>KANSAS</b>		<b>PENNSYLVANIA</b>	
Esbon—Campbell, F. B.	Philadelphia—Conley, H. D.		
<b>KENTUCKY</b>		Frion, G. A.	
Auburn—Helm, J. B.	Shaar, C. M.		
<b>MAINE</b>		<b>SOUTH CAROLINA</b>	
Portland—Moulton, B. E.	Charleston—Beach, M. W.		
<b>MASSACHUSETTS</b>		<b>TEXAS</b>	
Hvde Park—Giller, C. A.	Gidding—Gates, C. S., Jr.		
Nantucket—Blue, J. J.	<b>VIRGINIA</b>		
Worcester—Adams, W.	Norfolk—Hart, J. A.		

**Foreign Correspondence**

**RIO DE JANEIRO LETTER**

RIO DE JANEIRO, Aug. 30, 1919.

**Statistics of Influenza**

The public health department recently published the full statistics of the epidemic of influenza which swept over Rio de Janeiro in October, 1918. That month, 11,458 deaths occurred in Rio; 6,344 males and 5,144 females; 990 persons from 0 to 1 year old; 752; from 1 to 2 years; 1,159 from 2 to 5 years; 877 from 5 to 15 years, and 7,473 over 15 years. The average death rate was 3.69 per cent. The first cases occurred in the beginning of the month, and by October 12, ten deaths had been reported. The epidemic spread rapidly over the city. Nine hundred and thirty deaths were registered ten days later, after which date the death rate declined, 753 on the 23d, 729 on the 24th, 621 on the 26th, etc., altogether 8,817 in twenty days. The epidemic was not considered past till the middle of November. Up to the middle of November there were still many deaths, after which time the epidemic was considered extinct.

**Brazilian Physician Honored with an Invitation by the President of Bolivia**

Dr. McDowell of Rio de Janeiro, whose works on beriberi, yellow fever, hookworm disease, spirochetosis, ieterohemorrhagic, etc., are well known in both domestic and foreign medical circles, has received an invitation from the Bolivian government to give a series of lectures on tropical diseases.

**New Professor in the Medical School**

Dr. Rocha Vaz was chosen professor in the medical school in the place of the late Miguel Pereira. Thirteen members of the congregation voted for him; five for Dr. Macdowell; four for Dr. Clark, and one for Dr. Romeiro.

**Rural Prophylaxis**

The secretary of the interior has given instructions establishing seventeen posts for the suburbs of Rio de Janeiro,

order to fight hookworm and malaria. All are under the direction of a sanitary inspector who in his turn is subordinate to the head inspector. Once more we are obliged to call attention to the fact that the director of public health has no authority over this service.

#### Absence of Yellow Fever

Since the last letter, no new case of yellow fever has been reported throughout Brazil.

#### Reorganization of the Public Health Department

The commission appointed to elaborate the sanitary code has given its opinion in favor of creating the ministry of health. If the government does not find it convenient to pass such a bill at once, it proposes to establish the federal department of public health, consisting of four divisions: public health service of the capital, maritime and fluvial sanitary defense division, rural prophylaxis division, and public assistance and child welfare division. The president of the department, as well as the heads of the four divisions, will be appointed by the president of the republic, chosen among the prominent members of the medical profession. The commission suggested the organization of an advisory board consisting of the president of the department, the chiefs of the different divisions, the professor of hygiene in the medical school, the president of the National Academy of Medicine, the director of the medical school, and the professor of hygiene and sanitation in the school of engineers.

#### South American Trypanosomiasis

Carlos Chagas read an interesting paper in the National Academy of Medicine, calling attention to some new developments pertaining to the cardiac affection of the disease. A great number of cardiograms were exhibited. Henrique Araújo read an important paper on the same subject in the Sociedade de Medicina e Cirurgia. Araújo is of the opinion that many cases of other infectious diseases have been registered under that name. He called attention to the fact that the cases of Chagas disease with nervous symptoms, endemic goiter and idiocy do not differ greatly from similar ones discovered in other parts of the world. He proposed to add the name of Oswaldo Cruz to that of Chagas, giving it the joint name Cruz-Chagas, as he considers Oswaldo Cruz the discoverer of *Trypanosoma cruzi*. He admits the possibility that a filtrable virus is the cause of endemic goiter and idiocy. Another important item mentioned is that in many regions of southern Brazil and of the Argentine Republic infected triatomas (the transmitters of the disease) have been found in large quantities without one case of the disease having been reported. He does not consider the infection as an endemic of sufficient importance to be combated. *Trypanosoma cruzi* has not been found in more than forty cases within the last ten years.

Vasconcellos stated at the next meeting of the society that Clementino Fraga and Gonçalo Muniz in Bahia, Carini in São Paulo, Kraus, Maggio and Rosenbusch in Buenos Aires had observed that in many regions of Brazil and in Argentina, where infected triatomas were found, no case of Chagas disease has been observed. He called attention to the fact that since 1909, when the first case was verified, up to date, only twenty-nine cases with *Trypanosoma cruzi* in peripheral blood had been declared. Although Chagas affirms that *Trypanosoma* causes anemia, Ezequiel Dias of the Oswaldo Cruz Institute, found that male patients with Chagas disease have 5,725,000 erythrocytes, females 4,925,000, and children 5,027,000 in cubic millimeter.

#### MEXICO LETTER

MEXICO, Sept. 28, 1919.

##### Legislative Matters

There will soon come up in congress for action the bill for the enforcement of Article 4 of the constitution, relative to the practice of professions. This bill requires, as expected, that in order to practice law, medicine, obstetrics or pharmacy in Mexico it is necessary to possess a degree granted after passing an examination in certain studies either at the National University or the universities of the different states. Foreign degrees will have to be submitted for registration when reciprocity has been established with the country in which they were obtained, while, so far as other countries are concerned, it will be necessary for the applicant to submit to an examination. Persons who do not comply with these requisites will be punished according to the provisions of

the criminal code, and finally no person will be authorized to practice his profession unless he agrees to observe and make others observe the provisions of the constitution of 1917. There are some who criticize this new bill; but despite its defects, it should be approved as soon as possible to stop the many abuses of quacks (foreigners in the majority) who find their victims chiefly among the lower classes of the population and who enrich themselves through their brazen system of advertising and the boldness with which they practice medicine when they hardly know its most elementary principles.

Since the year 1857, when the constitution of the republic was adopted, it has been impossible to obtain the enactment of a law regulating the exercise of the different professions, and as a consequence the whole country, and especially the city of Mexico, has been a paradise for quacks and especially medical quacks. As an instance we may mention the case of an individual from Central America who came sometime ago to this country, applied for examination at the school of medicine, and failed to pass, but established his office shortly afterward in one of the most central locations. Occasional instances exist in which regular physicians are also practicing quackery with good financial results; but it does not seem so easy to reach these cases through legislation.

#### Horse Meat and Donkey Meat

Because of the scarcity and the poor quality of the beef now on sale or through eagerness to make money, some people have been devoting themselves surreptitiously to the slaughter of donkeys, mules and horses. As some of these people have been caught and punished, they intend to ask the board of public health that they be allowed to open a slaughterhouse exclusively for horses. The flesh of these animals is not bad, and during hard times we have eaten it here with full knowledge of its origin, and it is known that there is in Havana a society of horsemeat eaters. I do not know anything about the quality of donkey meat.

#### New Medical Journal

The central commission for the study of tabardillo (typhus fever), which was created by a resolution of the medical congress held here to discuss this disease, has begun to publish a bulletin in which appear the most interesting articles on this disease written abroad as well as observations by physicians of this country. This publication is distributed free of charge and can be obtained by writing to the editor, Dr. José Terrés, 5/a. calle de Donceles, 115, Mexico.

#### Personal

Dr. Gregorio Mendizábal has requested to be excused indefinitely from attending the sessions of the Academy of Medicine, of which he has been a member twenty-five years. This society, in view of the high character of the applicant, decided to make him an honorary member. The same physician will celebrate, December next, the fiftieth anniversary of his entering the profession; and on that occasion his numerous friends, pupils and sympathizers intend to show him in some way the high appreciation they have for his services.—Dr. Rafael Raygadas Vértiz, the surgeon, has returned from Bern, Switzerland, where he went to represent the Mexican Red Cross.

#### LONDON LETTER

LONDON, Sept. 18, 1919.

##### Hydrogen Arsenid Poisoning in Submarines

In June, 1916, an outbreak of hydrogen arsenid poisoning in two submarines was observed. Ratings in other submarines before and since have been sometimes affected with mild symptoms, which in view of the proof furnished in these cases may well have been due to traces of this gas in the atmosphere of the boats. The first suspicion of this poisoning being present was due to an examination of the blood of three men who were sent to the laboratory of the Naval Hospital, Chatham, for evidence of carbon monoxid poisoning. They were jaundiced, and this suggested a blood count, which revealed profound anemia. A few days later, Haldane recovered hydrogen arsenid from the battery gases of the boat in question. The two submarines mentioned above did voyages of from four to eight days' duration, and were submerged an average of seventeen hours a day. In the first voyage of each boat the symptoms were not so marked, and the onset was generally delayed until the third or fourth day; and on returning to their base the crews were able to carry on duty or proceed on leave. During the second trip the

symptoms were more pronounced, and started usually on the first or second day out. The severity of the illness forced one boat to return at the end of four days. In an experimental trip of one boat, the onset of discomfort occurred in four hours; vomiting started in fourteen hours, and the boat broke surface at the eighteenth hour after diving. Twenty men out of the twenty-six on board vomited within twenty minutes of opening up the boat. The men themselves attributed their symptoms to the prevalent bad weather, in spite of the fact that many had never been seasick in their lives, or else to an evil smelling oil fuel used in all the boats. That the condition was hydrogen arsenid poisoning is proved by the symptoms not fitting in with any other condition, and by the recovery of arsenic from the urine and hair of the victims. The source of the hydrogen arsenid was at first believed to be in the sulphuric acid used in the batteries, which always contains traces of arsenic; but if so, it was peculiar that other boats had been using acid with a higher arsenic content than that supplied to the boats in question and yet had had no unpleasant experiences. The origin was ultimately traced to an alloy in the battery grids of the affected boats which contained more arsenic than that used in other submarines. The hydrogen arsenid also was found to appear in greater amounts as the batteries got older.

The two symptoms most complained of were vomiting and dyspepsia. Vomiting was the most constant and troublesome symptom. Once it had started it was continuous throughout the trip. In half the cases it was accompanied by burning and gripping abdominal pain. Dyspepsia on exertion was noticed in twenty-four of the thirty cases. It was probably due to destruction of and impairment of the oxygen-carrying power of the red corpuscles, aided perhaps by a toxic action on the heart muscles. There was no evidence of any lung damage. Constipation was rather more often complained of than diarrhoea. The color of the urine varied from brown to blood red. This was due in most cases to hemoglobinuria, methemoglobinuria, or even to whole blood. In a few of the milder cases it may have been caused by bile pigments only. Albuminuria, except in three cases, was always present after admission. It was rarely more than a trace. Casts were found on only one or two occasions. Headache was fairly constant, and in a few men it was the chief trouble, together with insomnia. Jaundice was a constant sign. All the men except four showed mild neuritic symptoms. The symptoms did not manifest themselves till four days after returning from the voyage, but took from two to three weeks to pass off. They consisted for the most part in tingling and "pins and needles" sensations in the hands and feet. The legs were prone "to go to sleep," and a few men suffered from cramps. Among various individual symptoms there were two of interest as showing the affinity of arsenic for any mucous membrane. Two men had scalding and frequent micturition, and one suffered from an irritable conjunctivitis. The final proof that arsenic was the cause of the illness was furnished by the fact that it was found in the urine, hair and nails.

#### Graduate Medical Study

The Fellowship of Medicine has undertaken to carry on its work of graduate teaching in London. Last winter a series of demonstrations and lectures were given and were so widely utilized by American, French and other physicians that a regular weekly bulletin of the hospital facilities available was published. The work is now being reorganized for the coming winter. Its value as a means of encouraging international friendship has proved great. The results have exceeded the expectations then expressed. In the coming session a great expansion of the scope of the work is anticipated. The series of special lectures given under the auspices of the Fellowship at the Royal Society of Medicine began again, September 15. The following is the program so far as it has been drawn up: Mr. W. H. Trethowan, "Feet; Mechanical Disabilities"; Mr. L. B. Rawling, "Surgery of the Skull and Brain—I"; Mr. W. H. Trethowan, "Feet; Paralytic Deformities and Disabilities"; Dr. Hutchison, "Chronic Diarrhoea: Its Varieties and Treatment"; Mr. L. B. Rawling, "Surgery of the Skull and Brain—II"; Mr. A. H. McMillen, "Some Common Disorders of the Fundus Oculi"; Dr. Eric Pritchard, "The Causation and Treatment of Rickets."

#### Lunatics and the War

A further increase in the death rate among lunatics is announced in the fifth annual report of the Lunacy and Mental Deficiency Board of Control for 1918. In the eighty asylums under review, the death rate among males was 25.2 per cent. and among females 16.4 per cent.—an increase of

3.7 per cent. in the former and 2.4 per cent. in the latter case. This steady increase caused the board much anxiety, and it referred the matter for inquiry to three commissioners, who attribute part of the increase to the effect of war conditions, such as reduced supply of food, inadequate staffs, and some degree of overcrowding. The commissioners, however, are of opinion that war conditions alone do not account for the alarming increase of sickness, and that their disappearance will not eradicate the communicable diseases (tuberculosis, dysentery and typhoid), which have obtained so strong a hold on a number of asylums; they have drawn attention to a number of matters of asylum practice and administration which have materially added to the seriousness of the situation and call for special effort toward improvement. The commissioners make a number of suggestions which are already carried out in some asylums. A further decrease is reported in the number of notified insane persons in England and Wales, the figures on Jan. 1, 1919, being 116,703, or 9,138 fewer than twelve months previously. In the three preceding years there had been decreases of 3,278, 3,159 and 8,188, respectively, as compared with an average annual increase of 2,251 for the ten years ending Dec. 31, 1919. The relative percentages of the sexes—males 42.8, females 57.2—show a continued reduction in the proportion of males.

#### Biology and the Locating of Submarines

The British Association for the Advancement of Science has resumed its annual meetings, interrupted for two years by the war. The president, Sir Charles Parsons, delivered an address on Science in War and Peace. Referring to the introduction of the binaural hydrophone for locating submarines, he pointed out that when the vessel is in motion or the sea is rough the water noises from the dragging of the instrument through the water and from the waves striking the ship drown the noises from the enemy vessels, rendering the instrument useless. The assistance of eminent biologists proved invaluable at this juncture. Experiments were made with sea lions by Sir Richard Paget, who found that they have directional hearing under water up to a speed of 6 knots. Also Arthur Keith explained the construction of the hearing organs of the whale, the ear proper being a capillary tube too small to be capable of any useful function in transmitting sound to the relatively large anal organs which are deep set in the head. The whale therefore hears by means of the sound waves transmitted through the substance of the head. It was further seen that the organs of hearing in the whale to some degree resemble the hydrophone. The course now became clear. Hollow towing bodies in the form of fish or porpoises were made of celluloid, varnished canvas, or even thin metal, and the hydrophone fixed in the center of the head. The body is filled with water, and the cable towing the "fish" contains the insulated leads to the observer on board the vessel. When towed some distance behind the chasing ships, disturbing noises are small and enemy noise can be heard up to speeds of 14 knots and at considerable distances.

#### Commissions for Medical Women in the Army

The grievance of medical women who during the war did medical work in the army but were not given commissions has already been reported. A joint deputation of the Women's Medical Federation and the British Medical Association has had before the undersecretary for war the case for giving medical women the same status and commissioned rank as given to medical men doing similar work. The deputation enumerated certain disadvantages under which the medical women worked, such as delay in pay and absence of billeting accommodation. The War Office replied that these were matters of local administration and adjustment and were not dependent on absence of commissioned rank. The complaint that the want of commissioned rank impaired the women's professional status and put them at a disadvantage in meeting commissioned medical officers was not considered valid. The fact that they belonged to the medical profession assured them the position to which they were entitled. As regards increased pay and promotion, it was held that if medical women were to enjoy the advantages from which they were excluded, they must be not only willing but also able to perform the duties of commissioned medical officers. The deputation contended that there were no such duties which could not be equally performed by commissioned women, but the medical authorities of the War Office were unanimously of opinion that there were many essential duties which could not be performed by medical women. No doubt certain duties performed by medical officers could equally well be undertaken by medical women, such as nec-

and surgical duties in hospitals, work connected with anesthetics and the roentgen ray, and the charge of laboratories. But the medical officers who perform these duties have had to undertake general service obligations and have been liable at all times for duty anywhere. To provide the commissioned medical women be engaged only on duties of which they are capable, it would be necessary to provide a special contract for special duties, which would result in immobilizing personnel and would necessitate an increase in establishments. The success of the medical organization in the war has been due in great measure to its mobility. Not only medical units but personnel had to be moved at short notice from lines of communication to battle areas, and even from one theater of war to another. During the last two years it was only thus that wastage could be met and reinforcements provided. Frequently whole hospital staffs were hurried up to front areas to meet sudden casualties and to make good the loss of whole casualty clearing hospitals or held ambulances. If the medical services had been immobilized by granting commissions for special units or areas, a serious situation would have arisen. The authorities held that there were insuperable difficulties in employing medical women in charge of regiments or other units or for duty in field ambulances. The provision of suitable accommodation would be impossible. Women would be out of place in the continual and intimate contact into which a medical officer is brought with a soldier. The command of medical field units involved leadership and discipline, and at times great strain and hardship to which women would be equal only in rare cases. They could not undertake the important duties of sanitation, which necessitate frequent visit to trenches and billets. A medical woman with no companions of her own sex could not be called on to live the life of the trenches. Medical women could not carry out venereal inspections or lecture troops on the prevention of venereal diseases. At the same time the War Office expressed deep appreciation for the valuable services rendered by medical women during a lengthened period of stress and anxiety. They filled a real need, and their unflinching devotion earned the gratitude of all ranks.

The joint committee of the Women's Medical Federation and the British Medical Association made the following rejoinder: The reply that belonging to the medical profession assures women the position to which they are entitled is not valid. The medical woman has no status when she joins, and however long she serves, no right of seniority. Whatever her position in civilian service, whatever her length of service in the army, she is junior to and takes orders from any commissioned officer. As to inability to perform certain duties performed by men, each woman of the deputation was questioned, and they unanimously replied that medical women were able and willing to perform, if necessary, all the duties required of men; but they agreed that there were duties that it was desirable to have performed by men, if available. Further, it is argued that the War Office asked women to do work previously performed by men who held commissions. This they have done and therefore they should have been given the commissions that would have been given men for these duties. Commissions have been given to medical men who by reason of physical disability or age were not fit for full service.

## Marriages

WILLIAM J. EGAN to Miss Viola Forster, both of Milwaukee, at Shorewood, Milwaukee, September 25.

HARRY ARTHUR MILLER, Rochester, Minn., to Miss Olga Clara Grabow of Minneapolis, September 27.

MURTON PATRICK MORSE, LeRoy, Minn., to Miss Lydia Oakland of Northfield, Minn., September 6.

EVERETT HERBERT PEA, Vincennes, Ind., to Miss Cicelia Place of Grand Rapids, Mich., August 14.

HENRY MORRIS SCHEER to Miss Helen Rosamund Levy, both of New York City, September 21.

JOHN B. WEIKENSIMER, Steger, Ill., to Miss Gertrude Marie Gormley of Chicago, September 20.

JOHN CHRISTOPHER GRABAU to Miss Laura Louise Knoche, both of Buffalo, October 8.

FRANKLYN PIERRE DAVIS to Miss Athie Eliza Sale, both of Enid, Okla., September 25.

## Deaths

Charles Knickerbocker Winne, Albany, N. Y.; Jefferson Medical College, 1859; aged 81; colonel, M. C., U. S. Army (retired), who entered the Army as assistant surgeon in 1861, and was retired as lieutenant colonel and deputy surgeon-general, June 30, 1902, by operation of law, and was made colonel, retired, April 23, 1904, and who during the Civil War was brevetted captain, major and lieutenant colonel for bravery; died at his home, September 24.

Jacob Dennis Arnold, San Francisco; Washington University, Baltimore, 1876; aged 63; a specialist in diseases of the eye, ear, nose and throat; lecturer on throat and ear diseases in the College of Physicians and Surgeons, Baltimore, in 1884 and 1885; president and professor of diseases of the throat and ear in the San Francisco Polytechnic from 1887 to 1889; died at his home in San Francisco, September 26, from carcinoma of the pancreas.

John Randall Hooper, Baltimore; University of Maryland, Baltimore, 1866; aged 78; organizer and president of the Howard Bank, Baltimore, and later cashier and a director of the Commonwealth Bank; an astronomer of international reputation; who established and headed the astronomical section of the Maryland Academy of Sciences; died at the home of his daughter in Round Bay, Md., September 19.

Walter Morrison Byers, Mohawk, Ind.; Physio-Medical College of Indiana, Indianapolis, 1908; aged 36; a member of the Indiana State Medical Association; while driving his automobile over a grade crossing, near Mohawk, September 20, was struck by a Big Four train, and sustained a fracture of the skull and other injuries from which he died a short time later in the Deaconess Hospital, Indianapolis.

Harry Andrew Sullivan \* Rockford, Ill.; Marquette University, Milwaukee, 1913; aged 31; who went overseas as first lieutenant, M. C., U. S. Army, with Surgical Unit No. 1, saw service in the Verdun sector, and was honorably discharged, July 8, 1919; formerly a well known pitcher of the St. Louis National League; died at his home, September 22, from pneumonia.

Theodrick C. Boulware \* Butler, Mo.; Missouri Medical College St. Louis, 1869; aged 78; a Confederate veteran; for half a century a practitioner of Butler, and for thirty years local surgeon for the Missouri Pacific Railroad; one of the incorporators, directors and for several years vice president of the Missouri State Bank; died at his home, September 6.

Dabney Minor, Cleveland, Tenn.; Vanderbilt University, Nashville, Tenn., 1910; aged 32; who served for ten months in the Medical Corps of the Army as lieutenant with Base Hospital No. 54, overseas, and was honorably discharged, June 2, 1919; was found dead in his office, September 22. It is believed his death was due to an overdose of medicine.

William Henry Campbell, Pueblo, Colo.; Rush Medical College, 1897; aged 51; a member of the Colorado State Medical Society; formerly health officer of Pueblo, and president of the Pueblo County Medical Society; coroner of Pueblo County; died at St. Mary's Hospital, Pueblo, September 18, five days after an operation for appendicitis.

André Rose Girard, West Columbia, W. Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 55; who entered the Army at the entrance of the United States into war, and was honorably discharged as lieutenant, M. R. C., Dec. 12, 1918, on account of physical disability; died at his home, September 23, from diabetes.

Robert Agedius Krost \* Chicago; Northwestern University Medical School, Chicago, 1905; aged 29; assistant professor of pediatrics in his alma mater, and attending pediatrician to Wesley Memorial Hospital, Chicago; died in that institution, October 4, from septic pneumonia following an abscess of the nose.

Curtis Austin, Bagdad, Ky.; Louisville (Ky.) Medical College, 1883; aged 59; a member of the Kentucky State Medical Association; formerly a member of the state board of health; local surgeon of the Louisville and Nashville system; died at his home, August 15, from acute gastritis.

James H. Bristol, Portland, Ore.; Willamette University, Salem, Ore., 1895; aged 51; a member of the Oregon State Medical Association; who was taken ill in the operating room of Selwood Hospital, Portland, September 1; died in that institution, September 11.

\* Indicates "Fellow" of the American Medical Association.

**Thomas A. Kurr**, Fredericksburg, Pa.; Baltimore Medical College, 1902; aged 42; a member of the Medical Society of the State of Pennsylvania, and a specialist in pediatrics; died in the Good Samaritan Hospital, Lebanon, Pa., September 20, from heart disease.

**Adrian Reginald Karreman**, Chicago; University of Michigan, Ann Arbor, 1888; Rush Medical College, 1889; University of Illinois, Chicago, 1890; aged 51; a member of the Illinois State Medical Society; was murdered at his home in Chicago, September 29.

**Smith H. Hess**, Sioux City, Iowa; Rush Medical College, 1865; aged 75; for many years a wholesale druggist of Sioux City; died in the Presbyterian Hospital, Chicago, September 13, from embolism, three days after prostatectomy.

**William Alexander Sympton**, Glasgow Junction, Ky.; University of Tennessee, Nashville, 1892; aged 53; a member of the Kentucky State Medical Association; died at his home, September 4, from chronic interstitial nephritis.

**Jacob G. Streets**, Bridgeton, N. J.; Hahnemann Medical College, Philadelphia, 1866; aged 74; for many years a member of the local board of education; died at his home, September 17, from cerebral hemorrhage.

**Louis Frederick Psotta**, Washington, D. C.; College of Physicians and Surgeons in the City of New York, 1895; aged 51; died in the Emergency Hospital, Washington, D. C., August 9, from angina pectoris.

**Orville McLeod Smith**, Palmyra, Va. (license, nongraduate, Virginia, 1890); aged 51; a member of the Medical Society of Virginia; died at his home, September 16, from chronic disease of the stomach.

**Hiram T. Chapin**, Pittsboro, N. C.; Louisville (Ky.) Medical College, 1886; aged 61; a member of the Medical Society of the State of North Carolina; died at his home, August 31, from cerebral hemorrhage.

**William Clayton Pendergrass**, Clovis, Calif.; Vanderbilt University, Nashville, Tenn., 1899; aged 55; a member of the Clovis City Council; died at his home, September 22, from cerebral hemorrhage.

**James Wilson Cormany**, Mount Carroll, Ill.; Miami Medical College, 1873; aged 70; also a dentist; at one time mayor of Mount Carroll; died in Los Angeles, September 10, from cerebral hemorrhage.

**J. D. R. Williams**, Cardinal, Ont.; University of Victoria College, Cobourg, Ont., 1856; aged 86; at one time acting editor of the *Toronto Globe*; died at his home, August 2, from senile debility.

**Eli Hollingshead**, Seattle; Eclectic Medical Institute, Cincinnati, 1872; aged 86; a pioneer practitioner of Waterville, Wash.; died at the home of his daughter in Seattle, September 11.

**Charles W. Thompson**, Clearmont, Wyo.; Ohio Medical University, Columbus, 1896; aged 62; died at the home of his daughter in Cambridge, Ohio, September 17, from chronic nephritis.

**Axel F. Blomburgh**, Minneapolis; Minneapolis College of Physicians and Surgeons, 1897; aged 52; died at his home, September 7, from carcinoma of the throat.

**Matthew L. Bennett** \* Watkins, N. Y.; Geneva (N. Y.) Medical College, 1866; aged 73; a specialist in surgery; died at his home, August 6, from angina pectoris.

**Wilton R. Stuart**, White Post, Va.; College of Physicians and Surgeons, Baltimore, 1880; aged 64; died at his home, July 24 from cerebral hemorrhage.

**George S. Brigham**, St. Cloud, Minn.; University of Vermont, Burlington, 1870; aged 74; died at his home, August 30, from infection following influenza.

**Morris W. Fellman**, Philadelphia; University of Pennsylvania, Philadelphia, 1894; aged 45; died at his home, September 22, from heart disease.

**Andrew Jackson Dern**, Redlands, Calif.; Eclectic Medical Institute, Cincinnati, 1885; aged 66; died at his home, September 2, from asthma.

**Andrew W. Moore**, Fayette, Mo.; Washington University, St. Louis, 1882; aged 74; died at his home, August 18, from chronic nephritis.

**Mahlon B. Dill** \* Perkasic, Pa.; Jefferson Medical College, 1881; aged 67; died at his home, September 25, from cerebral hemorrhage.

**J. N. Murdock**, Leicester, Mass.; aged 92; who went into business two years after graduation; died at his home, June 12.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### MORE MISBRANDED NOSTRUMS

"Rubino Healing Springs Lithia Water."—The Rubino Healing Springs Co., Hot Springs, Va., shipped in June, 1917, a quantity of "Rubino Healing Springs Lithia Water" into Connecticut. This was another of the so-called "lithia waters" which contained practically no lithium. The product was declared misbranded, first because of the false and misleading statements that it was a lithia water when, in fact, it "did not contain a sufficient quantity of lithium to entitle it to be called lithia water" and, second, because of the false and fraudulent claim that it was effective as a treatment for rheumatism and gout. The court entered a judgment of condemnation and forfeiture and ordered that the product should be released to the claimant on payment of the costs and the execution of a bond.—[*Notice of Judgment No. 6005; issued June 17, 1918.*]

"Kuhn's Rheumatic Remedy."—A quantity of this preparation was shipped in November, 1916, by the Kuhn Remedy Company of Chicago. Samples analyzed by the federal



chemists showed the product to be a water-alcohol solution containing essentially potassium iodide, iodine and sugar with indications of small amounts of plant material and aromatics. These findings essentially confirmed those of the state chemists of New Hampshire and North Dakota who reported on the stuff in 1914 and 1916, respectively. The preparation was declared misbranded in that it was falsely and fraudulently sold under the claim that it was a cure for all forms of rheumatism, neuralgia, blood diseases, lumbago, etc., "when in truth and in fact it was not." It was also falsely and fraudulently represented as a preventive of organic heart troubles resulting from rheumatism. In June, 1918, the company pleaded guilty and was fined \$200 and costs.—[*Notice of Judgment No. 6392; issued Sept. 8, 1919.*]

"Lower's Pure Blood Remedy."—Robert H. Lower of Hot Springs, Ark., shipped, in October, 1916, a quantity of "Lower's Hot Springs Pure Blood Remedy." This was analyzed in the Bureau of Chemistry and found to be a weak alcoholic solution containing sugars, small amounts of chlorides, iodides and sulphates (probably as the sodium salts) and vegetable extractives among which were podophyllum and an atropin-bearing drug. The stuff was falsely and fraudulently represented as a treatment or remedy for syphilis, paralysis, catarrh, eczema, malaria, chancroids, sciatia, all kinds of rheumatism and all blood and skin diseases. In June, 1918, Lower pleaded guilty and was fined \$10.—[*Notice of Judgment No. 6353; issued Sept. 8, 1919.*]

"Schade's Specific and Female Regulator."—In January, 1917, Erna D. Schade, who did business as Herman Schade, Chicago, shipped in interstate commerce, a quantity of "Schade's Specific and Female Regulator." In January, 1918,

formation in the case was filed against Schade by the federal authorities in the charge that the product was misbranded. The government chemists reported that the preparation was a water alcohol solution containing chiefly sugar, gummies, essential oils, licorice, and bitter plant extractives. It contained 12.84 per cent of alcohol by volume, but the label declared the presence of 45 per cent of alcohol. The government authorities declared that the claims made for the preparation, to the effect that it was a remedy for retarded, suppressed, irregular, painful and imperfect menstruation, miscarriage, leucorrhoea, "palpitation of the heart," ulceration of the womb, sore breasts, etc., and the further claim that it was a regulator of the "monthly courses," as well as a remedy for hysteria and falling of the womb, were false and fraudulent. In June, 1918, Erna D. Schade pleaded guilty and was fined \$100 cos's.—[*Notice of Judgment No. 422, issued July 20, 1919.*]

## Correspondence

### "PROTEOGENS": DR. BROEMAN REPORTS RESULTS NIL

*To the Editor:*—In the September 27 issue of THE JOURNAL my name was mentioned in connection with the Merrell Chemical Company's "Proteogens" in the treatment of syphilis. The Merrell Chemical Company promised not to use my name at any time in connection with their "Proteogens" injection and they know that the use of my name has been distinctly against my wishes. I feel that in justice to myself, as well as the public, I should report the result of my experiments with their "Proteogens" in private practice.

In explanation I might say that I began the use of their "Proteogens" in April, 1918, and I feel that I now have enough data to give a complete report. I might say that all my results have been practically nil; particularly is this true in my cases of syphilis which all had a four plus Wassermann reaction when I discontinued using this form of treatment.

Very truly yours,

C. J. BROEMAN, M.D., Cincinnati.

[COMMENT.—In connection with the above letter read page 1000 of THE JOURNAL, two weeks ago, September 27.—Ed.]

### "THE INHERITANCE OF ACQUIRED CHARACTERS"

*To the Editor:*—Although you have distinguished company in complaining of the dismal rigidity of the mendelian law, the authors quoted in your editorial of September 13 on this subject are not at all convincing. Their arguments appear to me to be puerile in more ways than one. Fischer says that the children of older parents are apt to be greater intellectually than the children of young parents, therefore they have inherited acquired intellectual characteristics. Was there ever a more typical post hoc ergo propter hoc argument? I doubt whether it would be possible to collect reliable statistics bearing on the question; but, granting the truth of the original statement, what ground is there for Fischer's conclusion? It is analogous to, and just as fallacious as, the old belief in the inheritance of tuberculosis. In both instances the result is due to environment. Of course the children of older and wiser parents are apt to have a broader and less impeding environment than the children of young and over-conscientious couples who are lacking in poise and experience and who frequently suppress or warp the child ego. On the other hand, we have the sad examples of the children of fussy and unpractical old intellectuals in comparison with the children of cheerful, upright, easy-going young people.

Furthermore, I have never seen any grounds for discouragement in the comparative slowness of evolutionary processes as applied to man. Such an attitude seems to be due to a lack of appreciation of the facts. Development through

heredity has no direct relation to the development of the individual; it is the slow conservative method by which minute changes are tried out over long periods of time. It will not yield in the least to the hurry and impatience of modern America.

The brilliancy of the concept of selective evolution has so dazzled the minds of two generations that the relative importance of environment has been overlooked. As a result, heredity has been made the scapegoat for many of the ills actually due to defects in the present social organization. Here again tuberculosis is one of the most striking examples. The individual man is endowed by heredity with possibilities of development so far beyond actual accomplishment that it is as futile to ask for more as for the small boy already glutted with food to cry for more cake. We can change our environment—in the broad sense of the word—as completely as we can change our clothes. Read "Sartor Resartus" once more and be comforted.

LOUIS C. AGER, M.D., Brooklyn.

### POISONING FROM EATING CANNED RHUBARB STEMS

*To the Editor:*—A recent your comment on "Death from Rhubarb Leaves Due to Oxalic Acid Poisoning" (THE JOURNAL, Sept. 20, 1919, p. 928), I wish to place on record ten cases of poisoning from eating rhubarb stems. These were of the peak of 1917—whether early or late canning could not be ascertained. In one family of ten, nine had eaten of the rhubarb. The ages ranged from 2 years to 86; all the patients were violently ill; two, who had had two helpings, had convulsions. The symptoms in all came on within twenty minutes of each other and about two hours after eating. Free use was made of the stomach pump, followed by lime water, and also castor oil. All the patients recovered. This point was evident to me: that the ones who were first treated with use of the stomach pump recovered most promptly. The mother, who had not partaken of the rhubarb, had no symptoms. One other patient in another family two weeks later had similar symptoms from eating rhubarb and promptly recovered. Samples of this rhubarb were sent to our state laboratory. The report was that the samples submitted contained approximately the normal amount of oxalic derivatives.

HARRY W. BENSON, M.D., Oakland, Neb.

### STERILIZE THE THERMOMETER

*To the Editor:*—In view of the possible return of influenza, may I call attention to a matter of hygiene which all consider of importance: I refer particularly to the necessity of thorough sterilization of the fever thermometer.

It is unfortunately still the custom in many hospitals to sterilize thermometers by standing them upright in a solution of mercuric chlorid, phenol (carbolic acid) or alcohol, a solution which is often not deep enough to cover more than half the length of the tube. Before use, each thermometer is hastily wiped off in one motion with a piece of gauze or cotton, starting at the top, the unclean end.

While our knowledge of influenza is what it is, it seems important that we should work and plan on the basis of things known. We know that the pathologic process in the lungs is partly due to gram-positive organisms variously reported staphylococci, streptococci and pneumococci. The variety of these secondary organisms determines the type of lesion.

At Camp Johnston I found pneumococci in the sputum and in the lungs at necropsy of influenzal pneumonia patients, pneumococci which were usually of Type IV, rarely of Type III, and hardly ever of Type I or Type II. Occasionally staphylococci took the place of pneumococci. The influenza bacillus was isolated in a large percentage of the cases.

What impressed me in following the clinical course of the disease was the frequent sudden change for worse in patients who had been admitted mildly ill a few days previously.

Were not some terminal infections contracted in hospitals? It seems possible. Improper sterilization of thermometers may have been one mode of infection.

We need a Semmelweis in influenza to teach us that the nose and mouth of influenza patients should be treated with somewhat the same respect as the genital tract at the puerperium, for it seems improbable that all the infections with gram-positive organisms in influenza come from organisms normally established in each patient's mouth, in view of the fact that the gram-positive organisms that predominate differ in different hospitals. One is inclined to believe that these secondary infections came from other patients. It would seem well, then, to guard the nose and mouth of influenza patients.

Perhaps it is unfair to criticize hospital methods of sterilizing thermometers when most physicians still clean their pocket thermometers by immersion under the tap or by dipping them into a glass of water. Thermometers to be cleaned ought to be laid flat in an antiseptic solution.

RICHARD E. STIFEL, M.D., Cleveland.

## Medical Education, Registration and Hospital Service

### COMING EXAMINATIONS

- ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. I. Stout, Brinkley. Sec. Elective Board, Dr. Claude E. Laws, 803 1/2 Garrison Ave., Fort Smith.
- CALIFORNIA: Sacramento, Oct. 20-23. Sec. Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.
- CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Elective Board, Dr. James E. Hair, 730 State St., Bridgeport.
- DISTRICT OF COLUMBIA: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
- GEORGIA: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.
- KANSAS: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.
- LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.
- MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
- MICHIGAN: Lansing, Oct. 14-16. Sec., Dr. B. D. Harrison, 504 Washington Arcade, Detroit.
- NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Leimbhoff, 514 First Nat'l Bank Bldg., Lincoln.
- NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.
- NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.
- NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.
- SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
- TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bennettcourt, Mart.
- WEST VIRGINIA: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### SANITATION OF SWIMMING POOLS

To the Editor.—Leading opinions are urgently sought: 1. In regard to the comparative germicidal efficiency of liquid chlorin and the ultraviolet ray, as found in the actual operation of these methods on swimming pool water.

2. Will the presence in the water of 1 part of chlorin (available) to 1,000,000 of water cause smarting of the eyes, offensive smell, etc.?

3. Is the fact that the chlorin acts on the bacteria in the water all the time, and that the violet ray acts only as the water passes the mercury lamp (and not in the pool), an important or a negligible factor?

4. What is the highest number of bacteria (nonpathogenic) that may be found per cubic centimeter and the water still considered clean and safe for swimmers? R. P. S.

ANSWER.—1. It is not possible to make a precise statement regarding comparative germicidal efficiency of liquid chlorin and the ultraviolet ray, as the conditions under which these agents are effective vary widely in actual practice. As well known, a turbid water is not suitable for the latter mode of treatment. The efficiency of liquid chlorin as a germicide is naturally determined by the strength employed as well as by the amount of organic matter in the water.

2. It is possible that one part of available chlorin to 1,000,000 of water may cause smarting of the eyes in some persons; but this is a point very difficult to determine, since the same water without the chlorin may cause smarting under certain conditions. It seems to be true that in some individuals, at least, water containing the stated amount of chlorin causes no smarting of the eyes when applied in the ordinary way. Even a small amount of chlorin may impart an odor to water which is unpleasant to some people. Suggestion and imagination, however, play a large part in the annoyance experienced from this source.

3. These points are important under some conditions, and negligible under others.

4. So far as we know, no standard for the bacterial content of swimming pool water has ever been adopted.

In general, the treatment of swimming pool water does not seem to be practiced in a uniform manner in different communities, and the results of experimental work are not unambiguous. There is no doubt that it has proved difficult to maintain the delicate balance between disagreeable odors and bacterial purity in some instances in which chlorin or chlorin compounds are used. Careful supervision of chlorin application is essential. Manheimer (*Pub. Health Rep.* 33:267 [March 1] 1918) states that ultraviolet light in actual practice has proved ineffective.

### Massachusetts May Examination

Dr. Walter P. Bowers, secretary of the Massachusetts State Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, May 13-15, 1919. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 23 passed, and 6, including 2 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Pct.	
Pacific Medical College	.....	(1914)	81.1	
Chicago Hospital College of Medicine	.....	(1918)	76.2	
Rush Medical College	.....	(1901)	75.0	
Medical School of Maryland	.....	(1910)	75.0	
Baltimore Medical College	.....	(1905)	75.0	
Boston University	.....	(1919)	76.0	
College of Physicians and Surgeons, Boston	.....	(1915)	75.0	
Harvard University (1915)	82.0 (1916)	76.7, 78.7, 83.0		
Tufts College Medical School (1917)	78.9, (1918)	79.1, (1919)	76.7	
	77.5, 77.5			
Columbia University	.....	(1898)	75, (1914)	81
Long Island College Hospital	.....	(1908)	75	
Syracuse University	.....	(1916)	85.5	
Woman's Medical College of Pennsylvania	.....	(1912)	76.9	
University of Vermont	.....	(1903)	79.5, (1914)	75
	FAILED			
Chicago Hospital College of Medicine	.....	(1917)	70.8	
College of Physicians and Surgeons, Boston	.....	(1916)	71.5	
Middlesex College of Medicine and Surgery	.....	(1918)	72.7	
Laval University	.....	(1917)	72	

### Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, June 3-6, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 130 candidates examined, 128 passed and 2 failed. Twenty-five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Pct.
Cornell University	.....	(1918)	87.1
Atlanta Medical College	.....	(1908)	76.3
Northern University	.....	(1902)	80.8
Southwestern Homeopathic Medical College	.....	(1908)	76.2
Johns Hopkins University	.....	(1918)	81.5, 85.8
Harvard University	.....	(1919)	86.4
Eclectic Medical College, Cincinnati (1919)	71.1	75.5, 76.6	77.5
	79.2, 80.8, 81.2, 81.5, 82.1, 80.6, 83.7, 81.3, 83.6, 83.9, 84.2, 84.6,		
	85.1, 85.5, 85.7, 85.8, 86.7, 87, 89, 91, 89.7		
Ohio State University College of Homeopathic Medicine (1919)	78.6,		
	81.3, 81.1, 82.9, 83.1, 83.6, 85.5, 85.8, 86.6		

Ohio State University College of Medicine (1919)	81.1	83.1	83.9
84.2, 84.4, 84.7, 85, 85.5, 85.6, 85.6, 85.7, 85.8, 87.4, 89.9, 90.5, 91.3			
University of Cincinnati (1919)	78, 79.5, 80.2, 81.5, 81.9, 81.9, 82.3, 82.3, 82.7, 82.8, 82.8, 84.1, 84.5, 84.9, 85.8, 86, 86.0, 87.5, 87.5, 87.7, 88.9, 9, 89.4, 90.1		
Western Reserve University (1919)	82.8, 83, 83, 83.1, 83.6, 83.7, 84.1, 84.2, 84.5, 84.8, 85, 85.3, 85.3, 85.7, 85.8, 85.9, 86, 86, 86.9, 86.1, 87.8, 88.7, 88.7, 89.3, 87.4, 87.4, 87.4, 87.5, 87.5, 87.7, 87.9, 87.9, 88.1, 88.1, 88.5, 88.9, 89.1, 89.3, 89.6, 89.6, 89.9		
University of Oklahoma	(1918)	82.1	
University of Maryland	(1882) *60.5, (1917) 83.3, (1918) 93.9, 84.4		
University of Pittsburgh	(1919)	81.3	
Vanderbilt University	(1918)	85.2	
Western University	(1904)	79.6	
FAILED			
Ecletic Medical College, Cincinnati	(1918)	72.3	
Medical College of Virginia	(1918)	73	
LICENSED THROUGH RECIPROCITY			
Chicago College of Medicine and Surgery	(1915)	Illinois	
Henneman Medical College, Chicago	(1915)	Illinois	
Ross Medical College	(1910)	Illinois	
Ross Medical College	(1917)	Illinois	
University of Louisville	(1908)	Michigan	
Medical School of Maine	(1894)	Maine	
Johns Hopkins University	(1917, 2)	Maryland	
University of Maryland	(1907)	Maryland	
University of Michigan Medical School	(1917)	Michigan	
St. Louis University School of Medicine	(1918)	Missouri	
University Medical College of Kansas City	(1912)	Missouri	
Cornell University	(1917)	New York	
Cornell University	(1916)	New York	
Ecletic Medical College of the City of New York	(1896)	New York	
Long Island College Hospital	(1918)	New York	
New York Homeopathic Medical College	(1912)	Maine	
Ecletic Medical College, Cincinnati	(1917)	Kentucky	
Ecletic Medical Institute, Cincinnati	(1899)	Indiana	
University of Pennsylvania	(1910)	Penna.	
University of Pittsburgh	(1910)	Penna.	
Wagner Medical College of Pennsylvania	(1913)	Penna.	
Meharry Medical College	(1905)	Alabama	
Medical College of Virginia	(1915)	W. Virginia	
University College of Medicine, Richmond	(1901)	Virginia	

\* Fifteen per cent. allowed for years of practice.

Mississippi June Examination

Dr. W. S. Leathers, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 24-25, 1919. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 18 passed and 3 failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	No. Licensed
University of Alabama	(1907), (1919)	2
Bennett Medical College	(1915)	1
Tufts University	(1910)	6
Jefferson Medical College	(1919)	2
University of Tennessee	(1919)	3
University of Virginia	(1912), (1919, 3)	4
FAILED		
Meharry Medical College	(1917), (1918)	2
Memphis Hospital Medical College	(1911)	1

College	Year Grad.	No. Licensed	Reciprocity with
Medical College of Alabama	(1913)	2	Alabama
University of Alabama	(1909)	1	Alabama
Kentucky University	(1905)	1	Texas
Louisville and Hospital Medical College	(1908)	1	Oklahoma
University of Louisville	(1915)	1	Kentucky
Tufts University	(1910), (1919)	2	Louisiana
College of Physicians and Surgeons, Baltimore	(1910)	1	Tennessee
Mississippi Medical College	(1910)	1	Tennessee
New York Homeopathic Medical College and Hospital	(1889)	1	Penna.
Ecletic Medical Institute	(1894)	1	Kentucky
Memphis Hospital Medical College (1898)	Tennessee	(1904)	Louisiana
University of Tennessee	(1910), (1913)	2	Tennessee
University of Tennessee	(1917, 2), (1918)	2	Arkansas
Vanderbilt University	(1904)	1	Tennessee
University of Virginia	(1915)	1	Virginia

Connecticut July Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written and practical examination held at New Haven, July 8-9, 1919. The examination covered 7 subjects, and included 70 questions. An average of 75 per cent. was required to pass. Of the 50 candidates examined, 41 passed and 9 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University	(1915) 82.6, (1917) 90.6, (1919) 84.2, 84.6, 86.4, 86.9, 87.7, 9.8, 92.1, 93.2.		
Connecticut University	(1917)	80.7, 83.9	
College of Phys. and Surgs., Baltimore	(1915)	84.9	

Johns Hopkins University	(1917) 84.1, (1914)	87.4
Harvard University	(1904) 77.1, (1918) 83.2, (1919)	90.6
Tufts College Medical School (1910)	78.6, (1917) 88.7, (1919)	85.5
Columbia University	(1919) 83.8, 84.7, 84.7, 84.8, 85.7, 86.6,	92.4
Cornell University (1900)	74.7, (1916) 75.1, (1918) 87.9, (1919)	90.3
Lordian University	(1916) 83.8, (1919)	88.7
Long Island College Hospital	(1915) 85.5, (1918) 87.6, (1919)	87.3
Jefferson Medical College	(1916) 77, (1919)	76.3
University of Nashville	(1906)	72.3
McColl University	(1919)	75.4
FAILED		
College of Phys and Surgs., Baltimore	(1910)	57.5
University of Maryland	(1917)	73.1
Tufts College Medical School	(1919)	70.8
Fordham University	(1918)	69.3
Jefferson Medical College	(1907)	60.5
Meharry Medical College	(1913)	60.2
Medical College of Virginia	(1917)	63.1
University of Vermont	(1915)	69.7
Milwaukee Medical College	(1903)	62.3

\* Fifteen per cent. allowed for years of practice.  
\*\* Ten per cent. allowed for years of practice.

Dr. James E. Hair, secretary of the Connecticut Eclectic Medical Examining Board, reports that one candidate, a graduate of Kansas City College of Medicine and Surgery, in 1917, was licensed through reciprocity with Arkansas, March 11, 1919.

Indiana Reciprocity Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports that 9 candidates were licensed by reciprocity from May 5, 1919, to July 29, 1919. The following colleges were represented:

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Illinois
Hahnemann Medical College, Chicago	(1916)	Illinois
University of Illinois	(1917)	Illinois
University of Louisville	(1908)	Illinois
Columbia University	(1918)	New York
Jefferson Medical College	(1908)	Virginia
University of Pennsylvania	(1902)	Penna.
Meharry Medical College	(1913)	Tennessee
Vanderbilt University	(1909)	Kentucky

Book Notices

THE OPERATIONS OF OBSTETRICS, EMBRACING THE SURGICAL PROCEDURES AND MANAGEMENT OF THE MORE SERIOUS COMPLICATIONS. By Frederick Elmer Leavitt, M.D., Obstetrician to the City and County Hospital, St. Paul, Minn. Cloth. Price, \$6. Pp. 406, with 248 illustrations. St. Louis: C. V. Mosby Company, 1919.

The merit of this work lies in the fact that it is devoted entirely to an exclusive field of surgery which heretofore has not received sufficient attention in the college curriculum. Obstetric emergencies call for immediate action, if the patient's life is to be saved. This presupposes a cool head, and a knowledge of just what to do. There is usually no time to read up or to call a consultant. While it is true that standard textbooks on obstetrics deal with operative methods, the grouping of the subject in a separate book has the merit of emphasis in this important field of practice. The arrangement of the subject-matter is logical, and the treatment quite up to date. The illustrations, by the author himself, are adequate.

A LABORATORY OUTLINE OF EMBRYOLOGY WITH SPECIAL REFERENCE TO THE CHICK AND THE PIG. By Frank R. Lillie, Professor of Embryology, and Carl R. Moore, Instructor in Zoology, University of Chicago. Pp. 66. Price, postpaid, 38 cents. Chicago: University of Chicago Press, 1919.

This publication, which has gone through several revisions, has served for the study of embryology by medical students. The writers believe that a course in embryology for medical students can be presented more effectively by studying the development of each organ system separately than by consideration of the entire embryo at time intervals. This book gives methods of study and outlines the course in embryology specifying the number of hours to be devoted to each phase, the entire course being intended to cover sixty hours. The outlines have been employed in the medical course at the University of Chicago during eight quarters. It is believed that they will prove useful in other institutions.

**Social Medicine, Medical Economics  
and Miscellany**

**ESTIMATING THE RATE OF SYPHILITIC  
INFECTIONS IN THE UNITED STATES**

BENJAMIN MALZBERG

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Hygiene Board  
NEW YORK

No problem in public health is of greater importance than the control of syphilis. No other disease requires more insistently the organization of proper agencies to cope with it. Yet the very fundamental of a preventive campaign, an accurate knowledge of the exact prevalence of syphilis, is nowhere to be found. Prevention must be grounded on a knowledge, first, of who is diseased, and, secondly, of how many are diseased. The first is obvious, for how can isolation of the diseased person be enforced and how can follow-up work be maintained, if the very elementary knowledge of who is diseased is lacking? How can action be taken toward the formulation of a plan and organization for the prevention of the spread of disease, unless health bodies have an accurate knowledge of the size of the problem? Mere assumption or a guess as to the prevalence of syphilis is a very unsafe foundation on which to work. It is true that there are numerous estimates as to the prevalence of syphilis, not only in the United States, but also in Europe. But as to results there is very little agreement. This in itself is no indication of error, for it might very well be that the rate of syphilitic infection fluctuates widely, not only for different places, but for different periods of time as well. What is of deep concern, however, is the fact that not a single estimate of the prevalence of syphilis in the general population can stand the test of examination. The estimate is usually high or low, being dependent on the idiosyncrasies and prejudices of the writer. If he is an alarmist, who, because of long specialization, cannot see the woods because of the trees, then he alleges that every other male adult will be infected some time in his life. On the other hand, should the writer be possessed of a conservative spirit, then he will report the rate of infection as small.

For many years it has been the custom to quote and requote a limited number of authorities. Thus, Morrow in

TABLE 1. TOTAL CASES OF SYPHILIS AND OF GONORRHEA REPORTED IN THE CITY OF NEW YORK\*

Year	Syphilis	Gonorrhoea
1912	2,124	2,418
1913	10,623	6,883
1914	21,128	9,526
1915	17,385	9,709
1916	20,128	6,221
1917	20,478	8,312
1918	17,320	6,358
Total	108,836	49,427

\*Weekly Bulletin, Department of Health, City of New York, May 24, 1919, p. 162.

the United States, Fournier in France, and Blascko in Germany have been the sponsors for most of the well-known estimates. We are told that from 10 per cent. to 20 per cent. of the adult population of New York City is infected with syphilis; that 15 per cent. of the Parisian population is similarly diseased; that 45 per cent. of Berlin clerks between the ages of 18 and 28 are syphilitic, or that from 40 per cent. to 60 per cent. of males will be infected some time in the course of their lives. The time certainly has come when such statistics should be either verified or discarded. If in the present state it is impossible to arrive at any estimate concerning the prevalence of syphilis, the fact should be frankly admitted. To quote continually data that are of doubtful value, to say the least, is not a hopeful augur of future success. It is well, therefore, to clear the ground for a thorough analysis of the problem. Let us desist in

the future from the method of amassing a heterogeneous conglomeration of statistics from all over the world, and attempting the well-nigh hopeless task of generalizing from such results.

STATISTICAL METHODS

What are the methods, then, by which accurate results may be achieved? They may all be reduced, fundamentally, to two methods of procedure: The first is the collection and tabulation of cases of syphilis, and the morbidity rate therefrom, by the state and local bureaus of vital statistics. The second is the examination of a cross-section of the population. The former is obviously the more logical method. It is supplementary to the collection of mortality statistics. From the point of view of the statistician, neither set of data would be complete without the other. It would not be fair to state that this is not well recognized by the health

TABLE 2.—TOTAL CASES OF SYPHILIS REPORTED AND RATE OF INFECTION\*

City	Estimated Population July 1, 1916	Cases Reported	Rate per 1,000 Inhabitant
Cleveland	674,073	257	.381
Los Angeles	503,812	342	.679
New York	5,602,841	20,128	3.592
Pittsburgh	579,090	21	.036
Buffalo	468,558	1,788	3.816
Cincinnati	410,476	159	.387
Columbus, Ohio	214,878	5	
Rochester, N. Y.	256,417	130	.507
Dayton, Ohio	127,224	4	
Des Moines, Iowa	101,598	18	.177
Hartford, Conn.	119,900	81	.730
Oakland, Calif.	198,004	7	
Spokane, Wash.	150,323	9	.060
Toledo, Ohio	191,554	172	.898
Youngstown, Ohio	108,385	26	.240

\*The Notifiable Diseases: Prevalence During 1916 in Cities of Over 100,000, Pub. Health Rep. 32: 595 (April 27) 1917.

authorities, for a survey of health regulations throughout the country would at once show a long list of state and municipalities that require the reporting of cases of venereal disease. Yet, that the results therefrom are utterly valueless is well known and admitted by all concerned. At least, the only exception I have come across is the statement of the director of the Bureau of Venereal Disease of the North Dakota State Board of Health, to the effect that "physicians of the state are, as a rule, faithfully complying with the law in reporting cases of venereal disease to the bureau." To the contrary, it is a commonplace that physicians invariably refuse to report cases of syphilis. This attitude results, first, from a failure to recognize the value of morbidity statistics and, secondly, from a desire to protect the patient from any social and moral stigma that may be attached to a venereal disease. However, whatever the motive may be in any particular case, the result is that but a very slight proportion of syphilitic cases are ever reported to the health authorities. This failure is so well known that no effort whatever is made to enforce the law in relation to the reporting of venereal diseases. In New York City an effort is being made to encourage voluntary reporting of cases by the physicians, by offering them the facilities of the health department laboratories in examining and diagnosing blood specimens. Yet despite this, the morbidity rate for syphilis for New York City for the year 1918 would be only 0.3 per cent. if the number of cases reported by the health department were to be accepted at their face value. Nothing exposes the failure to report venereal disease so much as a glance at the figures themselves. For New York City the totals are as given in Table 1.

Physicians and statisticians all know that there must be a far greater rate of infection from gonorrhoea than from syphilis, yet for the period of 1912 to 1913, the ratio of syphilis to gonorrhoea as reported to the New York City Health Department was, roughly, 2.1, a complete reversal of a well established fact. Of course the health department does not pretend that its figures are truly descriptive of New York City.

1. Bull. North Dakota State Board of Health, April, 1919, p. 9.

The fallacy involved in reasoning from the reported cases is further demonstrated, in Table 2, in which the rates show not only that the cases reported are far from the total number of infections, but also that the accuracy of what little notification we have varies widely from city to city. Thus, we find that a method which could give us relatively exact results, if properly utilized, leads us into absurdities when cooperation between the health bodies and practicing physicians breaks down.

#### THE QUESTIONNAIRE

Several attempts have been made to arrive at an estimate by the use of the questionnaire method. Thus a special committee of the New York County Medical Association estimated in 1901 that there were 200,000 cases of syphilis in the city. This result was obtained by analyzing the results received from physicians who were requested to state how many syphilitic patients they had treated during the year. This method is subject to so many errors that the result ought surely to be discarded. In the first place, many of those infected will not report for treatment, trying some self-cure or patented methods instead. In the second place, syphilis has been a choice field for the quack, who would be the last individual to give facts concerning the size of his practice. Then, again, many of the reputable physicians will always fail to reply to a questionnaire. The method of correction usually pursued is to credit them with a number of cases in proportion to the total reported by the other physicians. But is it not apparent that the physicians replying are more likely to be those who specialize to some extent in this field and who will, therefore, be visited by a larger proportion of such patients? To these sources of error we may add that arising from duplication. In view of these facts, any estimate thus established must be rejected, unless associated with other very weighty evidence.

Thus, in whatever form the reporting method is used, it is seen to result in failure. It might be argued, however, that it is possible to estimate the morbidity rate for syphilis by utilizing the death rate. This follows directly from the relation between the death and morbidity rates. Thus, if the death rate is multiplied by the inverse of the lethal rate, the result will be the morbidity rate for the given disease. The difficulties in estimating the death rate are similar to those encountered in estimating the morbidity rate. The physician making out the death certificate, in other words, disguises the real cause of death by naming a secondary symptom. It is possible, however, to evaluate with some degree of accuracy the true death rate for syphilis, by correcting for secondary causes.<sup>2</sup> But as the lethal rate for syphilis is an absolutely unknown quantity, it is impossible to pursue the method further. And again, even though the latter could be discovered, one could not be sure as to which year a death ought to be ascribed, as it might result from an infection as old as twenty years.

#### EXAMINATION OF A CROSS-SECTION

There remains, then, but one other method, the examination of a sample population which must be a true cross-section and representative of every element in the population. One cannot assume, for example, that because 6.4 per cent. of the applicants for a license to peddle in New York City are syphilitic, the same is true of the total population, or that there is a high rate of infection among women in New York City because 40.8 per cent. of the inmates of Bedford Reformatory were found infected.<sup>3</sup> These groups are specially selected and in no way typical of the general population. The same is true of hospital populations, though they approach more nearly the general population in character. Thus, among 18,187 hospital patients coming from all social and industrial classes, and examined at random in twenty hospitals, 19.6 per cent. were found to be syphilitic.<sup>4</sup> But it

would be futile to infer from this that the rate of infection is as high in the general population, because the former class was selected in two ways. In the first place, a hospital group differs in age distribution from the general population and, in the second place, it is undoubtedly selected indirectly through the secondary effects of syphilis, which may attack any organ of the body and cause diseases that are not at first diagnosed as syphilitic. In order to arrive at a reasonable estimate, it is essential, therefore, that a group be examined which is apparently in good health.

Such an opportunity was afforded by the National Army, which was drawn practically at random from the male population between the ages of 21 and 31, a period at which infection is most likely. Unfortunately, no Wassermann tests were given, diagnosis being based entirely on obviously pathologic symptoms at the time of examination in camp. The result is shown in the fact that among 911,840 men examined, only 4,027, or 0.44 per cent., were diagnosed as syphilitic. The ratio for all the venereal diseases was 2.25 per cent.

When the second million men in the National Army were examined, the percentage, owing to more experience and, therefore, greater skill in diagnosis, increased to 5.4 per cent. for all venereal diseases. Applying the ratio found in the first draft, this would mean that 1.06 per cent. of the second million were syphilitic. But both estimates are so far from the mark that they are valueless for all practical purposes, as it is not possible to correct for the amount of syphilis that remained undiagnosed. It is interesting to note, however (assuming that the errors in diagnosis were in proportion throughout the country), that the East South Central Division, consisting of the states of Kentucky, Tennessee, Alabama and Mississippi, showed the highest rate of infection. This was followed by the South Atlantic Division, which consists of the states of Delaware, Maryland, Virginia, West Virginia, North and South Carolina, Georgia, Florida and the District of Columbia. These two divisions showed rates of infection far higher than those for any other section of the country. The lowest rate was found in the Pacific Division, consisting of the states of Washington, Oregon and California.

No one can ever guess when again there will be such an opportunity for examining so large a proportion of the population. It is not worth while expressing vain regrets over what might have been accomplished by a thorough survey. It would be better to devise some practicable method of either securing complete notification of cases of syphilitic infection, or else finding another large cross-section of the population suitable for examination. The former is a problem in public education, the results of which will undoubtedly materialize in the future. But we must obtain some ready method for immediate use. As such, I offer the following suggestion: The policy holders and applicants for policies in the large life insurance companies are selected from the entire population of the United States, comprising elements from the poorest to the richest, the most ignorant to the most enlightened. Would it not be an excellent plan, from the point of view of both the public health movement and the life insurance companies, to give every applicant a Wassermann test? It might be objected that the cost involved would be incommensurate with possible results. But Mr. Arthur Hunter, in an address delivered at the eighth annual meeting of the Association of Life Insurance Presidents, showed that when only the better type of cases with a history of syphilis were accepted, there was still an extra mortality of 80 per cent. due to the disease. Consequently, with the expectation of life thus materially reduced, it would be to the advantage of the company to know who are the persons who would make the poorest risks. Such information, when obtained, could be turned over to the proper health authorities, who would then have a basis of fact, rather than speculation, on which to work.

32 Franklin Street.

<sup>2</sup> This the writer has attempted, and the result will be published in the near future by the American Social Hygiene Association.

<sup>3</sup> Weekly Bulletin, Department of Health, City of New York, May 24, 1919, p. 163.

<sup>4</sup> Calculated from Vedder, E. B.: Syphilis and Public Health, Chapter I.

<sup>5</sup> Calculated from the Report of the Surgeon-General, U. S. Army, 1918, p. 209.

## Medicolegal

### Evidence Sustaining Conviction of Murder

(*People v. Card (Calif.)*, 180 Pac. R. 53)

The District Court of Appeal of California, First District, Division 1, in affirming a judgment of conviction of murder in the second degree, charged to have been committed by the defendant in the performance of a criminal abortion, says that the defendant contended that there was not sufficient evidence connecting him with the commission of the crime, and it was true that the deceased went from his offices to an all too speedy death to permit her statement as to what had occurred while she was in his offices to be given in the form of a dying declaration. But the evidence showed that the defendant maintained offices as a physician and surgeon; that there were several connecting rooms, one of which was his private office, and another was his reception room; that between these two rooms was a system of bells so arranged that a button touched in the reception room conveyed the information to the occupant of the private office that a patient was in waiting, and the touching of a button in the private office by its occupant informed the assistant in the reception room that the patient should be sent to the private office; that these responding bells were rung shortly after the deceased and her girl companion were admitted to the defendant's reception room. The evidence further showed that no other physician than the defendant occupied his private office; that when his assistant was thus advised that he was in his private office and ready for the patient, the deceased was directed to his door; that she returned in a few moments to the reception room to get a sum of money, on receiving which she went back into the defendant's private office; that she remained away from the reception room, where her friend remained in waiting, for the space of about an hour, when she was helped into the reception room by one of the defendant's assistants, and there given over to her friend with the instruction that the patient was to be taken to her home or room and given a dose of salts. She was then in a condition indicating to the point of certainty that during the hour spent in the defendant's private office something had been done to her which had destroyed her immediately preceding state of normal health, and left her weak, distressed, hardly able to walk, and bleeding to an extent which within a short while sapped her life. On reaching her room, less than a block away, she had to be put to bed, and there was then found on her a towel identical with those in use in the defendant's office. She died within a very few hours, her death being due to an abortion performed that day. When the defendant was interviewed by a detective officer, shortly after the girl's death, his demeanor, words and actions were very far from those of an innocent man. The court thinks this evidence was sufficient to justify the finding of the jury holding the defendant responsible for the decedent's death by means of a criminal abortion. A rehearing is denied by the Supreme Court of California.

### Valid State Requirements as to the Branding of Foods

(*Corn Products Refining Co. v. Eddy et al. (U. S.)*, 39 Sup. Ct. R. 325)

The Supreme Court of the United States, in affirming a judgment in favor of the defendants, says that they were the members of the state board of health of Kansas, and that the plaintiff sought to enjoin them from interfering with the sale of its proprietary table syrup called "Mary Jane" on the ground that it was misbranded, and in particular from interfering, because of Regulation 6 of the board, with persons dealing in or selling the syrup within the state of Kansas. The syrup, which was manufactured in Illinois, was composed of 85 per cent. corn syrup or glucose, 10 per cent. molasses, and 5 per cent. sorghum, and was sold in cans which bore labels that stated, among other things: "Mary Jane is guaranteed by Corn Products Refining Co. to comply with the Food and Drugs Act, June 30, 1906. Registered under serial number 2317. Mary Jane. A Table Syrup Pre-

pared from Corn Syrup, Molasses and Pure Country Sorghum. Contains Sulphur Dioxide." Regulation 6 of the state board of health, on the effect of which the attack was centered, in the argument before the court, so far as pertinent, reads:

Manufacturers of proprietary foods are required to state upon the label the names and percentages of the materials used, so far as is necessary to secure freedom from adulteration and misbranding: (1) In the case of syrups, the principal label shall state definitely, in conspicuous letters, the percentage of each ingredient, in the case of compounds, mixtures, imitations or blends. When the name of the syrup includes the name of one or more of the ingredients, the preponderating ingredient shall be named first.

It was urged that since the plaintiff's syrup was a proprietary food, made under a secret formula and sold under its own distinctive name, and since it contained no deleterious or injurious ingredients, the effect of the regulation in requiring the plaintiff to disclose on the label the ingredients and their proportions amounted to a taking of its property without due process of law. But evidently the purpose of the requirement was to secure freedom from adulteration and misbranding; the mischief of misbranding being that purchasers may be misled with respect to the wholesomeness or food value of the compound. And it is too plain for argument that a manufacturer or vender has no constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold. The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the state, in the exercise of its police power and in promotion of fair dealing, to require that the nature of the product be fairly set forth.

The question of whether Regulation 6 was within the authority conferred on the state board was a question of state law. But the question of whether Congress has covered the field to the exclusion of state regulation is to be determined by what the act of Congress omits, not by what it contains, and by considering whether, in words or by necessary implication, Congress has prohibited the states from making any regulation in respect of the omitted matter; and the court holds that it has not, so far as the issues involved in this case were concerned. The proviso in Section 8 of the federal act that "nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except so far as the provisions of this act may require to secure freedom from adulteration or misbranding," merely relates to the interpretation of the requirements of the federal act, and does not enlarge its purview or establish a rule as to matters which lie outside its prohibitions.

### Tuberculosis and Injuries—Experts Differing in Opinions

(*Kansas City Southern Ry. Co. v. Akin (Ark.)*, 210 S. W. R. 350)

The Supreme Court of Arkansas affirms a judgment for \$3,000 damages in favor of plaintiff Akin, in this personal injury case wherein he alleged that there had been tubercle bacilli in his system for some time prior to the injuries complained of, but at the time he received such injuries he was in good health and the tuberculous germs were encapsulated, innocuous and inactive; that as a result of the bruises produced by his injuries his strength and vitality were greatly affected, and by reason of his injuries the tuberculous germs became active, and tuberculosis developed in his spermatic cords and testicles; that on account of this tuberculous condition a surgical operation had to be performed, resulting in the removal of his testicles. Several physicians, to whom a hypothetical question was propounded, answered that the injuries caused the condition of tuberculosis found in the plaintiff's testicles and spermatic cord at the time of the operation, when they were removed. The defendant propounded substantially the same question to experts introduced in its behalf, and also other hypothetical questions based on the testimony in its most favorable light from the standpoint of the defendant, and the answer to these questions was in effect that the injuries did not cause

the tuberculosis afterward developed in the plaintiff's testicles. Wherefore counsel for the defendant contended that the issue as to the proximate cause of the tuberculosis in the testicles was put at large in the realm of speculation and conjecture by the testimony of the experts.

Now as to whether or not the plaintiff was afflicted with active tuberculosis in his arm, which was arrested by amputation in 1906; and whether or not the germs of tuberculosis may be arrested, become encapsulated, inactive and innocuous, and remain in this condition in the system for several years, and then, by reason of some injury to the person, be revived and become active and hurtful, the court says were questions which would require scientific knowledge for their correct solution. These were matters beyond the grasp of the ordinary layman, but peculiarly appropriate for expert knowledge and opinion. Because the experts differed in their opinions on the same state of facts, assuming them to be true, was no reason for relegating to the realm of conjecture and speculation the issue as to whether or not the injury was the proximate cause of the tuberculosis thereafter developed in the plaintiff. The theory on which all expert testimony rests is that, when facts are established with reference to the subject-matter of inquiry which the common observation and experience of the jury would not enable them correctly to understand and interpret, then they may have the benefit of the opinions of those who, by reason of their special study and learning, have peculiar knowledge of the subject. Because experts differ in their opinions as to the conclusion to be drawn from the facts proved does not render the ultimate result to be determined by the jury one of speculation or conjecture. In such cases the question is one not of conjecture and speculation on the part of the jury, but rather a question of weight and credit to be given to the conflicting opinions of experts. If the experts differ in their opinion as to results, then it is the province of the jury to determine which has reached the correct conclusion. A contrary doctrine would result in the elimination of the opinions of all experts, unless they happened to be of one mind, and abrogate the rule of evidence permitting the introduction of such testimony.

Applying these principles to the facts of this record, it was therefore an issue for the jury as to whether or not the injuries produced by the alleged wreck were the proximate cause of the tuberculosis for which the plaintiff claimed damages, and the court did not err in refusing prayers for instructions which sought to withdraw that issue.

#### Suppression of Brothels a Valid Health Measure

(McKinley, et al. v. United States (U. S.), 39 Sup. Ct. R. 324)

The Supreme Court of the United States, in affirming the judgment of the District Court of the United States for the Southern District of Georgia, holds valid the act of Congress of May 18, 1917, which authorized and directed the Secretary of War during the war to do everything by him deemed necessary to suppress and prevent the keeping or setting up of houses of ill fame or brothels within such distance as he might deem needful of any military camp, etc. The defendants, McKinley and another, who were convicted and sentenced on an indictment which charged them with having unlawfully kept and set up a house of ill fame within the distance designated by the Secretary of War, under the authority of the act of Congress, namely, within 5 miles of a certain military station of the United States, contended that Congress had no constitutional authority to pass this act. But that Congress has the authority to raise and support armies and to make rules and regulations for the protection of the health and welfare of those composing them, the supreme court says, is too well settled to require more than the statement of the proposition. Congress having adopted restrictions designed to guard and promote the health and efficiency of the men composing the army, in a matter so obvious as that embodied in the statute under consideration, may leave details to the regulation of the head of an executive department, and punish those who violate the restrictions. This is also well settled by the repeated decisions of this court.

## Society Proceedings

### COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Cleveland, O., Oct. 16-18.  
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.  
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.  
American Child Hygiene Association, Asheville, N. C., Nov. 11-13.  
American Public Health Assn., New Orleans, Oct. 27-30.  
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.  
Delaware State Medical Society, Dover, Oct. 13-14.  
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.  
Southern Medical Association, Asheville, N. C., Nov. 12-13.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Anatomy, Philadelphia

Sept. 15, 1919, 246, No. 1

Histology of Umbilical Cord of Pig, with Special Reference to Vascular and Hemopoietic Activity of Its Extensively Vascularized Connective Tissue. H. E. Jordan, Charlottesville, Va.—p. 1.  
Development of Cardiac Loop in Rabbit, with Special Reference to Bulboventricular Groove and Origin of Intercardiac Septum. H. A. Murray, Jr., New York.—p. 29.  
Ontogeny and Phylogeny of Sternum. F. B. Hanson, St. Louis.—p. 41.  
Origin of Corpus Luteum of Sow from Both Granulosa and Theca Interna. G. W. Corner, San Francisco.—p. 117.

#### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, 1919, 80, No. 501

Gynecology As a Specialty. F. H. Martin, Chicago.—p. 249.  
\*Uterine Myomas; Complications Seen in Practice. E. E. Montgomery, Philadelphia.—p. 256.  
Hairpin As a Foreign Body in Female Bladder; Report of Case. W. P. Manton, Detroit.—p. 262.  
\*An Early Ovum In Situ, in the Act of Aborting. J. W. Williams, Baltimore.—p. 269.  
\*Experimental Reproduction of Premature Separation of Placenta. A. Morse, New Haven, Conn.—p. 283.  
\*Value of Repeated Small Blood Transfusions in Blood Stream Infections. J. O. Polak, Brooklyn.—p. 291.  
Radium Treatment of Uterine Cancer. H. Bailey, New York.—p. 300.  
Treatment of Papillary Tumors of Bladder in Women. H. A. Kelly, Baltimore.—p. 328.  
Prenatal Care Propaganda. J. H. Larson, New York.—p. 335.  
Case of Single Anionion Twin Pregnancy. O. N. Eastman, Burlington, Vt.—p. 343.

**Uterine Myoma.**—This study is based on the consideration of 251 consecutive patients with uterine myoma subjected to operation; in 102 patients partial and in 144 complete hysterectomies were done; in the remaining five cases the uterus was removed through the vagina. The mortality in the partial hysterectomies was 4.9 per cent. (five deaths); in the complete removal cases it was 5.5 per cent. (eight deaths). Montgomery points out that the existence of the fibroid, through the continued irritation or disturbance of the circulation, increases the danger of complicating infections. Tubal collections are not infrequent, large hematomatous cysts of the ovary are often found, and in many cases extensive adhesions and inflammatory changes greatly complicate the operative procedure. Intestinal, omental and vesical adhesions may so mat the structures together as to obliterate all landmarks and make hysterectomy in such cases one of the most difficult operations in surgery. The operator must be ready, instantly, to change his preconceived order of procedure for one adapted to the unexpected situation for the purpose of preserving and maintaining the important functions of the related viscera.

**Study of an Early Ovum in Situ.**—The specimen described by Williams represents an early human ovum, removed thirty-eight days after the cessation of the last period; it was hopelessly abnormal, and represents the youngest stage of hydatidiform mole with which Williams is familiar; it was in the act of aborting. The complete lack of development of the embryo, the absence of fetal vessels in the chorionic membrane and villi, and the hydatidiform changes in the

stroma of the latter, make it clear that the ovum was hopelessly abnormal, and that abortion was sooner or later inevitable. Furthermore, the specimen is regarded by Williams as a striking configuration of Mall's dictum that primary abnormalities of the ovum are probably the most frequent cause of abortion, and that the attempted abortion in this instance must be regarded as a conservative effort on the part of Nature to rid the organism of a structure which had failed to accomplish its allotted task.

**Premature Separation of Placenta.**—According to Morse the intramuscular lesions of the uterus in premature separation of the placenta are not provoked by an acute distention of the uterine cavity. They depend on obstruction of the uterine circulation. When such an obstruction is provoked artificially in rabbits by ligating the veins of one "horn" of the bicornate uterus, the lesions produced are identical with those in women suffering from this complication of pregnancy. Similar lesions are also observed following simple rotation of the uterus. The primary lesions in placental separation are an engorgement of the decidual sinuses and a hemorrhagic extravasation into the decidua; the intramuscular hemorrhages occur as a secondary lesion in those instances where the circulatory disturbance is excessive. Probably the excessive mobility of the uterus predisposes to a similar though spontaneous acute constriction of the veins of the broad ligament in women advanced in pregnancy. The albuminuria which sometimes accompanies placental separation probably is secondary to the disturbance in the uterine circulation and not an indication of a primary nephritic toxemia.

**Blood Transfusions in Blood Stream Infections.**—In Polak's discussion it is shown that after the bacteria have gained entrance to the blood stream the cellular elements of the blood are rapidly destroyed. The heart, liver, spleen and kidneys show definite pathology and acidosis develops. Small repeated blood transfusions increase the cellular elements, stimulate resistance and raise the blood pressure and hence add to the natural defense.

**American Journal of Public Health, Concord, N. H.**

September, 1919, 9, No. 9

- Are We Physically Fit? R. Blue, Washington, D. C.—p. 641.
- How the Army Controlled Disease. G. A. Seper, Washington, D. C.—p. 646.
- Scope of a Federal Department of Health. P. H. Bryce, Ottawa, Ont.—p. 650.
- So-Called Nonresident Death. A Preliminary Note on An Experimental Study of this Subject in New York State. O. R. Eichel, Albany.—p. 654.
- Bacteriologic Dilution Scale and Dilution as a Bacteriologic Unit. W. F. Wells, U. S. Army.—p. 664.
- Why Is Poor Ventilation Harmful? C. I. Reed.—p. 668.
- Reduction of Infant Mortality by Economic Adjustment and By Health Education. J. Levy, Newark, N. J.—p. 676.
- Schools and School Children. O. W. Hallin, Braham, Minn.—p. 681.

**American Review of Tuberculosis, Baltimore**

September, 1919, 3, No. 7

- \*Five Years' Experience with Artificial Pneumothorax. C. D. Parfit and D. W. Crombie, Gravenhurst, Ontario, Can.—p. 385.
  - Some Common Mistakes in Administration of Artificial Pneumothorax. A. G. Shortle, Albuquerque, N. M.—p. 403.
  - \*Predisposing Factors in Pulmonary Tuberculosis. F. W. Shaw, Ft. Totten, N. D.—p. 410.
  - \*Rationale of Fresh Air Treatment of Pulmonary Tuberculosis, With a Modified Application of It. S. Baruch, New York—p. 413.
  - Psychotherapy and Tuberculosis. S. E. Jelliffe and E. Evans, New York—p. 417.
- Experience with Artificial Pneumothorax.**—This analysis by Parfit and Crombie concerns sixty-three patients for whom induced pneumothorax was undertaken. In the ordinary course of events the outlook was fairly good in only 2 per cent, doubtful in 25 per cent, and bad in 73 per cent of the series. The patients were classified 24 per cent, moderately advanced and 76 per cent, far advanced. Only 6 per cent were clinically unilateral. The disease had been manifest an average of thirty-two months; the extreme periods were ten years, the longest, and three months, the shortest. The object of the treatment was to afford relief from some distressing symptoms in 48 per cent, of the patients. In 52 per cent, there seemed a good chance to check the progress of the disease for a longer or shorter period.

The procedure was undertaken as an urgent measure for the control of hemorrhage in three patients without regard to suitability otherwise. In 95 per cent. of the cases—sixty—it was a matter of election and six of these cases were simplified by the presence of fluid, easily replaced. During the course of the treatment of the whole series of cases, forty-three so-called mishaps occurred as the result of 757 punctures and 634 refills. Subcutaneous emphysema of sufficient degree to warrant a note occurred in eleven cases. Mediastinal emphysema occurred fifteen times in nine patients. Escape of gas into the peritoneal cavity in a patient at the third refill took place after 500 c.c. had been well borne at 8 cm. water pressure. Rupture of the pleural pocket into pulmonary tissue, presumably through a cavity wall, occurred in two cases. Puncture of a bronchus or cavity occurred once with a former patient who had returned for investigation of the condition of the pneumothorax. Penetration of a large vessel occurred once. Traumatic pneumothorax from puncture of the lung occurred four times. Gas embolism occurred in one case along with traumatic pneumothorax. Pleural reflex of very mild nature occurred four times in three cases. Fainting on slight movement following a refill occurred twice in one case with a well established, voluminous pneumothorax. The authors regard this procedure as the most effective form of treatment for the progressive case of any stage, and for indolent, moderately advanced cases. It should be applied without undue delay in those cases which conform to the requirements of selection, after a relatively brief unsuccessful application of other forms of treatment.

**Predisposing Factors in Pulmonary Tuberculosis.**—Having in mind the treatment of pulmonary tuberculosis by the use of artificial pneumothorax, Shaw conceived the idea that if he injected human tubercle bacilli into the blood stream of a rabbit with one collapsed lung, a lesion might develop in the uncollapsed lung. The results were the reverse: the lesion developed in the collapsed lung and in no other organ. That this holds true whether the bacilli are injected into the blood stream or into the trachea of a rabbit having a collapsed lung, was seen from the experiments. Therefore, it is evident that the collapsed lung is not a defense against the tubercle bacillus.

**Fresh Air Treatment of Pulmonary Tuberculosis.**—Branch states that judging from clinical results, the vasomotor stimulation of a judicious water treatment enhances the fresh air effect so much that the final result is improved at least 50 per cent. by its addition to the other treatment. Especially in many cases forbidding exercise all the good effects of the latter are obtained from a properly administered water procedure. There is improvement of the pulse, nutrition, etc., without the injurious exertion incident to exercise. In all cases the procedure should be mild but methodical, and not left to the patient's fancy. The following procedures have afforded most satisfaction in Baruch's work. If the patient is able to treat himself, he may begin with cool water friction daily after leaving his warm bed, well wrapped and slipped for his bath room. Dipping the middle portion of a towel in water at 90 F, he twists it so as to expel most of the water. After unfolding it he grasps each end with a hand, throws it over his back and makes rapid passes in both directions, freshly saturating the towel and wringing it several times. He then wrings the towel out of the water and treats the front of the body and thighs to the point of good friction with it. After drying he should proceed into the fresh air, to reap the full benefit of the vasomotor stimulation. The treatment may be repeated on the same afternoon or the following day according to the urgency of the case, reducing the water temperature each time or less frequently according to reaction until 70 or 65 F. is reached. Then the quantity of water left in the towel may be increased or the application be prolonged. When the patient is unable to treat himself, the cold friction may be used by the nurse with a mitten or towel repeatedly wrung out, the rule being that it is done quickly and thoroughly. It may readily be done in bed. The extremities are omitted. Another more rapid and pleasant procedure is the cold affusion. The patient, while warm out of bed or warmed by a blanket wrapping of ore-

half hour, is seated in a previously warmed bath tub the outlet of which is open. From a small tub or large basin water of a temperature of 90 F. is dipped with a broad mouthed vessel and poured with some force over the shoulders, back and chest of the patient successively. Begin with two affusions over each part, reduce the water temperature daily or twice daily when needed, until 65 F. is reached, then increase the quantity of water used. Dry the patient and send him out of doors. Good reaction is required, or at least an absence of chilliness after dressing. The water temperature is not increased if the patient feels chilly after dressing, but the procedure is made brief and is gradually restored in duration as reaction improves. In the beginning reaction may be promoted by friction, but the aim of all procedures for this neurovascular training is to evoke spontaneous reaction.

### Annals of Surgery, Philadelphia

September, 1919, 70, No. 3

- \*Knee Joint War Injuries: Willem's Treatment; Management of Subcutaneous Infection by Drainage and Mobilizations. C. A. McWilliams, New York, and W. R. Hetzel, Pittsburgh.—p. 257.
- \*Treatment of Recent Wounds of Knee Joint. E. H. Pool, New York, and J. H. Jopson, Philadelphia.—p. 266.
- \*Open Amputation Through Knee Joint. M. K. Smith, New York.—p. 287.
- Gunshot Injuries of Knee Joint. In Base Hospital. V. C. David, Chicago.—p. 290.
- Fracture of Acetabulum with Intrapelvic Displacement of Femoral Head. Report of Case. M. M. Peet, Ann Arbor, Mich.—p. 296.
- Remedy for Antagonous Bone Grafting in Fractures of Long Bones. Report of Cases. F. Martin, Baltimore.—p. 305.
- \*Correction of Deformity in Fractures: New Conception of Mechanism of Fractures of Upper Extremity. T. T. Thomas, Philadelphia.—p. 359.
- \*Pneumoperitoneum. Method of Detecting Intestinal Perforation. W. E. Dandy, Baltimore.—p. 378.

**Knee Joint Injuries.**—Thirty-two patients of the eighty-two whose clinical history was analyzed by McWilliams and Hetzel did not have a fracture. Eight had simple fractures, while the remaining forty had combinations of comminuted fractures, the patella being fractured in eighteen, the femur in twenty-nine, the tibia in twelve cases and the fibula in one case. Of seventy-three patients operated on for knee joint injuries, of whom final reports were obtainable as to infection, fifty-seven remained clean; in seventy of seventy-six known cases the synovial membrane was completely closed while six were drained into the joint. In general, Willem's treatment was not well carried out. Generally a splint was not used, except in cases where a fracture made it imperative, but the lack of night nurses made active motion at night impossible and in the daytime the patient was left to make the motions by himself. There was no general system, even in the daytime, for forcing the patients to make active motions regularly. Even with this abortive plan, all the operators say that early motion gave excellent results, function having returned well in a short time. The too early evacuations sometimes stiffened the joints irrevocably.

**Treatment of Recent Wounds of Knee Joint.**—Pool and Jopson emphasize that in all cases of wounds of joints by projectiles, except certain perforating (through and through) wounds by bullets, operation should be done. The principles of conservative treatment are thus summarized: complete débridement of the tract of the projectile through the joint; absolute closure of the joint by suture; primary or delayed closure of the superficial parts according to the rules laid down for primary suture of the soft parts alone; finally, early active motion. Thirty-four cases are analyzed.

**Open Operation Through the Knee Joint.**—Open amputation through the knee joint, as opposed to open amputation through the lower end of the femur, Smith claims, offers the following advantages: Fresh bone and marrow cavity are not exposed to infection; there is opportunity for a longer, and in some instances an osteoplastic stump; operative shock is minimal.

**Correction of Deformity in Fractures.**—In Thomas' opinion the roentgen ray is not being used with sufficient frequency to determine the results of efforts at reduction of fracture deformity. He is convinced that sufficient use of it for this purpose would probably demonstrate that reduction of overlapping of fragments in fractures of the shafts of long

bones, without operation, is rarely accomplished. The contraction of the surrounding muscles caused by the irritation of fragments never relaxes until the muscle is permanently shortened by organization of the traumatic exudate which always infiltrates these muscles about the fracture. Probably no known method of extension can effectively overcome this contraction. Thomas claims that most fractures and dislocations of the upper extremity are probably due to falls on the hand. A dislocation is merely a fracture of the skeleton at a joint with displacement of the fragments. In a fall the upper extremity is interposed, palm down and elbow rigidly extended, to break the force of the fall, so that the mechanism by which the force is applied to it is essentially the same in all falls. The common and typical displacements in fractures and dislocations of the upper extremity can be explained more effectively by such a fracturing force than by the theory of the pull of certain special muscles.

**Pneumoperitoneum.**—From personal observation Dandy is convinced that perforation of the intestines or the stomach can be diagnosed by the roentgen-ray findings. The escaping intestinal gases accumulate under the diaphragm if the head is elevated. The roentgenogram shows the diaphragm and liver sharply outlined and a collection of air separating these structures. Localized collections of gas in the abdominal walls, the buttocks, etc., may betray a colon infection and therefore an abscess resulting from a perforated bowel. No intraperitoneal injections of air have been made in patients, although Dandy feels that the procedure is safe and should offer valuable information which may lead to correct diagnoses in obscure cases. By determining the exact shape, size and position of various abdominal structures, a big lead will be obtained not only as to the exact organ which is diseased but also as to the pathology of the organ involved. Many patients may thereby be spared a useless exploratory laparotomy by the disclosure of inoperable conditions, whereas others may be offered specific rather than exploratory operations, or a rational rather than an empiric form of treatment.

### Arkansas Medical Society Journal, Little Rock

September, 1919, 16, No. 4

- Abdominal Drainage. T. J. Stout, Brinkley.—p. 75.
- Public Health and Democracy. C. W. Garrison, Little Rock.—p. 80.
- Practitioner's Place in Public Health. J. B. Roe, Newark.—p. 81.

### Boston Medical and Surgical Journal

Sept. 25, 1919, 181, No. 13

- \*Treatment of Infected Bone Wounds. Report of Cases. F. J. Cotton, Boston.—p. 379.
- \*Method for More Accurate Study of Injuries to Atlas and Axis. A. W. George, Boston.—p. 395.
- Certain Diagnostic Aspects of Medico-surgical Diseases of the Gastro-Intestinal Tract. C. W. McClure, Boston.—p. 399.

**Treatment of Infected Bone Wounds.**—Cotton reviews the work done in these cases at U. S. Army General Hospital No. 10, Boston. The good results obtained are credited to Carrel's technic and the use of surgical solution of chlorinated soda. Three hundred and forty-six patients were admitted. One hundred and eighty-two operations were performed. There was one death; a patient with empyema, who came in moribund, died before he could be operated on. There were two amputations, one for a hopelessly crushed and crippled leg with a septic knee, one deliberately after the wounds had been healed for a limb so badly damaged and paralyzed as to be worthless. There have been no reamputations, no resections and no cases of secondary osteomyelitis after the cleaning operation.

**Method for More Accurate Study of Injuries to Atlas and Axis.** The principal object of George's method is to leave with students some fundamental facts: first, the study of the anatomy; second the variations from the normal.

### Colorado Medicine, Denver

September, 1919, 16, No. 9

- Stomach Surgery. Report of Cases. A. R. Pollock, Monte Vista.—p. 220.
- Eversion of Tissue Margins in Wound Approximation. C. E. Tennant, Denver.—p. 224.
- Breath or Pelvic Presentations. M. R. Fox, Sterling.—p. 226.
- Fifty Appendectomies Under Local Anesthesia. L. E. Likes, and W. O. Scheller, Lamar.—p. 230.

**Iowa State Medical Society Journal, Des Moines**

Sept. 15, 1919, 9, No. 9

Mental Hygiene and the War. F. P. Norbury, Jacksonville, Ill.—p. 299.  
Pneumonia Situation in Camp Pike, Arkansas. C. H. Herrmann, Jr., Amana.—p. 313.

**Journal of Cutaneous Diseases, Chicago**

September, 1919, 37, No. 9

\*Alkali Reserve of Blood in Various Diseases of Skin. H. J. Schwartz, O. L. Levin and H. C. Mahrenk, New York.—p. 575.  
\*Unusual Case of Granuloma Annulare. A. W. Stillians, Chicago.—p. 580.  
\*Neurodermatoses and Pseudolichens. F. Wise, New York.—p. 590.

**Alkali Reserve in Skin Diseases.**—The authors confined their attention almost entirely to the inflammatory dermatoses. They examined 139 patients of whom eighty, or 59.7 per cent., gave normal values; fifty, or 35.9 per cent., gave values indicating a moderate acidosis, and one, or 0.7 per cent., showed a severe acidosis. This last patient had diabetes complicated with carbuncles. Included in this group were cases of sycosis, acne, psoriasis, eczema, pruritus, erythema nodosum, dermatitis herpetiformis, erythema multiforme and lupus erythematosus.

**Granuloma Annulare: Cure by Means of Radium.**—The odd features in Stillians' case were the entire absence of ringed lesions, the failure to localize on the hands, its occurrence in a patient who has a persistently positive Wassermann reaction, and its superficial resemblance to xanthoma. The administration of potassium iodid, 10 grains, three times a day, and mercurial inunctions, had no effect whatever on the lesions. Salicylic plaster, worn for forty-eight hours, made no impression on the lesions. Roentgen rays administered short of the erythema dose gave no result. The Kromayer lamp pressed on (without blue filter) long enough to cause a sharp reaction, had no effect on the lesions. Radium, filtered through 4 mm. of aluminum, cleared up the ankle and knee lesions promptly, but those on the elbows were stubborn, requiring a larger dose, which was sufficient to leave a scar in one spot, without clearing up the lesion entirely.

**Neurodermatoses.**—Wise discusses a certain peculiar morbid change in the skin, to which a variety of names has been allotted, the most familiar being lichen simplex chronicus, lichen chronicus circumscriptus, neurodermatitis, prurigo circumscriptum and pruritus with lichenification. He also makes a brief report of his own observations, based on clinical and microscopic studies.

**Journal of General Physiology, Baltimore**

Sept. 20, 1919, 2, No. 1

Comparative Studies on Respiration. VII. Respiration and Antagonism. W. J. V. Osterhout, Cambridge, Mass.—p. 1.  
IX. Respiration of *Bacillus Subtilis* in Relation to Antagonism. M. M. Brooks, Cambridge, Mass.—p. 5.  
IX. Effects of Antagonistic Salts on Respiration of *Aspergillus Niger*. F. G. Gustafson, Cambridge, Mass.—p. 17.  
Relative Physicologic Effects of Beta and Gamma Rays on Egg of *Nereis*. A. C. Redfield and E. M. Bright, Boston.—p. 25.  
Changes in Preplasmic Consistency and their Relation to Cell Division. R. Chambers, New York.—p. 49.  
Change in Bar Gene of *Drosophila* Involving Further Decrease in Fact Number and Increase in Dominance. C. Zeleny, Urbana, Ill.—p. 69.  
Epinephrin in Annelids. Comparative Study of Origin of Sympathetic and Epinephrin-Secreting Systems and of Vascular Muscles Which They Regulate. J. F. Gaskell, Cambridge, Eng.—p. 73.  
Electrification of Water and Osmotic Pressure. J. Loeb, New York.—p. 87.

**Journal of Laboratory and Clinical Medicine, St. Louis**

September, 1919, 4, No. 12

\*Experimental Study on the Uptake of Cloth With Pediculicide Substances. W. Moore and A. D. Hirschfelder, Minneapolis.—p. 707.  
\*Relation of Pancreas to Diabetic State. D. M. Ervin, Cincinnati.—p. 711.  
\*Studies on Cholesterol. VI. Value of Blood Cholesterol Determinations and Their Place in Cancer Research. G. Luden, Rochester, Minn.—p. 719.  
\*Isaacson Method for Estimating Glucose. E. C. Pinnell, Santa Barbara, Calif.—p. 736.  
Modified Portable Artificial Respiration Outfit. J. A. Hiffins, Chicago.—p. 737.  
\*Use of Floccule Formation to Corroborate Wassermann Test. R. J. McCann, New York.—p. 742.

**Investigation of Pediculicide Substances.**—A number of derivatives of cresol, preserving the general cresol structure, but diminishing the volatility, were experimented with by Moore and Hirschfelder to test their power to kill lice. The calculated amount of bromin was dropped from a separating funnel directly into glacial acetic acid containing the cresol and a small piece of bright iron wire as a catalyzer. Bromination, as shown by titrating a sample with potassium iodid and thiosulphate, was complete in less than one hour. The mixture was then neutralized, separated and filtered off, washed first with sodium thiosulphate to remove any excess of bromin or bromin that had entered the hydroxyl group, then with sodium bicarbonate and water and finally filtered or separated off. Chlorin was introduced by bubbling into the glacial acetic acid solution of cresol in the presence of iron wire until the calculated weight of chlorin had been taken up. The substances were otherwise treated in the same way as the bromin derivatives. Iodin was introduced in saturated sodium bicarbonate solution in the presence of potassium iodid. A series of monobrominated and dibrominated chlorinated and iodocresols, orthocresol, metacresol and paracresol was thus prepared in which the halogen had entered the ring. By this mode of treatment the trihalogen compounds of the metacresol only are formed and not trihalogenated ortho and para compounds were obtained. Chlorin was also introduced into monobrominated metacresol and in this way a monobrom, monochlor and monobromid-chlorometacresol was formed and in the same way a dibrom-monochlormetacresol. The substances which were found to be best suited to the purpose were the dibrommetacresol which lasted ten days and the dichloromonobrommetacresol which lasted thirteen days. These compounds seemed to fulfil the requisites of the problem so far as a laboratory trial could demonstrate.

**Relation of Pancreas to Diabetic State.**—The experiments reported on by Ervin show that a depancreatized animal as long as six hours after depancreation develops a hyperglycemia and glycosuria just as in the true state of pancreatic diabetes, yet consumes glucose at the same rate as the normal animal. The hyperglycemia and glycosuria are dependent on the rate of synthesis of glucose into glycogen and not on interference with the normal rate of oxidation. Ervin believes that the internal secretion of the pancreas is an enzyme, similar to the external secretion but diverted into the portal blood for the rapid synthesis of glucose into glycogen. The failure of its action is the cause of the state of pancreatic diabetes; a diabetic is one who fails to synthesize the absorbed glucose into glycogen at a sufficiently rapid rate to prevent a hyperglycemia.

**Cholesterol Determinations in Cancer Research.**—Luden's observations suggest that the test for cholesterol is capable of giving valuable clinical information, although it should not be looked on as a specific, diagnostic test, such, for example, as the Wassermann test. It might fitly be compared to the test for albumin in the urine. The test furnishes information concerning cholesterol metabolism; it will, therefore, furnish information about the disturbances of cholesterol metabolism connected with cholelithiasis and carcinoma, for instance. A detailed account of the technic used by Luden is given. This technic is based on the determination of more than 1,500 individual blood samples. The cholesterol content of the blood is influenced by the nature of the diet, the rate of basal metabolism, radium treatment, bacterial infection (ulceration, infectious disease) and hemorrhage. Luden insists that determinations of blood cholesterol should have a place in cancer research. Details of observations made in sarcoma and carcinoma cases are given.

**Isaacson Method for Estimating Glucose.**—The rapid colorimetric for determining glucose in urine, which was published by Isaacson, was tried out by Fennell with unsatisfactory results.

**Floccule Formation Reactions and Wassermann Test.**—McCann investigated the methods of Forges and Meier, Elias, Neubauer, Forges and Salomon, Klausner and Herman and Perutz. From the results obtained the author is convinced that, possibly with the exception of the Herman and Perutz

method, these methods cannot be used with any great degree of certainty to corroborate the Wassermann test, and especially so in those cases where the Wassermann gives a doubtful or incomplementary result.

### Journal of Nervous and Mental Diseases, New York and Lancaster, Pa.

August, 1919, 50, No. 2

- \*Mechanism, Classification of Neuroses and Psychoses Produced by Disturbance of Autonomic Affective Functions. E. J. Kempf, Washington, D. C.—p. 105.
- \*Treatment and Study of Twelve Nonparetic Neurosyphilites Treated by Intraventricular Injections of Arspenamized Serum. A. L. Skoog, Kansas City, Mo., and K. A. Menninger, Topeka, Kans.—p. 114.
- \*Central Nervous System in Purpura Hemorrhagica. A. Gordon, Philadelphia—p. 144.

**Mechanistic Classification of Neuroses.**—Kempf outlines a system which is based essentially on the integrative functions of the nervous system of which the psychoses are considered to be symptoms and which maintains that the same forces which build up a personality when harmoniously integrated cause its deterioration when unadjustable conflicts occur. These neuroses are (1) acute or (2) periodic or (3) chronic; benign or pernicious; of the suppression, repression, compensatory, regression or dissociation type. Mechanistic differences, common symptoms and common causes are discussed.

**Treatment and Study of Twelve Nonparetic Neurosyphilites.** Serum arsenamized in vivo was used by Skoog and Menninger. The reactions were not severe, as a rule. Marked improvement resulted in two cases; slight improvement in six cases, no improvement in two cases and death occurred in two cases. The improvement showed no tendency to follow diagnostic classes. On the whole, the treatment appears to have given encouraging results. From two to four injections were given in each case, in doses varying from 1 to 40 c.c. Immediate reactions consisted of a slight pulse acceleration, negligible respiratory rate change, headache, pains in the neck, back and limbs, nausea and vomiting. The intensity of the reaction depended to a considerable degree on the size of the dose, the amount of hemoglobin in the serum and the priority of the injection.

**Central Nervous System in Purpura Hemorrhagica.**—According to the findings of Gordon in one case, the lesion affects exclusively the cells of the gray matter throughout the entire central nervous system. The lesion consisted of destruction of cells and formation of vacuoles.

### Maine Medical Association Journal, Portland

September, 1919, 10, No. 2

- Development and Operation of Our Base Hospitals. W. E. Kershner, Bath—p. 31.
- Teeth of School Children. J. L. Johnson, Mars Hill—p. 38.

### Nebraska State Medical Journal, Norfolk

September, 1919, 1, No. 9

- Mitral Stenosis. L. Crummer, Omaha—p. 258.
- Aortic Disease. F. Conlin, Omaha—p. 266.
- Ocular Manifestations of Lethargic Encephalitis. J. M. Patton, Omaha—p. 265.
- Management of Mastoids in Army Hospitals. J. B. Potts, Omaha—p. 269.
- Army Regiment Observations of Chest Conditions. W. H. Mick, Omaha—p. 273.

### New Jersey Medical Society Journal, Orange

September, 1919, 16, No. 9

- Experiences in An Evacuation Hospital. E. Eliot, Jr., New York City—p. 301.
- Child Welfare Work in France. J. C. Baldwin, Baltimore—p. 310.

### New York Medical Journal

Sept. 27, 1919, 110, No. 13

- Diet in Digestive Diseases in Infancy. J. P. C. Griffith, Philadelphia—p. 529.
- Medical Theory and Practice of an Eighteenth Century Doctor of Divinity. W. R. Ruddell, Toronto—p. 532.
- Requirements of Medical Profession for Military Service. A. L. Benedict, Buffalo—p. 536.
- Dementia Praecox. Description and Diagnosis. J. F. W. Meagher, Brooklyn, N. Y.—p. 540.

- Application and Interpretation of Wassermann Test and of Supplementary Laboratory Procedures. H. Greeley, Brooklyn, N. Y.—p. 546.
- Sleeping Sickness. C. L. Cunston, Geneva, Switzerland—p. 550.

### New York State Journal of Medicine

September, 1919, 10, No. 9

- Differential Diagnosis in Stricture and Calculus of Ureter. G. L. Hunter, Baltimore—p. 323.
- Diagnosis of Renal Colic. G. W. Stark, Syracuse, N. Y.—p. 331.
- Indications for Operation for Gastric and Duodenal Ulcer. C. N. Dowd, New York—p. 335.
- Role of Provisional Appliance in Treatment of Amputations of Lower Extremity. C. C. Youndt, Pittsburgh—p. 339.
- Concerning Reitting of Blinded and Blind. G. F. de Schweinitz, Philadelphia—p. 343.

### Virginia Medical Monthly, Richmond

September, 1919, 10, No. 6

- Flat Feet. W. L. Powell, Roanoke, Va.—p. 131.
- Treatment of Chronic Pyelitis. S. H. Cary, Roanoke, Va.—p. 133.
- Radical Mastoid Operation: Indications. E. G. Gill, Roanoke, Va.—p. 134.
- Camel, Castor Oil and Turpentine. R. H. Garthright, Vinton, Va.—p. 137.
- The Why and the How of Electronic (Radiant) Force; Physical Diagnosis; Correlation with Gross and Medium Methods; Syphilis Thesis No. 5. H. E. Jones, Roanoke, Va.—p. 139.
- Tonsils, As Related to Singing Voice Production. M. R. Faville, Roanoke, Va.—p. 142.
- Some Guy Ropes for Doctor in Practice. J. D. Willis, Roanoke, Va.—p. 144.
- Treatment of Burns. F. Flinn, Roanoke, Va.—p. 145.

### Wisconsin Medical Journal, Milwaukee

September, 1919, 18, No. 2

- Recognition of Local and General Resistance as Guides in Treatment of Certain Chronic Malign Affections. J. L. Yates, Milwaukee—p. 121.
- \*Etiology of Banti's Disease or Splenic Anemia. H. T. Kristjanson, Wauwatosa, Wis.—p. 125.
- Blood Transfusion. W. F. Lorenz, Mendota—p. 127.
- \*Influenzal Appendicitis. L. M. Warfield, Milwaukee—p. 129.
- Proper Manner of Submitting Material to a Toxicological in Medical Cases. A. S. Loevenhart, Madison—p. 132.

**Etiology of Banti's Disease or Splenic Anemia.**—Kristjanson's studies were made in a case of splenic anemia or Banti's disease in which the spleen was removed. Immediately after the removal of the organ, implants were placed on freshly prepared blood agar, Dorsett's egg medium and Loeffler's blood serum, under most careful aseptic conditions. These tubes were then sealed and placed in the incubator for ten days. On the tenth day very small grayish colonies could be seen in close vicinity to the piece of tissue removed from the spleen in one tube. A smear from one of these colonies showed mostly coccoid forms arranged in small irregular clumps; these clumps, however, did not have the characteristic grouping of the staphylococcus family. Subcultures were made on fresh blood serum slants. In four days a very slight filiform growth, barely visible to the naked eye, appeared. Smears from this growth revealed cocci, similar in appearance and size to those observed in the original culture. This micro-organism retains the Gram stain and is nonacid fast. The effects produced on animals by repeated intravenous inoculations with the organism were marked systemic reactions indicated by rise in temperature and leukocytosis. These experimental inoculations in the dog produced progressive enlargement of the spleen with gradually increased fibrosis and perisplenitis. The histologic changes in the spleens were quite like those occurring in early Banti's disease. Control animals inoculated under identical conditions with staphylococci, colon bacilli and pseudodiphtheria bacilli showed no progressive fibrosis of the spleen but had symptoms of general infection from which they succumbed. As a constant feature, the experimental animals inoculated with the organisms isolated from the spleen in Banti's disease gave a positive complement fixation, using a bacterial antigen and the sheep's hemolytic system. The biologic characteristics of the organism are given in detail.

**Influenzal Appendicitis.**—Warfield discusses cases presenting a syndrome which simulated appendicitis but which was not appendicitis. It was influenza beginning with intestinal symptoms. Cases are cited.

**FOREIGN**

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

**Brain, London**

June, 1919, 42, Pt. 2

\*Gunshot Wounds of Scalp: Neurologic Signs Presented. G. Jefferson.—p. 93.

\*Biologic Effects Due to High Explosives. A. Carver and A. Dinsley.—p. 113.

Development of External Form of Human Cerebellum. J. W. Langelaan.—p. 130

**Gunshot Wounds of the Scalp.**—The observations recorded by Jefferson are based on a series of fifty-four unselected average cases of scalp wounds as seen at the base in France. A large number of the patients showed generalized signs; a history of unconsciousness, complete or partial, with vomiting, nausea, headache, and exaggeration of the tendon jerks generally. Only five patients out of the whole series showed no positive neurologic signs at all. In ten more the only symptom complained of was headache, but this was often so severe and the patients were mentally so dull for a short time that it was evident that the brain had received a severe shaking up. One fourth of the patients allege that they were actually unconscious for brief periods, while another fourth were stunned, frequently being knocked down by the impact of the missile. Headache was present in forty-five cases, definitely absent in six, and not noted in three. Giddiness, was the next most common sign, only being noted on gross changes of posture, and therefore later in convalescence when such active movements began to be attempted. It was never a serious factor. Vomiting occurred in eight cases and nausea was, or had been, present in thirteen. Tendon jerks were exaggerated in twenty cases, and of these eight presented increase of both arm and leg jerks. Increase of the arm jerk always portended a graver injury, and cerebral injury was always suspected when they were active. True ankle and patellar clonus, continuous and regular, was never found, but a few beats, from two or three to six, occurred in seven cases. But when present on one side only, even this mild form has a value. In none of these series was there any injury to the skull, yet there were eleven definite local contusions of the motor cortex, four of the visual, and two more in which a motor lesion was associated with a sensory disturbance of the hand. Three presented jacksonian seizures, and three were trephined on the neurologic evidence; in two an extradural clot was found; in one, nothing abnormal was noted. There were signs of contralateral injury by contrecoup in four cases.

**Biologic Effects Due to High Explosives.**—The present tendency to regard the neuroses of war as of exclusively emotional origin is objected to by Carver and Dinsley. They plead for a more general recognition of the underlying physical basis demonstrable in a considerable proportion of them. It is held that the neuroses of war be brought about by the action of "purely emotional shock," by the action of "purely physical shock," and by a combination of these two factors. The combination is the most common occurrence.

**British Medical Journal, London**

Sept. 6, 1919, 2, No. 3062

Educational Number. Sept. 13, 1919, 2, No. 3063

\*Nature of Rabies and Antirabic Treatment. D. Semple.—p. 333.

\*atology of Disordered Action of Heart. Report on 7,803 Cases. J. A. Venning.—p. 337.

Pathology and Treatment of Stiff Knee in Relation to Compound Fracture of Femur. C. B. Alexander.—p. 339.

Treatment of Barbarrizus by Tartar Emetic. A. Innes.—p. 340.

Case of Hydrocephalus. S. Lodge.—p. 342.

Flat Foot. H. Smith.—p. 343.

**Rabies and Antirabic Treatment.**—Semple states that if a dog shows signs of rabies within ten days from the date of inflicting the bite, the person bitten should receive antirabic treatment as soon as possible after the condition of the dog had declared itself. A person severely bitten on the head, face or neck would not be justified in waiting ten days to know whether the animal was infective or not. A delay of ten days, or even four or five days, in a case of that kind

might be disastrous, as it might then be too late for successful treatment; the safest course to adopt in such cases would be to commence antirabic treatment at once, and as soon as it became evident that the dog was not infective leave it off. In a rabies infected district a person bitten by a stray dog which subsequently disappeared and was not again seen or heard of should receive antirabic treatment as a precautionary measure. In a rabies infected area it would be a mistake to destroy a healthy looking dog immediately after it had bitten any one, because then all information regarding his condition would be lost unless the carcass or a portion of the brain was sent to a laboratory for experimental tests, which would mean a delay of from four to five days, up to a period of three weeks, or possibly longer, according as to whether Negri bodies were looked for and found, or the inoculation of an animal carried out.

**Disordered Action of Heart.**—In Venning's opinion the strain of warfare, mental and physical is the chief cause of the symptoms of D. A. H. The causation of next importance is infective diseases, and the majority of these were contracted in civil life, rheumatic fever being the worst offender.

**Bulletin of Naval Medical Association of Japan, Tokyo**

April, 1919, No. 23

Tumor Resembling Sarcoma of Kaposi. K. Maruta.—p. 1.

\*Cause of Cold Abscess of Thoracic Wall. R. Shiozawa.—p. 2.

\*Squamous Soft Chancre and Vaccine Treatment of Inguinal Bubo. T. K. Kana.—p. 3.

\*Cancer Diagnosis from Urine. K. Takei.—p. 3.

**Cause of Cold Abscess of Thoracic Wall.**—Shiozawa maintains that these cold abscesses may be caused by a typical tubercle in the connective tissue in the environment of the rib, when there was no change in the bone or the cartilage itself. Out of twelve specimens examined by him, pathologic changes of the rib or the cartilage were present in four while in the remaining eight cases he could establish the existence of typical tubercles in the environment of the rib with no change of the bone or the cartilage at all, the proportion of the former to the latter being 1 to 2. The principal site of the latter affection which showed the typical pathologic features ascribed to tubercle, corresponding with the predisposed locality for the caries of the rib, was in the subpleural tissue between the costal pleura and the interior intercostal muscle. All the patients from whom these specimens were taken had some tubercular change in some other part of the body, but its relation with the cold abscess of the thoracic wall was not established.

**Vaccine Treatment of Inguinal Bubo.**—Kurita treated eighteen patients who had inguinal bubo associated with normal soft chancre by a vaccine made of Duerey's bacillus. This treatment had a good effect, mitigating the pain of the bubo and the bubo in its first stage was dispersed by the sixteenth day on the average. The advanced bubo and the so-called abdominal bubo were also affected beneficially by this treatment. The only untoward symptoms resulting from the use of the vaccine were pain at the site of inoculation and fever with headache, shivering and giddiness.

**Cancer Diagnosis from Urine.**—The sulphur reaction of Salomon and Saxl as done by Takei gave positive results in 81.7 per cent. of cancer cases, 57.14 per cent. of suspected cancer cases and 16.0 per cent. of cases not associated with cancer, while Kuchel's method was positive in 80.66 per cent., 54.55 per cent. and 26.66 per cent. respectively. Takei claims that from the clinical point of view, the first method is a little more accurate than the second. The sulphur method is less expensive than Kuchel's, but the first method is more complicated and takes longer for its completion than the second, the first taking two and a half days, while the second is completed in one day. The quantity of urine needed for the first method is larger than for the second, and albumin contained in urine, if any, must be removed entirely before carrying out the test, while there is no such trouble with the second procedure. In the first method the degree of reaction varies with the nutrition of the patient examined and the pigment of urine and drugs taken by the patient must be taken into account while in the second these factors are almost negligible.

## Dublin Journal of Medical Science

Vol. X, 1919, Third Series, No. 571

- Use as Affected Success in War. C. Birtchell.—p. 1.  
Some Points about Bone Grafts. W. L. de C. Wheeler.—p. 12.

## Japan Medical World, Tokyo

Vol. 4, 1919, p. 47

- Mode of Infection of Human Liver Fluke. Muta and Kodama.  
Atitude of Liver after Excision of Stone. N. Shikawa and Tsukagi.  
Diagnosis of Primary Hepatic Carcinoma. Yamane.  
Medical Treatment of Neurostoma. Shioyama.

## Lancet, London

Sept. 13, 1919, 2, No. 5011

- Principles of Hygiene in Egypt. A. Balfour.—p. 465.  
Aortic Disease in Soldiers. T. F. Cotton.—p. 470.  
Increase of Alkalinity of Blood in Shock. R. Moore.—p. 473.  
Bacterial Sepsis in Mesopotamia. F. F. Fennell.—p. 474.  
B. Infection "Warrens." S. F. Bailey.—p. 476.  
Etiology of Desert, Septic or Veldt Sore Among European Troops:  
Its Association with Faucal Diphtheria. C. McK. Craig.—p. 478.  
Compulsory Inoculation Against Spanish Influenza. F. T. Grey.  
—p. 479.  
Arphogenon. A. R. Fraser.—p. 480.  
Three Unusual Cases of Intestinal Obstruction. W. H. C. Romanis.  
—p. 481.  
Vesical Papilloma Simulating Vesical Tuberculosis. R. Creasy.—p. 482.  
Case of Bacillary Dysentery. J. S. K. Boyd.—p. 482.

**Aortic Disease in Soldiers.**—Cotton has analyzed the case histories of fifty soldiers with signs of aortic insufficiency. The points which Cotton makes are these: Aortic disease is compatible with good exercise tolerance; when there is an equal degree of distress after effort the increase in pulse rate is the same in patients with slight aortic incompetence, in aortic disease with free regurgitation where there is no venous congestion, and in D. A. H. cases in which there are no signs of structural disease.

**Increase of Alkalinity of Blood in Shock.**—Moore claims that the outlook on the chemical conditions in shock is all wrong, and this is why the invariably underlying presence of "acidosis," to which at first much attention was given, became later neglected. All cases of serious secondary shock show so-called "acidosis," but this acidosis is not "acidosis," it is "alkalosis." So all the attempts of physiologists to mimic it have been abortive. When the pressure of free carbonic acid in the blood is decreased then alkalinity rises and kidneys and tissue cells remove alkali from circulation. It is for this reason that the circulating bicarbonate decreases, and so lowered titration figures are obtained, but the blood is more alkaline. A fall in bicarbonate reserve to one-third of normal can be caused by a small fall in pressure of carbon dioxide and accompanying increase in alkalinity. When primary shock occurs from sudden heart failure, from emotional causes, hemorrhage, pain, or some such stimulus, there is cerebral anemia and unconsciousness. There is a general cessation of metabolic activity at first and a shutdown later to about one third of the normal rate. If there be a closure down in the tissues to one third, what must happen if the lungs go on working at their normal rate or even at one half their normal rate? An excess of carbon dioxide over that produced must be removed in the lungs and the blood go alkaline, and this is what occurs in secondary shock. During the period of fainting both heart and respiration are held in abeyance, the heart perhaps more than the respiration, and there is a venous condition which favors recovery, but later there is a condition in which respiration exceeds circulation and the blood becomes more alkaline and carries shock to the nerve centers and heart. If as a result of a primary shock the circulation is only working at one third its usual speed, and the respiration is going on at the usual rate, the amount of carbon dioxide produced will only be one third of the normal, while elimination proceeds at normal rate. The result must be that the alkalinity of the blood increases, and any such increase leads to heart failure. Hyperpnea need not necessarily be an antecedent factor to conditions such as toxic products from wounds and muscle cerebral shock. In the main, the condition depends on relative rates of circulation and respiration, although other conditions of injury and fatigue of nerve centers, undoubtedly play a part.

**Etiology of Veldt Sore.**—During the Egyptian and Palestine campaigns chronic sores, very resistant to local treatment, on uncovered parts, became a great scourge, especially among mounted units. Craig investigated these lesions in 197 cases. The micro-organisms constantly present in the cultures were: (1) staphylococci (*S. albus*), rarely *S. aureus* or *S. citreus*; (2) diphtheroid bacilli, of two morphologic types: (a) A small straight bacillus, staining uniformly with methylene blue, gram-positive but decolorizing with ease, showing no polar differentiation with Neisser's stain. Usually these small forms were present in moderate number and lay parallel in pairs. (b) Forms morphologically identical with the true Klebs-Loeffler bacillus. Craig believes that type (a) is an immature form of (b). Inoculation experiments showed that the small form was equally as toxic as the large form and developed into the latter. One or other of these types was found in 129 out of 197 sores examined, 67.5 per cent. During the period of investigation diphtheria both of throat and nose had been prevalent among the troops. The evidence Craig collected at that time showed that there is a close correlation between the incidence of faucal diphtheria and the occurrence of the "desert" sore, the causal agent in each case being the true Klebs-Loeffler bacillus.

**Inoculation Against Spanish Influenza.**—Grey's experience in the South Sea islands impressed him with the value of antipneumostreptococcal inoculation as a prophylactic against Spanish influenza. A full dose of the vaccine used by Grey contained 125 millions of *Micrococcus catarrhalis*, 50 millions each of pneumococci, streptococci and a gram-positive diplococcus. Experience showed Pfeiffer's bacillus to be unnecessary as a constituent of a vaccine directed against this epidemic, and in view also of the risk of a negative phase, Grey thinks it is clearly unwise to use it in any community where the epidemic is already well under way. Grey gives a full dose (50 millions each pneumococci and streptococci) every five or six weeks, and never gets more than the mildest reaction.

**Cases of Intestinal Obstruction.**—Romanis cites two cases in which there was enormous distention of the cecum, and it was gangrenous, due to obstruction from cancer in one case and an impacted gallstone in the other. In a third case he removed 14 feet of ileum which had become gangrenous from strangulation in a small hole in the lower part of the mesentery. The patient made an uninterrupted recovery, and after the first week rapidly put on weight until in four weeks he was heavier than before the operation. At first there were six or seven loose motions daily, but when seen four months after the resection, he was having two soft motions daily and doing his full day's work with ease.

Sept. 20, 1919, 2, No. 5012

- Problem of Hygiene in Egypt. A. Balfour.—p. 507.  
Hyperadrenalism: Its Influence in Producing Congenital Pyloric Hypertrophy and Subsequent Obstruction. G. R. Pirie.—p. 513.  
Congenital Hypertrophic Stenosis of Pylorus: Diagnosis and Treatment. F. T. Gray, and G. R. Pirie.—p. 515.  
Further Experiences in Colony Treatment and After Care. G. S. Woodhead and P. C. Varrar-Jones.—p. 526.  
Treatment of Septic Wounds by Ionisation (Chlorin). F. W. B. Young.—p. 529.  
Retroversion of Gravid Uterus. R. B. Eccles.—p. 530.  
Spontaneous Cure of Strangulated Inguinal Hernia. W. F. Stiell.—p. 530.

**Hyperadrenalism as a Cause of Pyloric Stenosis.**—Pirie suggests that the spasm inducing hypertrophy of the pylorus is primarily due to hyperadrenalism before birth, and that other subsidiary postnatal causes determine the persistence or recurrence of the spasm. This condition is due to a lack of balance between the secretions of the various endocrine organs in the process of their development and involution, which may result either in a relative or an absolute hyperadrenalism. The amount of hypertrophy present at birth is insufficient, except in rare instances, to cause symptoms of obstruction. This is clearly evident from the clinical history of the great majority of cases. But there are certain conditions which will cause spasm after birth sufficient to complete the obstruction in an already stenosed orifice. This combination determines the onset and severity of the symptoms. That some of these patients recover without surgical

intervention is due to the fact that the subsidiary conditions are amenable to palliative treatment, and are of greater moment in producing obstruction by added spasm than the congenital stenosis itself. And there is sufficient evidence to justify the opinion that the two chief contributory causes of spasm, phimosis and secretory inhibition, are directly associated with the congenital hypertrophy. In cases of true congenital stenosis circumcision without any other form of treatment has relieved the symptoms immediately for varying periods of time. As to the effect on the stenosed pyloric orifice of changes in the stomach itself: Any local irritative conditions or inflammatory changes will produce swelling of the mucosa. In many of the cases, perhaps all, there is some change of the nature produced by the undue retention and, thus, fermentation of food. Ordinarily these changes would not cause obstruction, but added to congenital pyloric stenosis, they hasten the formation of the vicious circle, and the perpetuation of the obstruction is due to the more rapid secretory arrest. It is also likely that phimosis, while in itself an important cause of spasm, hastens the appearances of symptoms of obstruction in the same way.

**Medical and Surgical Treatment of Hypertrophic Stenosis of Pylorus.**—When surgical interference is necessary in these cases, Gray and Pirie advocate Rammstedt's operation: In their opinion, it will, in the near future, take the place of every other surgical method devised for the cure of hypertrophic stenosis of the pylorus. In all other cases palliative treatment should first be adopted as follows: (1) peptonized milk in appropriate quantities; (2) gastric lavage; (3) circumcision; (4) subcutaneous infusion of physiologic sodium chlorid solution and 2 per cent. glucose, when necessary; and possibly (5) administration of chloral hydrate. If there is no relief of symptoms in forty-eight hours, operation should be performed without delay. In the majority of cases palliative treatment is to be persevered with for from ten to twelve days. Failure to improve after this point constitutes an indication for operation in boys, but not necessarily in girls.

**Retroversion of Gravid Uterus.**—In this case Eccles replaced the uterus by the knee elbow position and then introduced a Smith-Hodge pessary to keep the uterus anteverted. There was complete atony of the bladder, and the catheter was passed every six hours for eight days. The patient made an excellent recovery. At the end of the fifth month of pregnancy Eccles removed the pessary. Four months afterward the patient gave birth to a fine, healthy male child, the labor being quite normal.

### Archives de Médecine des Enfants, Paris

September, 1919, 22, No. 9

- \*Normal Weight and Height of Schoolchildren. P. Paig y Roig.—p. 449.
- \*Care of Pertussis. J. Camesseasse.—p. 466.
- \*Typhoid Fever. Léopold Lévi.—p. 474.
- \*Urticaria and Antianaphylaxis. Joltrain.—p. 481.
- \*Congenital Stenosis of the Esophagus. J. Comby.—p. 485.

**Normal Weight and Stature of Children.**—Puig has been investigating conditions in Spain in this line, and has arranged his work for comparison with similar data compiled in other countries. His investigations included two groups of 2,229 and 1,845 children in the Barcelona district. His tables confirm the findings elsewhere that girls weigh more than boys at a certain age but after 15 the boys rapidly gain the supremacy. The peculiar feature about his statistics is that this superiority in weight and height begins much earlier and lasts later than in other countries. It is apparent early as the fifth year, and continues to increase to a difference of 7 kg. in weight in favor of the girls at 14, and of 4.66 cm. of superior height. At 13 the girls were 64 cm. taller than the boys. This difference between the sexes was noted in the Boston statistics only from 11 to 14 and never surpassed 1.9 cm. (Bowditch); in Germany from 12 to 14, with a maximum of 4.1 cm. Quételet's table of figures, from Brussels, is the only one in which the boys surpassed girls in height constantly and at all ages.

**Importance of Change of Air in Treatment of Whooping-Cough.**—Cameseasse asserts that—in his experience, at least—of the so-called children's diseases run a milder course in the country than in the city. He has also found that a com-

plete change of air not only attenuates but usually cures completely all cases of whooping-cough. It is necessary, however, for the change of air to come at about the fifteenth day for it to be effectual. Later than this no influence from it is apparent, and earlier than this it does not modify the disease, but a further change of air about the fifteenth day then will prove effectual as usual. He urges that provision be made in the country to receive whooping-cough children from the city sent out at about the fifteenth day of the disease. He proposes for Paris that two sanatoriums should be established for the purpose at about a two-hours auto drive from the city. The number of inmates may vary from zero to a thousand in different weeks, and there would be many advantages in providing accommodations for the mothers to accompany some of the children. When the number of admissions is low, the convalescents might be given the privilege of a longer stay in the country. He adds that Paris records 500 deaths from whooping-cough annually, and that most of these children might be saved if provisions of this kind were made for them.

**Cryptogenous Fever from Thyroid Instability.**—This article was summarized Aug. 16, 1919, p. 562, when it appeared elsewhere.

**Urticaria Treated by Antianaphylaxis.**—Summarized on p. 562.

**Congenital Stenosis of the Esophagus.**—Comby reviews Brennemann's and other recent publications on this subject, and remarks that congenital atresia of the esophagus seems to be frequent in America. He does not agree with those who think that there is any chance for the survival of these children. Even when successful, operative correction of the anomaly would be so difficult and complicated, he says, that the outlook is hopeless—*Il faut accepter l'inévitable*.

### Bulletins de la Société Médicale des Hôpitaux, Paris

July 18, 1919, 43, No. 25

- Paraplegia Following Mumps. L. Lortat-Jacob and G. L. Hallez.—p. 719.
- Malignant Influenza with Necrosis of Lung. G. Causse and A. Tardieu.—p. 723.
- Radiology of the Lungs and Heart in the Gassed. J. Parisot and P. Darbois.—p. 730.
- Isolated Paralysis of the Serratus Magnus. G. Guillaïn and E. Libert.—p. 734.

### Journal de Médecine de Bordeaux

Aug. 25, 1919, 90, No. 16

- \*Prolapse of Gravid Uterus. J. Andréodias.—p. 327.
- Syphilis in Madagascar. H. S. Morin.—p. 331.
- \*Prolapse of the Uterus in the Elderly. A. Venot.—p. 337.
- Deep Lipoma of the Arm. R. Villar.—p. 338.
- Does Intractable Tryptentive Aid in Prophylaxis of Influenza? Roumaillac.—p. 339.

**Prolapse of Gravid Uterus.**—Andréodias reports the case of a woman of 31 who for ten years, from immediately after her first pregnancy, had had the cervix of the uterus protrude from the vulva. At the age of 24, a malformed infant was born. At 27 a laparotomy with hysteropexy only transiently relieved the prolapse. The protruding cervix was 8 or 10 cm. long and during her third pregnancy it became ulcerated. In four similar cases in his service the pregnancy went to term in all and delivery was spontaneous. The period of dilatation was longer than usual, and laceration was common. In his four cases labor lasted from four and a half to fifteen hours, and there was no morbidity.

**Wire Treatment of Genital Prolapse in Elderly Women.**—Venot refers to cases in which the degenerated tissues do not permit effectual reconstruction of the pelvic floor. He has applied in such cases in elderly women a method of suturing the walls of the vagina by *cerclage* with a silver wire. With a curved needle he passes a wire around the lower end of the vagina and knots it to make a ring preventing further egress of the genitals. The vaginal wall is first separated from the urethra and loosened up through a small transverse incision in the urethrovaginal wall and a second incision in the posterior vaginal wall, these incisions materially facilitating the passage of the curved needle. The knot of the wire is at the anterior incision where the ends are tied

over the handle of the Reverdin needle, to ward off danger of drawing the wire too tight, and the knot is pushed in to one side. The wire can be easily removed at need.

### Paris Médical

Aug. 23, 1919, 9, No. 34

- \*Delirium and Psychoses with Influenza. A. Porot and A. Hesnard.—p. 141.  
 \*Action of Mustard Gas on Upper Air Passages. R. Moreaux.—p. 146.  
 \*Retention of Urine from Atony. Uteau.—p. 150.

**Delirium and Psychoses with Influenza.**—Porot and Hesnard insist that the delirium and psychoses accompanying or following influenza are the most typical example and synthetic illustration of this form of acute infectious mental pathology which requires general care rather than special institutional care, the clinician rather than the alienist. There is no essential difference between the brief delirium and the psychoses which may drag along for weeks or months on account of some predisposition or reinforcement from secondary factors. The delirium with influenza may not accompany the fever but develop later when the lack of nourishing food, the secondary auto-intoxication and the exhaustion from the disease combine to sap the vitality, especially after alcoholic or other excess and intoxication. The initial disorder is connected with an organic condition, and this latter is what determines the indications for therapeutics.

**Retention of Urine from Atony.**—Uteau eliminated all the usual causes for the retention of urine in a group of cases in which the only objective sign was the insufficiency of the bladder musculature. Whether this is cause or effect is still a question. It is possible that in certain circumstances emotional inhibition might breed a habit. The prognosis is favorable; a cure is generally realized in a few days under the influence of systematic catheterization and silver applications. A special feature of these cases is that the residual urine fluctuates in amount from day to day. It is generally clear, and the sphincter tonus seems to be normal.

### Presse Médicale, Paris

Aug. 25, 1919, 27, No. 47

- \*Significance of the Thrill. L. Bérard and C. Dunet.—p. 469.  
 \*Hebotherapy for Mediastinal Glands. A. Dufour.—p. 470.  
 \*Reconstruction of the Angle of the Lips. L. Imbert.—p. 472.  
 \*Access to the Inferior Maxillary Nerve. E. Gascard.—p. 472.

**Significance of the Thrill.**—Bérard and Dunet present evidence to demonstrate that the thrill occurs when a blood wave is passing through an abnormally narrow canal or opening between two cavities each of which has a different pressure. The thrill is not exclusively a mechanical phenomenon; it is also a vital phenomenon in that the active contractility of the coats of the arteries is a factor. The thrill with an arteriovenous aneurysm is stable and is always accompanied by a continuous murmur, reinforced during systoles. The thrill of arterial origin alone is variable. The disappearance of the compressor element or of the spastic element is responsible for it. There may with it also be a murmur with systolic reinforcement.

### Progrès Médical, Paris

Aug. 2, 1919, 31, No. 31

- \*Typhoid and Paratyphoid Infections. C. Gautier and R. J. Weissenbach.—p. 301.  
 \*Splen Treatment of Anemia, Especially of Malarial Origin. P. Maurel.—p. 305.  
 \*Coagulation of Lumbar Puncture Fluid in Meningitis from Trauma of Frontal Sinus. H. Roger and G. Giraud.—p. 306.

**Typhoid and Paratyphoid Infections.**—This article is entitled "Lessons from the War." It says that nothing seems to have been learned during the war in regard to treatment of typhoid and paratyphoid except that in paratyphoid, subcutaneous injections of a specific vaccine seem to have materially hastened the cure, and reduced the death rate from 7.78 per cent. in the nontreated to 3.4 per cent. in the treated (1,119 cases). Lenglet claims that this vaccine therapy seems to prevent relapses and reduce complications. Weil has also reported excellent results with it in suppurating bone lesions as complications of typhoid and paratyphoid.

### Revue Neurologique, Paris

April, 1919, 24, No. 4

- \*Anatomy of the Completely Divided Spinal Cord. G. Marinesco (Bucharest).—p. 257.  
 \*Familial Atrophy of the Optic Nerve with Tremor and Mental Impairment. S. Imamura and K. Ichikawa (Kyoto).—p. 277.  
 \*Tendon Transplantation to Correct Traumatic Radial Paralysis. J. Jarkowski and H. P. Achard.—p. 283.  
 \*Cataplexia: Urable Dementia. A. Austregesilo (Rio de Janeiro).—p. 288.

**Anatomy of Completely Divided Spinal Cord.**—Marinesco declares that the war experiences with completely severed spinal cords seem to have completely demolished Bastian's theory that reflex functioning is practically abolished after the cord has been severed in the lower part of the cervical or upper part of the dorsal region. This is true only of a brief primary period. Marinesco and others have demonstrated that the cord recuperates an actual autonomy. This does not seem to be the resumption of its former activity but a new activity of its own, which reproduces only rudimentarily the activity of the divided spinal cord in the dog. It is an inferior kind of activity which differs from normal activity and from that of decerebrated animals and of pathologic obstruction of the spinal cord-cortex route in man. There is no doubt that the fibers of the spinal cord can regenerate, but this anatomic regeneration is not systematized. It does not lead to reconstruction of nerve routes which would ensure the resumption of useful transmissions. Regeneration seems to be possible not only of the roots but of the white substance, but all the experiments and experiences to date demonstrate that the regeneration does not permit resumption of the old functioning. The activity of the spinal cord after complete separation from the cerebellum and brain is a new activity, pertaining exclusively to the spinal cord itself. The innervation of the extensors of the legs depends on the supra-medullary centers, and these extensors do not regain their reflex activity. All the activity of the "spinal man" is in the sphere of the flexors. The flexors regain their tonus and function in a synergic manner, but their temperature is below normal, and electric tests show a different response from normal. The assumption seems plausible therefore that there is an autonomous activity of the spinal cord. It is manifested by defensive movements, but these defensive movements cannot be identified with the reflex defensive movements of the decapitated frog, as they are purposeless and could not serve in any way for actual defense reflexes.

**Familial Atrophy of the Optic Nerve with Tremor.**—The parents were healthy and also four of the six children, but one brother and sister developed visual disturbances suddenly at puberty and they rapidly progressed. The symptoms closely resemble those described by Leber as characteristic of hereditary atrophy of the optic nerve. There are also certain other nervous symptoms, incoordination in the movements of the eyes and asymmetry in the innervation of the face in the young man. In the young woman there is tremor besides, including even the trunk when seated, and all the finer coordinated movements are slow and awkward but the gait and reflexes seem normal. There is pronounced mental impairment in this case. The patients had been apparently normal until puberty. The cases resemble some reported by Behr; his were all in boys, and evidently congenital.

**Tendon Transplantation for Radial Paralysis.**—The success in the case of which an illustrated description is given justifies, it is stated, tendon transplantation as a routine measure for peripheral paralysis. It gives as certain and as prompt functional results as can be obtained with orthopedic apparatus, to say the least.

**Cataplexia.**—Austregesilo's article was reviewed, Jan. 11, 1919, p. 154, when it appeared elsewhere.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 14, 1919, 49, No. 32

- Technic for Administration of Digitalis Preparations. M. Cloetta.—p. 1193.  
 \*Influence of Influenza on Pregnancy and the Puerperium. E. Geymüller.—p. 1198.  
 \*Specific Gynecologic Medication. A. Nordmann.—p. 1208.  
 \*The Factory Physician. Koller.—p. 1214; Ed. A. Ziegler.—p. 1216.

**Influenza in the Pregnant and Parturient.**—Geymüller's experience with influenza in forty-two pregnant women and in eighteen parturients confirms the frequently disastrous influence of these conditions on the course of influenza. The proportion of pneumonia cases was larger, and half of the pneumonia cases terminated fatally. Spontaneous abortion was frequent, probably the result of the excessive amount of carbon dioxide in the blood. The delivery in turn has an unfavorable influence on the pneumonia. After the childbirth, an attack of influenza offers no special danger, the involution processes not being appreciably modified by it.

**Gazzetta degli Ospedali e delle Cliniche, Milan**

Aug. 10, 1919, 40, No. 64  
The Campaign against Cholera in the Troops on the Austrian Front. G. Massarotti.—p. 657.

Aug. 17, 1919, 40, No. 66  
\*Importance of Weather Conditions as Influencing Development of Acute Noncontagious Diseases. A. Campani.—p. 685.

**Meteorologic Conditions as Influencing Certain Diseases.**—Campani accepts the term "cyclonosis" to express the three groups of symptoms which seem to have some connection with the weather. The first group includes headache, sensations of heat, irritability and tendency to epistaxis and to hemoptysis; the second group includes intestinal catarrhal disturbances, sleeplessness and loss of appetite, while the third group comprises rheumatoid pains, painful joint disturbances, pains in old scars, etc. He compares in eleven tables the morbidity and the meteorologic conditions during a recent nearly two year period at Verona in northern Italy, his data including 24,528 cases of recorded disease exclusive of acute contagious diseases. The morbidity was least in the windy periods, especially in winter, while the highest morbidity accompanied periods of cloudy skies. As a general rule, he says, the best conditions for health seem to be during or immediately after the great atmospheric convulsions and the fair weather that follows them. The morbidity is highest during the periods of stagnation preceding storms, with a constant temperature, generally rather above the mean, the sky cloudy, and only weak atmospheric currents. The greater the fluctuations in the temperature of the twenty-four hours, the less the morbidity, and the less the fluctuations the higher the morbidity, especially when the humidity is high. The northwest winds in winter and the southwest in summer seemed to be the most favorable for the health in general. The influence of the weather on the development of plants and crops is so evident that he is convinced that physicians may well study the subject in the interests of patients. It might be well to add study of the appearance of sun spots, the variation in electric conditions and even the phases of the moon as these may affect the action of certain ferments.

**Policlinico, Rome**

July 13, 1919, 26, No. 28

\*Improved Technic for Romanowsky Stain. R. Romanese.—p. 873.  
\*Stain for Tubercle Bacilli. A. Gasbarrini.—p. 874.  
\*Chyliform Ascites. P. Sisto.—p. 878.  
\*Milk Like Effusions. P. Biffis.—p. 881.  
\*Primary Liver Abscesses. E. Gaslino.—p. 883.  
July, 1919, 26, Medical Section No. 7  
\*Dissociated Paralysis of Peripheral Nerves after War Wounds. G. Minguzzi and G. Fumaldi.—p. 257. Cont'n.  
\*War Motor Psychoneuroses. G. Pellacani.—p. 275.  
\*Tonic Ulterior Spasm of Eyelids. A. Mendicini.—p. 286.

**The Romanowsky Stain.**—Romanese has worked out, he says, a simple and reliable substitute for the Giemsa method. The results seem to be the same with it as with the original Giemsa fluid, while the ingredients are inexpensive and always at hand. He dissolves 0.75 gm. methylene blue in 50 c.c. of 95 per cent. alcohol and 50 c.c. of glycerin, and adds 3 c.c. of a 10 per cent. solution of sodium carbonate in distilled water, and boils for fifteen minutes. Then he adds 35 c.c. of a 1 per cent. alcoholic solution of eosin and boils fifteen minutes. It is then removed from the fire and alcohol is added to bring the total amount to 100 c.c. It is then set aside, covered closely, for a week.

**Stain for Tubercle Bacilli.**—Gasbarrini has long contended that the acids used to decolor the bacilli with the usual

technic are too powerful and detract from the effect. To avoid this he uses methylene blue in excess in a solution of 40 c.c. lactic acid in 160 c.c. distilled water, and adds to this at the time of using four parts of alcohol (95 degrees). This both decolors and recolors at the same time, with the finest and most constant results. It has shown up tubercle bacilli in sputum, urine and stools when the Ziehl gave negative findings, and the accuracy of the lactic acid method was confirmed by the course of the cases. The nonacid resisting bacilli can be differentiated more readily, and the whole procedure takes less time than the ordinary technic.

**Riforma Medica, Naples**

Aug. 9, 1919, 35, No. 32

\*Action of the Meningococcus on the Eye. L. Guglianetti.—p. 662.  
\*Laboratory Tests in Typhoid. C. Pezzi.—p. 665.  
\*Malaria in Istria. M. Gioseffo.—p. 671.  
\*Tumors in the Esophagus. G. Molinari.—p. 676.

**Action of the Meningococcus on the Eye.**—Guglianetti here reports his conclusions from experimental research on the pathogenic action of the meningococcus on the various tissues of the rabbit eye. The meningococcus induced inflammatory processes when injected into or below the different tissues, with the exception of the conjunctiva. There was no reaction by the conjunctiva not even to subconjunctival injection of these germs.

**Laboratory Diagnosis of Typhoid and Paratyphoid.**—Pezzi reiterates that beef gall with 2 per cent. glucose is an efficient means for distinguishing between cultures from typhoid and paratyphoid infections. Each is unmistakable.

**Rivista Critica di Clinica Medica, Florence**

May 31, 1919, 20, No. 22

To Ensure Precision in Estimating Time with Multiple Heart and Pulse Tracings. G. Castelli.—p. 253.  
The Diet in Fever. Cesare Capezzuoli.—p. 253. Cont'n.  
June 14, 1919, 20, No. 24  
By Effects with Artificial Pneumothorax. C. L. Rusca.—p. 277.  
Present Status of Diabetes. Fornasari.—p. 280. Cont'n.  
July 12, 1919, 20, No. 28  
\*Hemolytic Splenomegaly. L. Castaldi.—p. 325. Cont'd in No. 27, p. 313.

**Hemolytic Splenomegaly.**—Castaldi reviews the few cases on record of what he calls Banti's hemolytic splenomegaly, and describes a case personally observed in a man of 27. There was no pain and but little jaundice accompanying the intense anemia. The blood count showed 2,105,000 red and 6,305 white corpuscles, hemoglobin 45 per cent. and the color index 1.07, with 53.5 per cent. polymorphs; 0.5 per cent. eosinophils and basophils 4 per cent.; large mononuclears 4 per cent. and 41.5 per cent. lymphocytes; no myelocytes, and no nucleated erythrocytes. The case thus fits into the frame of Banti's ahemoipctic hemolytic splenomegaly. In the nine similar cases on record the spleen was removed in seven and with excellent results in every instance. As no improvement was realized under medical measures, Castaldi advised splenectomy but the patient refused this and roentgen treatment was applied, with brilliant success. Ten exposures of ten minutes each were given in the course of forty-five days and the outline of the spleen subsided from 21 by 16 to 12 by 11.5, while the hemoglobin ran up to 80 and the erythrocytes to 5,600,000 and the weight increased by nearly 5 kg. The patient would not wait for further treatment but has kept well during the four years since, including nearly three years of military service. The case teaches the necessity for a trial of thorough roentgen treatment before resorting to splenectomy in such cases.

**Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil**

April, 1919, 10, No. 4

\*Septicemias. A. G. Guimarães.—p. 73.  
\*Case of Hydramnion with Twenty Litters of Fluid at Seventh Month of Pregnancy. Martino de Azevedo.—p. 88.

**Septicemias.**—Guimarães expatiates on the advantage of taking a culture from the blood in every febrile state, no matter how mild it may seem. The results should not be

classed as negative until the cultures have been taken at different periods in the fever. It has been his experience that infection occurs mostly by way of the veins, and that the pus cocci are most frequently to be incriminated, and that the prognosis with them is almost always fatal in adults, and to grave in children. There are always symptoms from the septicemia, but they vary widely in different cases. The staphylococcus may proliferate in bile. Septicemia with anaerobes is rare. In the majority of cases the pneumococcus is found in the blood after it has localized in the lung, but in one of his cases the pneumococcus was isolated from the blood before it had localized anywhere. In acute cases of septicemia, if an abscess forms, the prognosis becomes more favorable.

### Archivos Españoles de Pediatría, Madrid

June, 1919, 3, No. 6

- \*Fractures of the Femur. F. Criado Aguilar.—p. 321.  
\*Weight and Stature of Schoolchildren in Spain. P. Puig y Roig.—p. 327.  
Albumin Milk in Infant Feeding. A. Muñoyerro and Bravo Frias.—p. 354.

**Treatment of Fracture of the Femur.**—Criado declares that the treatment of fracture of the femur is still open to improvement. The current methods of continuous extension are not based on correct principles although they may give more or less satisfactory results, but he claims that the plaster bandage he uses is irreproachably efficient and can be absolutely depended on. He gives minute directions for applying it without the slightest compression at any point. He first applies the bandage to the pelvis, winding it to cover perineum and anus, leaving only the genitals exposed. Then the leg below the knee is wound in the same way, including the foot, the patient lying supine. No attention is paid to the fractured region while the pelvis and leg are thus being wound, except to keep the thigh in a generally good position. When the leg and pelvis are thus wound they are held firm by assistants while he reduces the fracture, watching for the disappearance of the deformity of the muscle, the good position of the foot, and the normal length of the limb, comparing it with the sound mate. When the femur is thus in normal position, he draws a horizontal line on the pelvic bandage, at about the anterior superior iliac spine, and another at the middle of the bandage on the leg, and measures the space between, cutting a piece of cardboard exactly the length of this space. This cardboard measure is entrusted to an assistant, possibly a member of the family, and the thigh is then wound with the bandage, measuring with the cardboard constantly to keep the two lines the same distance apart so that the limb will retain its normal length. The thigh and knee are wrapped in cotton and the plaster bandage is applied over this, smearing more plaster on the pelvis and leg bandages to make the whole solid. When the plaster hardens, he cuts out an opening for the anus and for the heel. The plaster bandage holds the whole limb in its normal position and length by the extension and counterextension from the plaster hold on the dorsum of the foot and the perineum, thus preventing any contraction of muscles. The patient can be up and about with this bandage if care is taken not to fall.

**Weight of Schoolchildren in Spain.**—Reviewed above as published elsewhere.

### Brazil Médico, Rio de Janeiro

July 12, 1919, 33, No. 28

- The Balandino Coli in Persons not Presenting Signs of Dysentery. C. F. Pinto.—p. 217.  
\*Hexamethylenamin by the Vein in Spirochetal Jaundice. A. da Matta.—p. 218.

**Hexamethylenamin by the Vein in Spirochetal Jaundice.**—A similar article by da Matta was summarized in these columns, May 24, 1919, p. 1580.

### Gaceta Médica de Caracas, Venezuela

June 30, 1919, 23, No. 12

- \*Ethnic Enlightenment of America. C. E. Paz Soldán.—p. 125.  
Etiology and Pathogenesis of Cholecystitis and Cholelithiasis. Rivas Morales.—p. 127.

**The Eugenization of America.**—Paz Soldán reiterates that *governar es sanear, es eugenicar*, and that America calls for eugenization and biosocial progress. He insists that the scientific societies, especially the national academy of medicine in the different countries, should inaugurate a campaign to enlighten the public in regard to racial and eugenic duties as a new and exalted form of patriotism. He appealed to the Academia de Medicina at Caracas to consider taking the lead in this work. The Academia warmly endorsed this plan of ethnic enlightenment as the synthesis of a vast program of life and prosperity for the human being on this western continent, but it declined to take the lead in the movement as it was not in a position and did not have enough prestige to inaugurate an important crusade of the kind, but it promised to serve valiantly and devotedly in the ranks.

### Medicina Ibera, Madrid

July 5, 1919, 8, No. 87

- Criticism of Modern Methods for Extraction of Cataract. I. Barraquer.—p. 1.  
\*Early Diagnosis and Operative Treatment of Cerebellopontine Lesions. W. López Aibo and D. García Hornaache.—p. 5.  
July 12, 1919, 8, No. 88  
\*Electrocoagulation of Bladder Tumors. F. Miravet.—p. 17.  
\*Radium in Dermatology. L. Rodríguez and F. Sierra.—p. 21.

**Cerebellopontine Lesions.**—López and García remark that they could find only one article on this subject credited to a Spanish author among the 300 articles they consulted. They have encountered at the public hospital of Bilbao four cases of lesions pressing on the cerebellopontine tissues. The patients were three men between 29 and 32 and one woman of 24. The disturbances may be ascribed to trigeminal neuralgia at first, and it is important to examine with minute care the functions of the fifth, sixth, seventh and eighth nerves. In their cases the evacuation of the pus in the one case of cerebellopontine abscess was followed by a complete cure, but two other patients given operative treatment succumbed to respiratory paralysis. Treatment for syphilis had been pushed in some of the cases but no benefit was apparent. In one of the operative cases a cerebellopontine extension of a tumor in the left half of the cerebellum had been assumed, but the space was found empty. Hemorrhage from the lateral sinus compelled tamponing and this entailed a destructive process with hemiplegia and the patient died six weeks later; no necropsy.

**Electrocoagulation of Bladder Tumors.**—Miravet reports favorable experiences with electrocoagulation of bladder tumors, and commends it as simple and practical. As it does not require general anesthesia, the patient can live his usual life throughout the course. A single application usually cures completely the smaller tumors. The principal advantage in cancer cases is that it checks the tendency to hemorrhage, but he has had a number of cases in which the malignant tumors retrogressed to a certain extent, and in one case to a complete clinical cure.

**Radium in Dermatology.**—Rodríguez has applied radium treatment in 122 cases of cancer of the skin during the last ten years, and 119 of the patients were radically cured. All are free from recurrences to date. The three failures were in patients who had been previously treated vigorously with the roentgen rays; one had an ulcerating roentgen dermatitis. He has applied radium in 147 cases of lupus and many of these patients with lupus of thirty or forty years' standing were cured. A preliminary curetting seemed to promote the action of the radium. Among other lesions that subsided under radium were leukoplakia and lichen planus of the tongue, and he regards treatment of these as very important as they predispose to malignant disease.

### Prensa Médica Argentina, Buenos Aires

June 20, 1919, 6, No. 2

- \*Tardy Inherited Syphilis. M. R. Castex and N. D. Rosso.—p. 25.  
Craniotomy for Bullet Wound. R. V. Hernández.—p. 27.  
\*Localizations in the Brain by Light of Biologic Psychology. E. Mouchet.—p. 28.  
\*Study of Pulmonary Tuberculosis as Part of Curriculum. A. Cetrinolo.—p. 30.

**Tardy Inherited Syphilis and Abdominal Disease.**—Castex and Rosso give minute details of nine cases with numerous roentgenograms which confirm that various gastro-intestinal affections may be traced to inherited syphilis. They say that such cases are comparatively numerous, and a frequent type is the gastroduodenal ulcer. A circumscribed perivisceritis, causing pain in the epigastrium, is also relatively frequent. Chronic inflammatory processes in and around the sigmoid and the rectum may be a tardy manifestation of inherited syphilis. Chronic peritonitis with effusion is sometimes traceable to it also, but when this is the case other serous membranes are usually involved and some of the viscera may be diseased. It may be impossible to differentiate these tardy syphilitic lesions from tuberculous changes, but the improvement under tentative treatment as for syphilis clears up the case. Some of their cases presented Lane's kink and Jackson's membrane as syphilitic lesions of this category. Lane called attention to the benefit from calomel in cases of kink, but he ascribed it to the action on the liver.

**Localization in the Brain by the Light of Biologic Psychology.**—Mouchet is professor of abnormal psychology at the University of La Plata, and he remarks in the course of this study of the localizations in the brain that we are less certain about them now than we were a few years ago. Instead of a lot of pigeon-holes for different functions, psychology is progressing toward acceptance of the great unity of our mental life although recognizing zones of special functioning. He insists that we must not depreciate the importance of the white substance of the brain; injury of the former may modify functioning as seriously as injuries of the cortex. He explains how the blood not only nourishes and warms the brain and maintains the pressure, but it also brings hormones to act on it. The hormones are likely to be very important for the functioning of the brain cells. When the stimuli from the hormones predominate, our action is instinctive; when the stimuli from the nerves predominate, our action is under the control of the mind, but the brain is always under the influence of both. When an action is repeated through generations, it comes to be performed with less and less attention from the senses. The hormones alone are able to accomplish it. He asserts that the hormones poured out into the blood "are responsible for the states we call love, desire, appetite, etc. If we remove the glands that secrete the hormones involved, the instinct is lost, and the mental state we call eunuchism is entailed. This hormonal basis underlies the emotions and the intelligence which orient and civilize instinct. Each one of us is kindly or malicious, an imbecile or genius, brave or cowardly according to his entrails and his humors. The hormones are the primary cause of instinct, the voice of our ancestors; our eyes and ears direct and civilize the hormonal action." The hormones act on the brain throughout. The mental states which are the result of their stimulating action cannot be localized at any special point but must involve the whole of the brain mass. The point where a nerve starts, and the region immediately around it, naturally become more or less specialized in the direction of the movements of the muscle innervated by that special nerve, or in the sensations transmitted to that point by different nerve impulses. But with hormones, there can be none of this isolated, partial action. "This explains the unity of our world, of the whole of the workings of the psyche. It is the unity of the Ego in opposition to the unity of the external world, the Non-Ego."

**Study of Pulmonary Tuberculosis.**—Cetrángolo pleads for a chair of phthisiology in the medical schools.

June 30, 1919, 6, No. 3

\*Syphilis. J. Palacio, p. 33.

†Intradermal Tuberculin Injections in Diagnosis and Treatment of Tuberculosis in Children. J. P. Garraban, p. 35.

‡Extensive Colectomy for Cancer: Recovery. N. Tagliavacchi, p. 37.

**Syphilis from Clinical Standpoint.**—Palacio reiterates that recent research has shown that between latent syphilis and extremely active syphilis there are many grades and phases, and a new field of observation has opened up here, just as we have learned recently to appreciate better the extent of

endocrine disturbances. Many of the manifestations, early and tardy, of inherited syphilis have been misinterpreted hitherto, but, on the other hand, it is not right to give mercurial treatment bit or miss. The other children in the family should be examined in dubious cases. The lack of a history of abortions in a family does not exclude syphilis; in some families with a syphilitic taint, fecundation seems to be exceptionally active. The virulence of the taint seems to diminish with the length of the interval since the parental infection. The Bordet-Wassermann test should be complete and not be called on to substitute the history of the case and examination of the patient. When a new infection, such as pulmonary tuberculosis, is superposed on an inherited or acquired syphilis, treatment of the latter may modify the soil, reinforce the defensive powers and enable the patient to throw off the superposed infection as the syphilis yields to treatment. This may give the erroneous impression that the specific treatment has cured the superposed infection. A syphilitic lesion in the lung usually locates in the base, and preferably in the middle lobe of the right lung. There is usually a marked tendency to sclerosis, while the general health keeps good. A tuberculous process developing on a syphilitic soil generally displays a fibrous tendency and only examination of the sputum will tell whether a pulmonary affection in a syphilitic is the work of the syphilis or of the tubercle bacillus.

Palacio adds, "When a syphilitic develops cancer (and the majority of cancer cases are syphilitic), if there is not extreme cachexia, mercurial treatment may improve conditions to such an extent that the physician may doubt the diagnosis of cancer." The lesions of syphilis are liable to locate at points where traumatism has reduced the resistance, and this may explain the lack of recuperation or the delay in healing after a trauma. This has been strikingly demonstrated in certain cases of war wounds; the syphilis by rendering the tissues and the vessels in the region abnormally frail and nonresistant, interferes with normal healing. It is possible, he adds, that certain cases of death under chloroform were in persons with inherited syphilis and consequent endocrine anomalies. Specific treatment before the anesthesia and administration of epinephrin might have tided the patient past the danger point, and aided in the healing of the operative wound. Emotional stress or extreme fatigue may rouse a latent syphilis and cause its localization in the nervous system, the initial symptoms of general paresis appearing soon after. If they are not recognized at once and proper treatment instituted, irreparable lesions may soon become installed.

He warns that treatment should be commensurate with the "age" of the special lesion in question, but sclerosis does not regress, and the most that can be hoped is to arrest the process. Syphilis, like tuberculosis, may flare up during a pregnancy. Palacio explains reinfection in syphilis as due to invasion of exceptionally virulent germs during a phase of extreme latency of the original syphilis. Syphilitic nephritis is distinguished by unusual amounts of albumin in the urine, and mercurial treatment is directly indicated. The albumin decreases and diuresis increases after one or two injections.

**Intradermal Tuberculin Treatment of Children.**—Garraban reviews the experiences with 653 children from 2 to 16 years old given tuberculin intradermally both for diagnosis and in treatment. As a diagnostic test, he found it more reliable than the skin Pirquet test, especially with latent tuberculosis. In case of glandular disease or nodule erythema or suspicion of hypersusceptibility in general, he advises to use only 0.00001 gm. of the tuberculin instead of the usual 0.0001 gm. A positive reaction in an infant is an almost certain sign of active tuberculosis, and a repeated negative reaction in older children almost certainly excludes tuberculosis. The intradermal route for tuberculin treatment of children seems to be also likely harmless. There do not seem to be any contraindications, and it is not necessary to take the temperature; estimation of the proper dose is a simple matter by the aspect of the local reaction. As to the efficacy of tuberculin treatment, he does not share Combe and Jeanneret's optimism. In

some cases no effect was apparent; in many others it "seemed" to be effectual. He advises it as an adjuvant or when fundamental climatic and hygiene treatment is not available.

### Repertorio de Medicina y Cirugía, Bogotá

July, 1919, 10, No. 10

\*Proposed Code of Ethics.—p. 507.

\*The Epidemic of Whooping Cough at Capcá. M. A. Rueda Vargas. p. 543.

Treatment of Syphilis. M. A. Rueda G.—p. 551. Cont'n.

**Proposed Code of Ethics.** This code was drawn up by the Sociedad de Pediatría de Bogotá to be presented at the Fourth National Medical Congress of Colombia to convene in August at Tunja. The code is almost identical with the one adopted in 1918 by the Academia Nacional de Medicina of Venezuela which was very fully described in THE JOURNAL, Sept. 21, 1919, p. 1013. The obligation of physicians to attend their confrères free of charge and without discrimination as to nationality is more explicitly stated in this new code, and a colleague is defined as (1) those who have completed the required course of study; (2) those who have obtained the diploma of physician or surgeon, and (3) those who are dependent in any way on the medical profession. The code continues "The physician should prescribe gratuitously for the colleague's family, that is, for his parents, wife and children provided they do not have a financially independent position. This obligation does not cease with the death of the colleague." It is stated further that at a consultation "no opinions or prognostications should be expressed except as concurred in by the consultants at their conference, and which cannot injure in the slightest the reputation of the attending physician in charge of the case." The hours for day calls are from 8 to 8; for night calls from 8 p. m. to 6 a. m. The Venezuela code made elaborate provisions for a "Tribunal of Honor," but there is no reference to anything of the kind in the proposed code. It closes with the suggestion that it is a duty of *compañerismo profesional* to keep a list of clients who elude payment for medical services, so that other physicians in the same locality can be informed. The code further omits the Venezuela clauses saying that the physician should not make an examination of a married woman unless her husband is present or some one appointed by him, and that a general anesthetic should not be given without the presence of at least two physicians. The code reiterates all the Venezuelan denunciations of *industrialismo médico*, of secret division of fees, and of "the preparation, sale, or promotion of the use of secret medicines."

**Whooping Cough.**—Rueda reports an epidemic of pertussis of unusual severity, the incubation being only three days at most and the spasmodic cough appearing at the fourth day after the initial symptoms. The paroxysms of coughing recurred five or six times an hour, the child being so exhausted in the interim that it lay inert and did not react to any stimuli. Some of the paroxysms of coughing lasted four minutes, the children becoming cyanotic and various complications developing, including epistaxis, conjunctival hemorrhages, hernia, prolapse of the rectum and bronchopneumonia. The latter always proved fatal in these cases, the paroxysms of coughing keeping up in the pneumonia. One child developed a gangrenous process in the mouth which proved fatal. He describes one case in which an artery in the brain of a child of 2 ruptured during a coughing paroxysm, fifteen days after the first symptoms. In one child of 8 the pneumonia dragged along for six weeks and left a condition strongly suspicious of tuberculosis. No cause for the special gravity of the pertussis could be discovered. Vaccine therapy seemed to have an attenuating influence in some cases, the paroxysms becoming less frequent and less severe thereafter.

### Revista Española de Medicina y Cirugía, Barcelona

June, 1919, 2, No. 12

\*Implants of Dead Tissues. Soler Juliá.—p. 301.

\*Transperitoneal Cesarean Section. Ruiz Contreras.—p. 305.

\*The Medulla Oblongata. J. Vilató.—p. 308. Concl'd in No. 13, p. 367.

\*Lessons from Laparotomies. S. Cardenal.—p. 314.

Bronchopulmonary Sprochetosis. Remigio Dargallo.—p. 323.

**Grafts of Dead Tissues.**—Soler reviews here the work of Seneceur and Nageotte as he watched their experimental research in this line and its outcome. It has been repeatedly described in these columns, and the way in which the graft kept in alcohol for a month grows into its new bed. The connective tissue persists, but all the other cells are resorbed and new ones take their place so that the dead tendon, for instance, recovers its vitality. One man, among others, with an ingrafted tendon to remedy an extensive defect had regained the use of hand and fingers and no one would have suspected that his arm had been crippled.

**Improved Technic for Transperitoneal Cesarean Section.**—Ruiz clamps two forceps on the anterior wall of the fundus of the uterus, about 10 cm. apart, and walls off the rest with napkins. Then he makes a small incision in the center and works through it with his fingers and the handle of the bistoury, separating the fetal membranes from the wall of the uterus. The membranes are not distended as they have ruptured and the fluid has escaped by the natural routes beforehand; he has aided this by having the woman stand up while he lifts with his finger the presenting part of the fetus. Then he fits over the uterus a square of impermeable tissue, about 40 cm. square, cut in the middle so that the edges of the opening thus made can be turned down over the edges of the incision in the uterus, thus covering them completely, and the whole is held in place with forceps. The field of operation is thus completely isolated and all that can be seen is the fetal membranes. These are then incised, the fetus extracted, the square of impermeable tissue removed, and the uterus sutured before the napkins are touched. In conclusion he sutures each of the edges of the lower part of the incision in the parietal peritoneum to each side of the suture in the uterus. This shuts off all communication between the interior of the uterus and the peritoneal cavity, even if the suture should not hold. This suturing does not fasten the uterus firmly to the abdominal wall as a peritoneal ligament soon develops, and this permits ample movement.

**Lessons from Laparotomies.**—Cardenal mentions among other lessons learned from his 2,100 laparotomies that it is not enough for medical students to study the anatomy of the normal abdomen. They should be given opportunities to study pathologic anatomy. They should never miss an opportunity to see "cases, cases and ever more cases." The peritoneum defends itself better than tissues of the connective-tissue type against mild infection, but when the infection is too strong for it, the invasion proceeds more rapidly and fatally than with any other tissue in the whole organism. Another important element in the pathology of the abdomen is the abundance of nerves throughout the entire area of the visceral peritoneum, ramifications from the solar plexus, intimately connected with the cranial nerves which preside over the respiration and circulation. This makes it imperative to reduce to the minimum all exposures of the peritoneum, and keep the viscera in an isotonic medium throughout any intervention, with the minimum of damage to the delicate endothelial coat of the peritoneum as on this depends its resisting power and its wonderful agglutinating power which allow the healing of a wound in a few hours.

With operations in the epigastric zone, the great danger is from bronchopulmonary complications and he ascribes this to a paralyzing influence on the bronchi by reflex action from injury of the sympathetic during the operation. This may occur without infection from the wound, as he has seen these bronchopulmonary complications develop when the wound was healing smoothly and aseptically. On account of the pain, the patient breathes as gently as possible and this, superposed on the reflex inhibiting tendency, reduces the already inadequate ventilation of the lungs and thus gives the saprophytes in the mouth, etc., a chance to proliferate and set up infection. The only means to ward it off is scrupulous cleanliness of the mouth and teeth before the operation, and exercises in breathing, especially deep inspirations, after the operation, favored by the semiseated position.

Lavage of the stomach wards off acute paralysis of the stomach; it has been most frequent in his experience after gallstone operations. He does not wait for the patient to

vomit or develop fever, but rinses out the organ when there is repeated malodorous eructation and the patient feels distressed. He repeats the lavage every six or eight hours and normal peristalsis usually is soon restored. Vomiting of black blood is combated in the same way, and conditions are usually brought back to normal.

He adds that he has several times found the first part of the ileum adherent in a vertical position to the posterior aspect of the stomach, as if Nature was about to do gastro-enterostomy. He reiterates that procrastination kills more persons than any disease, and that this is true of ileus and appendicitis in particular. The patient himself, his family, his physician, and even the surgeon may procrastinate from day to day, and the hour for successful intervention slips past. He adds, "In case of doubt, make an opening into the bowel above. Anything is better than to let the patient die from the poisons generated in the obstructed bowel, and do not be misled by alternations of euphoria and symptoms of obstruction." He incises on the median line to close an artificial anus, and cuts the intestine, leaving unmolested the loop fastened to the abdominal wall. After the side-to-side entero-anastomosis has been completed, he passes a forceps through the artificial anus, into each of the stumps of the bowel adherent to the wall. Seizing the free end of the stump he draws it out through the anus, inverted, like the finger of a glove. This brings the entire mucosa all outside the abdomen, the whole looking like the umbilical cord of a newly born infant. There is nothing left inside the abdomen except a small funnel lined with peritoneum. This serves as a drain for a time and gradually heals up. The portion drawn out can be allowed to dry up and drop off, like the umbilical cord, or it can be cut off later when the opening has healed over beneath. All that is left can be finally buried under the skin if desired. In the after-treatment, it must never be forgotten that retention is the great enemy to be combated.

**Revista de Medicina y Cirugía, Havana**

July 10, 1919, 24, No. 13

Organization for Welfare Work for Prospective Mothers. (La Mutuality Madre Materna del Vedado.) L. Huquet.—p. 347.

Aug. 10, 1919, 24, No. 15

\*Nature and Treatment of Accidents from Arsenical Treatment of Syphilis. V. Pardo Castello.—p. 395.

**Accidents from Arsenical Treatment of Syphilis.**—Pardo remarks in the course of this general review of his own and others' experiences, that what is called the nitritoid reaction cannot be ascribed to anaphylaxis, as a preliminary small injection before the main injection of the arsenical preparation did not attenuate or modify in any way the severe so-called nitritoid reaction in five cases in his experience. On the other hand, injection of a small amount of epinephrin warded it off completely in persons previously subject to the reaction in a severe form. This seems to sustain the assumption that this reaction is due to the vasodilator action of the drug. Serous apoplexy or hemorrhagic encephalitis is one manifestation of this nitritoid reaction, probably the result of dilatation of the vessels in the brain. In a case of this kind the serous apoplexy developed three days after a second injection—0.30 and 0.45 gm. of neo-arsphenamin—with convulsions and a comatose condition. Rapid recovery followed two intramuscular injections of epinephrin. The urine confirmed the vasodilation of the viscera, numerous red corpuscles being found in the sediment. Edema at the base of both lungs was also manifest. The condition is not restricted to the brain, and hence the term serous apoplexy is more appropriate than encephalitis. In conclusion, Pardo remarks that time has reduced the list of contraindications to merely advanced nervous and heart lesions with lost compensation and extreme cachexia. He cites a case in which the needle broke off in the vein and was swept away, compelling an operation to recover it.

**Semana Médica, Buenos Aires**

June 19, 1919, 26, No. 25

Evolution of Urology in Argentina. J. Nin Pasadas.—p. 637.

Identification of Dionin. J. A. Sánchez.—p. 642.

The Psyche of the Tuberculous. A. Cetrángolo.—p. 643.

\*The Examination of the Patient. E. Castaño.—p. 645.

\*Changes in the Teeth from Abnormal Nutritional Processes. C. R. Castilla.—p. 651.

**The Examination of the Patient.**—Castaño gives an outline for systematic examination of a patient with symptoms from the urogenital apparatus.

**Changes in the Teeth from Nutritional Disorders.**—A previous article by Castilla was recently summarized in these columns, p. 1021. He gives here two illustrations showing the incipient and established phases of the abnormal growth of certain teeth during impaired general nutritional conditions, especially gastro-intestinal derangement, and chief among these, those of the colitis type.

June 26, 1919, 26, No. 26

\*Extra Large Fetus. M. L. Pérez.—p. 661.

\*Serotherapy and Vaccine Therapy of Tuberculosis. Agésino Milane.—p. 667.

\*Intestinal Metastasis of Malignant Chorio-epithelioma. M. Faulin.—p. 669.

Prophylaxis of Venereal Disease. J. Brito Foresti.—p. 678. The Problem of Tuberculosis. C. Ferreira.—p. 684.

**Large Ovum.**—Pérez reports the successful delivery of an apparently healthy child weighing 5,530 gm. at birth. The mother of 24 had had one healthy child and two abortions and gave a negative Wassermann reaction, but a year or two before had responded positively to the test and had taken a course of mercurial treatment. Both of the parents were medium sized. All the membranes were unusually large so that the case was one of "large ovum" (7,530 gm.) and not merely an extra large fetus. There is every probability that syphilis was a factor in the disproportionate size of the ovum.

**Serotherapy and Vaccine Therapy of Tuberculosis.**—Milano refers to the prepared serum and vaccine made according to Ferrán's theories in regard to the different stages of the tubercle bacillus before it becomes the actual tubercle bacillus as we generally recognize it. He claims that by seizing it in the first of its three phases and vaccinating against it, the organism becomes immune to this phase, and hence there is no chance for it to contract the infection in the succeeding phases as the indispensable first link is missing. The Ferrán theories were recently described in these columns, Aug. 9, 1919, p. 460, and Oct. 4, 1919, p. 1074.

**Intestinal Metastasis of Malignant Chorio-Epithelioma.**—Faulin discusses the metastasis of chorio-epithelioma and reports a case which seems to be unique, the metastasis of the chorio-epithelioma developing in the ileum, about a year after the hysterectomy. The first signs of the malignant disease had been noted seven months before this, vesicles being expelled from the uterus which was only cured at that time.

**Siglo Médico, Madrid**

July 12, 1919, 66, No. 3422

Pathogenesis and Treatment of Fever. J. Sanchis Bonús.—p. 553. Studies on the Dynamics of the Heart under the Influence of Certain Drugs. Misael Bañuelos García.—p. 556. Cont'n.

July 19, 1919, 66, No. 3423

\*Influence of Aviation Flights on Glycemia. G. Marañón.—p. 573.

Tardy Iheretoid Syphilis. B. Hernández Briz.—p. 574.

Peculiarities of Certain Pistol Shots. Arsenio Plaza.—p. 576.

**Influence of Aviation Flights on Glycemia.**—Marañón tabulates the findings in regard to the sugar content of the blood before and after the emotional stress of aviation flights. They show a marked variation, from 0.12 to 0.20; from 0.10 to 0.15; from 0.15 to 0.12 and so on. The pulse also showed great variations, as well as the maximal and minimal blood pressure. Even in two pilots accustomed to several flights every day, the glycemia ran up from 0.10 to 0.15 and from 0.12 to 0.20, but the blood pressure did not show much change.

**Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam**

June 21, 1919, 1, No. 25

\*The Physician in the Service of the Police. G. van Rijnsberck.—p. 173. Neurophenanthum in Syphilis and Parasyphilis of the Nervous System. L. Heuman.—p. 2183.

The Fourth Sickness. G. A. Prins.—p. 2194.

Lethargic Encephalitis in Boy of Ten; Recovery. J. S. van Heukelom.—p. 2199.

**The Physician in the Service of the Police.**—Van Rijnberk refers to a recent sensational murder trial in the Netherlands in which various psychologic tests were applied to the accused, such, for instance, as testing his pulse without his knowledge as he was being taken over the scene of his crime. A physician applied the tests, and to this van Rijnberk most seriously objects, saying it is counter to all the traditions of trust and sympathy on the part of the members of the profession to have them utilize their knowledge to railroad a man to the gallows. He suggests that some special member of the police force might be trained for such tests and avoid calling in the medical profession.

June 8, 1919, 1, No. 26

\*Negative Wassermann Reaction with Ocular and Cerebral Syphilis. J. H. R. de Groot.—p. 256.

\*\*"Flenna Disease" in the Netherlands. W. Beyerman.—p. 2265.

The Practice of Medicine as a State Service. R. Bromberg.—p. 2270.

Personal Displacement of the Testicle with Inguinal Hernia. W. P. J. H. Geyl.—p. 2272.

**Negative Wassermann in Ocular and Cerebral Syphilis.**—Smit declares that we must not pay much heed to negative Wassermann reactions in syphilis affecting the nervous system and the eyes. The response with blood was constantly negative in 12 of the 14 cases he has encountered in the last three years. In half of them the blood vessels and in the other half the cornea or the heart seemed to be primarily affected. In only 2 of the 12 was there a history of known syphilis. In 2 of the cases in which the syphilis had run an insidious course, it flared up with stormy symptoms during an intercurrent infectious disease, as also in 2 others who were not given the Wassermann test. One of these developed apoplexy after typhoid, with oculomotor paralysis, tabes, diabetes insipidus, prostatitis and weakness of the heart; another after pleurisy had diabetes insipidus and multiple adhesions in the pleura, with shriveling of the lung. Tabes in one case seemed to retrogress under twelve intramuscular injections of mercury peptonate, from 0.01 to 0.03 c.c. in 3 c.c. of water. Notwithstanding the negative response to the Wassermann test, the radical improvement under mercury confirmed the diagnosis of syphilis.

**Famiae Edema in the Netherlands.**—Beyerman states that twelve of the inmates of the insane asylum at Medemblik developed in 1917 and 1918 edema and other symptoms which suggested scurvy or purpura except for the remarkably slow pulse and the absence of changes in the gums. Conditions returned promptly to normal without other measures than the addition of fresh vegetables to the otherwise unmodified diet.

July 12, 1919, 2, No. 2

The Physician and the National Medical Organization and Society at Large. H. Burger.—p. 81.

Treatment of Pseudarthrosis. R. A. Tange.—p. 91.

\*Epidemic Meningitis and Bacilli Carriers. C. Orbaan.—p. 101.

Measurement of the Blood Pressure. L. Kaiser.—p. 105.

**Epidemic Meningitis.**—Orbaan relates his experiences with eighteen cases of epidemic meningitis in the military hospital at Harderwijk. No permanent paralysis of cranial nerves was observed in the thirteen survivors. One man was left a carrier of meningococci in the spinal fluid although the nasopharyngeal secretions seemed sterile. In another case the symptoms developed with lightning-like rapidity; the antiserum was used without delay and recovery proceeded with almost equal haste. Orbaan found it extremely useful to separate the men into groups to examine for carriers. When a group was found free from a carrier, all the members of the group were allowed their freedom. By separating into constantly smaller groups, it thus proved possible to reduce to a very small number those requiring isolation. The average was always from 1 to 4 per cent. of carriers, and when these carriers were isolated the building seemed to be freed from the disease. A counter-proof as to the importance of carriers was furnished by his examination of a group of 250 returned Belgians among whom there had never been any cases of meningitis. Careful search failed to reveal a single carrier among them.

## Nordiskt Medicinskt Arkiv, Stockholm

March 10, 1919, 51, Internal Medicine Section No. 3

\*Tumors of the Carotid Gland. J. Reenstierna.—p. 215.

\*\*To Calculate the Speed of Intoxication with Carbon Monoxid. H. Gertz.—p. 217.

\*The Skin Changes with Lymphogranulomatosis. S. Hesser.—p. 253. Taking the Silver Stain not a Reliable Sign of Death of Bacteria. A. Cedercreutz.—p. 279.

\*The Nervous Apparatus of the Heart and Pericarditis. E. Perman.—p. 282.

**Tumors of Carotid Gland.**—Reenstierna adds two to the list of tumors of the carotid gland on record, bringing the total to sixty-six. (In English.)

**Velocity of Carbon Monoxid Poisoning.**—Gertz' calculations show that the toxic action of carbon monoxid develops comparatively slowly at first. With twenty normal respirations—about one minute's time—there is no risk of asphyxia or of loss of consciousness unless the air contains very large amounts of carbon monoxid. (In French.)

**Skin Changes with Lymphogranulomatosis.**—Hesser gives an illustrated description of the case of a young man with lymphogranulomatosis and a localized eruption which followed the track of the lymphatics in certain regions. His photomicrographs show a striking resemblance between this eruption and Kaposi's sarcoïd.

**The Innervation of the Heart with Pericarditis.**—Perman's necropsy findings confirm the inflammatory changes almost certain to occur in the subpericardial nervous apparatus when the pericardium is diseased. Study of the condition and functioning of the innervation of the heart during pericarditis might throw much light on the physiology of the heart if undertaken early, before much effusion masks conditions.

## Ugeskrift for Læger, Copenhagen

Aug. 14, 1919, 81, No. 33

\*Roentgen Treatment of Cancer. S. Nordentoft.—p. 1307.

To Determine Specific Gravity of Small Amounts of Urine. H. C. Hagedorn.—p. 1319.

**Roentgen Treatment of Cancer.**—Nordentoft has long been preaching and practicing the treatment of malignant tumors with a single intensive exposure to the roentgen rays, striking hard and thoroughly once for all. It is a risky thing, he says, to apply roentgen treatment when some other physician has given one or more exposures before. The question then is whether to leave the patient to die of the cancer or run the almost equally dangerous risk of roentgen necrosis; in this latter case there is usually some discredit for the physician. He now refuses to treat any patients with brain tumor who have been previously rayed. He relates some cases to show the danger from wasting time on medical measures with a tumor in the throat or nose, and says that the regional glands in the neck with a tumor in the pharynx should not be operated on without microscopic examination. In one case described, a girl of 17 had a sarcoma of the femur subside under roentgen treatment and also a large metastasis in the temporal region. The primary focus in the femur flared up anew but again subsided under roentgen treatment and a metastasis in the mastoid process retrogressed spontaneously. The girl is now apparently perfectly well and looks healthy, but new metastases are liable to develop at any time. Our conceptions of metastasis require revision, he says, as recent research has demonstrated that metastases occur much earlier and on a more extensive scale than hitherto deemed possible, but that they are unable to develop as long as the resisting powers keep at a good level. The spontaneous retrogression of the tumor in the mastoid process in this case justifies the hope that other metastases might undergo the same fate.

He refers in conclusion to the use of autovaccines, saying that the effects of raying a tumor are equivalent to an auto-vaccination on a large scale, and with much more thorough incorporation than with injection of any possible vaccine. But no immunization against new attacks results, and this shows, he says, how futile such vaccines must be in therapeutics.

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## THE ARTIFICIAL FEEDING OF ATHREPTIC INFANTS\*

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ST. LOUIS

The term "athrepsia," as used in this paper, refers to that well known condition of extreme malnutrition of infants otherwise known as "marasmus," "infantile atrophy," or "dekomposition."

### PATHOGENESIS OF ATHREPSIA

The essential factors in the pathogenesis of the condition, as determined by recent investigation, are discussed elsewhere,<sup>1</sup> and they need now only be referred to briefly. The condition of athrepsia may be considered as the end result of an insufficient intake or of a failure to utilize food in sufficient amount to supply the demands of the body; in other words, a condition of virtual starvation. In this condition the volume flow of the blood, that is to say, the amount of blood flowing through a given portion of the body per minute, is diminished. This diminished volume flow, it has been shown, is dependent, in part at least, on a decreased blood volume, seemingly the result of a decreased protein content of the plasma and consequent inability of the blood to maintain its water content. There is an atrophy of the blood as well as of the rest of the body.

### PRINCIPLES OF TREATMENT

The obvious remedy for the condition is food, and very considerable amounts of food, for the energy requirement of such infants is high, and there is the need for replacing much lost tissue. Many of these infants will not begin to gain until they have received as much as 150 or 200 calories per kilogram of body weight, but unfortunately the tolerance for food is low. The intestinal tract and digestive glands supplied by an atrophied, poorly circulating blood are functionally weak. Digestion and absorption of food is necessarily poor. Unabsorbed food remaining in the intestinal tract of a weak infant is "gunpowder" which requires only the proper "match," bacterial or otherwise, to precipitate a catastrophe.

We are confronted then, with the problem of feeding a large amount of food to an infant whose intestinal tract may be incapable of caring for even small amounts of ordinary food.

### THE INJECTION OF GLUCOSE

Food may, of course, be introduced parenterally, but this method of administration has definite limitations. Carbohydrate, in the form of glucose, is the only food that it is practicable to administer parenterally. Pure amino acids or fat emulsions are theoretically suitable for intravenous administration, but are not practical in the present circumstances. Intravenous injection of glucose is a valuable and temporary expedient when the need for food is imperative. The few extra calories introduced in this way occasionally seem to be sufficient to turn the tide in favor of the infant.

Something may be done toward increasing the tolerance of the infant for food. This tolerance, of course, rises as the nutrition and circulation improve, but it is possible to shorten to a great extent the period of repair. This is accomplished by increasing the blood volume and as a result, the volume flow. This may be done by blood transfusions or by the intravenous injection of a gum acacia saline mixture.<sup>2</sup> It is necessary to repeat the transfusions or injections at fairly frequent intervals. Whether or not these procedures are carried out, we still have before us the necessity for providing a food which contains the elements essential to nutrition and which can be fed in large amounts without causing gastro-intestinal disturbances. Breast milk, of course, meets the indication; but breast milk is not always available.

### USE OF LACTIC ACID MILK

It has been a matter of common experience that infants suffering from gastro-intestinal disturbances are able to take larger amounts of milk artificially soured by lactic acid organisms than they can of sweet milk. We have come to regard buttermilk and protein milk as our chief reliance in the feeding of infants with gastro-intestinal disturbances. Buttermilk, that is to say, fat-free lactic acid milk, is low in caloric value; and although a useful food during a period of lowered tolerance, is not a food on which an athreptic infant will gain weight consistently. The caloric value may be increased by the addition of sugar and starch, and favorable results from the feeding of such a mixture have been reported. Protein milk is also a food invaluable for certain purposes, but of relatively low caloric value; and even when enriched by sugar addition it is not especially well adapted to the feeding of markedly athreptic infants, particularly those under 3 months of age, for any length of time.

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<sup>1</sup> Read before the Section on Diseases of Children at the Seventy-sixth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Marriott, W. McKim: Proc. Am. Ped. Soc., 1919.

<sup>2</sup> The solution used is composed of gum acacia, 10 gm.; glucose, 5 gm., and physiologic sodium chloride solution, enough to make 100 c.c. The solution should be centrifuged a short time before using, as a slight sediment tends to collect. From 10 to 20 c.c. of the solution per kilogram of body weight are injected very slowly into the sinus or into a surface vein.

In selecting a food for athreptic infants, we determined on a lactic acid milk as a basis. There would seem to be no very good reason *a priori* why the fat or, at any rate, all of the fat, should be removed from lactic acid milk. Surely the 2.5 per cent. of fat in protein milk is perfectly well tolerated. Buttermilk is ordinarily fed undiluted to even young infants with fairly good results, thus demonstrating that the concentration of sugar, protein and whey constituents contained in whole milk is not in itself harmful. A certain amount of fat can be tolerated by almost any infant, especially in a lactic acid milk mixture. On this assumption we have fed undiluted lactic acid milk containing amounts of fat up to the amount contained in whole milk, and have been convinced that the great majority of weak, athreptic infants tolerate extremely well undiluted whole lactic acid milk in fairly large amounts, one fifth of the body weight or more per day. For infants under 2 months of age we have usually fed the lactic acid milk somewhat diluted, but the evidence is not conclusive that such dilution is essential.

#### ADDITION OF CARBOHYDRATE

Having demonstrated to our satisfaction that whole lactic acid milk is well tolerated, we cautiously tried the addition of carbohydrate to the lactic acid milk in order further to increase the caloric value. The sugar selected for such a purpose must be one which does not readily undergo fermentation or which, if fermentable, will be so rapidly absorbed that but little fermentation can occur before absorption. The dextrins are not readily fermentable; they are easily split into maltose and glucose by intestinal enzymes but apparently not more rapidly than the end product can be absorbed; therefore little fermentable material is present in the intestinal tract at any one time.

Glucose itself is absorbed with astonishing rapidity, as has been demonstrated by intestinal loop experiments on animals. On the other hand, glucose is very readily fermentable, and for this reason has not been extensively used in infant feeding. Weill and Dufourt<sup>3</sup> have fed considerable amounts of glucose to infants in the attempt to render the stools acid, but in no case was it possible to do so, presumably because the glucose was absorbed before a great deal of fermentation had occurred. The products of the action of lactic acid organisms on glucose are quite innocuous. On theoretical grounds, it would seem that if glucose were fed in combination with lactic acid milk there would be a fair chance of its being absorbed before being attacked by intestinal organisms capable of producing harmful fermentation products. Experiments *in vitro* have shown that in such a mixture the common bacterial inhabitants of the intestinal tract are unable to flourish. In view of the considerations just mentioned, it would seem that a mixture of glucose and dextrin would be an ideal form of carbohydrate for our purpose. Maltose is usually present in ordinary mixtures of glucose and dextrin. In moderate amounts it is well tolerated by infants.

#### THE ADVANTAGES OF CORN SYRUP

Commercial "glucose," otherwise known as "corn syrup," is a mixture of dextrin, glucose and maltose. Of the total carbohydrate present, dextrin makes up approximately 55 per cent., the remainder being maltose, 30 per cent., and glucose, 15 per cent.<sup>4</sup> From its

composition, such a mixture would seem to be well adapted for the purpose desired. An additional advantage of corn syrup is that it is cheap and is obtainable everywhere. We have added carbohydrate in the form of commercial corn syrup to the whole lactic acid milk fed to athreptic infants, and the results were as would have been anticipated. There was little or no tendency to diarrhea, even when as much as 10 per cent. of carbohydrate was added. The stools remained firm, formed and pasty, averaging from one to three a day. In the case of some infants there seemed to be almost no limit to the amount of carbohydrate that could be added to such a milk mixture. Thus we have added a sufficient amount of carbohydrate to cause a distinct glycosuria and have continued the feeding of such large amounts for long periods of time without there being the least tendency to diarrhea or vomiting, and this in the case of extremely weak and emaciated infants, previously suffering from prolonged diarrhea. Not only has it been possible to add this form of carbohydrate to whole lactic acid milk mixtures with impunity, but corn syrup in 5 per cent. solution may be given almost ad libitum between feedings as a means of supplying further calories.

#### METHOD OF PREPARATION OF LACTIC ACID MILK AND CORN SYRUP MIXTURES

Whole milk is sterilized by boiling, cooled to room temperature, inoculated with a culture of Bulgarian bacillus or other lactic acid producing organisms, and incubated over night. A properly prepared whole lactic acid milk is thick, creamy and homogeneous. Too long a period of incubation or too high a temperature results in the separation of curds and whey.

The corn syrup we have used has been an ordinary commercial variety. Such a syrup contains from 80 to 85 per cent. of carbohydrate by weight or, as its specific gravity is high (approximately 1.40), it contains from 110 to 120 per cent. of carbohydrate by volume. The thick syrup is somewhat difficult to handle and to mix with milk. It is more convenient to prepare a diluted syrup. Mixing 45 volumes of the thick syrup with 55 volumes of water gives a thin syrup containing approximately 50 per cent. of carbohydrate. One hundred c.c. of this by volume may be considered as containing 50 gm. of carbohydrate. Such a thin syrup is measured in a graduate and added to the whole lactic acid milk. The mixture should not be agitated sufficiently to separate the fat as butter. The mixture is not further sterilized, but is kept in a refrigerator until used. As such mixtures are very thick, a nipple with a large hole must be used in feeding.

#### THE FEEDING OF THE MIXTURES

In feeding formulas of the type described, it is advisable to begin with a mixture of equal parts of whole lactic acid milk and buttermilk (fat-free lactic acid milk) or, in the case of infants convalescing from diarrhea, on buttermilk alone. If such a mixture is well tolerated, the proportion of whole lactic acid milk in the mixture is increased until straight whole lactic acid milk is fed in most instances. The addition of the syrup is then begun, 3 per cent. of sugar being added at first; if no diarrhea occurs, the sugar percentage is gradually increased, depending on the infant's tolerance and on the amount of food necessary to cause a gain in weight. Fairly large amounts of the corn syrup can often be given to advantage.

3. Weill and Dufourt: *La Nourriture* 2: 65, 1914.

4. W. S. Dyer and Teller: *J. Indust. and Engin. Chem.* 7: 1009, 1916.

The number of ounces of the milk mixture given at a feeding should be approximately the same as if breast milk were fed. We have used four-hour feeding intervals almost exclusively.

RESULTS OBTAINED

Up to the present time, we have fed the enriched whole lactic acid milk mixtures to forty infants varying in age from 1½ months to 18 months, the majority being between 2 and 5 months of age, at the time the feeding was begun. The period of time over which different infants received the formula varied from four days to eight weeks.

All of the infants were undernourished—the majority markedly so. About half of those observed had recently suffered from diarrhea. Four were syphilitic; fifteen suffered from other infections during the period they were on the formula. The infections included pyelitis, otitis media, pertussis and bronchopneumonia.

Little difficulty was experienced in making the infants take the food. Some older infants refused the food at first, but later took it eagerly. There were mechanical difficulties in feeding two infants with cleft palates. They did not at first seem able to swallow well the very thick mixture; later they took it without difficulty.

The amount of carbohydrate added to whole lactic acid milk varied up to 10 per cent. or over, the total sugar content up to as high as 15 per cent. The total added carbohydrate has been as high as 3 ounces a day. The amount of added carbohydrate has been greater in our more recent cases, as we have become convinced of its relative harmlessness. The result, as far as improvement of the nutritional conditions were concerned, have been distinctly better with the increased amount of added carbohydrate.

Vomiting, other than the spitting up of very small amounts immediately after a feeding, was unusual. In almost every instance it could be accounted for by the onset of an acute infection. Two infants with cleft palates vomited if the food was forced, and one infant with syphilis of the central nervous system vomited at intervals. This infant also had convulsions from time to time, and it seemed a reasonable assumption that the vomiting was of central origin.

THE CHARACTERISTIC STOOLS

The characteristic stools of the infants fed on the mixture described were light brown, formed, and pasty when mashed with the spatula. The number averaged from one to three a day. Several infants had stools looser than normal for a day or two at a time, but the stools again resumed their usual character without a change in food. Two infants with bronchopneumonia, one with pyelitis, and one very athreptic infant dying in collapse, developed a diarrhea during the last few hours of life. Aside from these four, only three infants developed a sufficient degree of diarrhea to warrant a change of formula, and all were returned to the same formula after a period and did well. Two of these had at a previous time suffered from diarrhea while on breast milk. None of the infants developed a condition at all suggestive of "intoxication."

THE GAIN IN WEIGHT

A gain in weight of the infants fed on whole lactic acid milk mixtures began when a sufficient caloric intake was reached, and generally continued steadily

for days and weeks, interrupted only by acute infections. Some infants continued to gain even through febrile periods. The number of calories required before an infant would gain weight consistently was often high. Few infants whose weight was as low as 50 per cent. of the normal weight for the age gained on less than 160 calories per kilogram, and many required 200 calories or more. The gain in weight of these infants was not due to a process of "water logging." The gain continued over too long a period, and the flesh was firm and elastic. There was no tendency to edema, and none of the excessive flabbiness observed in condensed milk babies which one might expect in infants fed on a high carbohydrate intake. It might be well to draw attention to the fact that although the food here described contains a high percentage of carbohydrate, it is also high in protein and in fat, the relative proportions not being unlike those of ordinary milk mixtures. It is essentially a concentrated food, and therein lies its chief advantage. If an infant can take only a limited number of ounces at a feeding and only a limited number of feedings in the twenty-four hours and yet requires a large caloric intake, the only solution is to give him a food containing a large number of calories per ounce. The mixtures described have a fuel value of from 25 to 30 calories to the ounce, a larger amount than is contained in breast milk or in any of the usual milk formulas that could be fed with safety.

CONCLUSION

We wish to emphasize the fact that we do not consider the type of feeding here described as a panacea for infants. Whole lactic acid milk enriched with the carbohydrates of commercial corn syrup is simply a type of food that enables one to administer a considerable amount of nutriment in an easily assimilable form to infants needing a large amount of food but having an intolerant gastro-intestinal tract. Aside from this, there are no mysterious virtues in such a mixture.

ABSTRACT OF DISCUSSION

DR. FRITZ B. TALBOT, Boston: There is much in Dr. Marriott's paper which gives food for thought. One point he brought out, which I think bears repetition, is that children under weight require more calories per kilogram of body weight than the child of normal or average weight. That is borne out both in practice and in the basal metabolism. There is one point, however, which he neglected to state in his paper, and as he read it I thought of atrophic children I have seen, most of whom have subnormal temperatures. If such children are warmed up they frequently commence to gain weight, if they get enough calories. It must be remembered that if the amount of sugar is raised beyond a certain point it will not be absorbed and diarrhea will result. Of course, Dr. Marriott is dealing with another type of sugar than what is ordinarily used, and it is quite conceivable that the limit of absorption of this sugar is higher than that for those in ordinary use.

DR. ALFRED F. HESS, New York: About one year and one-half ago, I had an opportunity to feed some children on corn sugar. At that time, as you know, there was a great want of sugar in the community, and the Division of Chemistry in the Department of Agriculture, Washington, asked me whether I would see how corn sugar was digested by infants. I tried about twelve infants on the regular milk mixtures with the addition of 5 per cent. corn sugar instead of the ordinary cane sugar. These babies varied in age from about 2 months to 1 year. They were kept on this sugar for a period of about three months, and they all did exceedingly well. After the war was over and the shortage of sugar no

inger existed, we went back to cane sugar. I did not use the syrup, but just used the ordinary cane sugar. It is always cheaper than cane sugar and could be sold for a great deal less, but is always less than the cane sugar. Dr. Marriott has raised the question of whether this sugar is a desirable letter. If it is absorbed to a greater extent it is of course of greater value. This can be determined readily by metabolism experiments.

Dr. J. P. CROZER GRIFFITH, Philadelphia: I asked the chief resident physician of the Children's Hospital of Philadelphia several months ago what diet he would choose if he were obliged to select one kind of diet for these marantic babies. Without hesitation he answered, "buttermilk." By this I mean the usual buttermilk mixture with flour and sugar, which is now being used so much by physicians, and I hope will be used more and more because it is such a valuable preparation. I was very glad, indeed, to hear Dr. Marriott's paper corroborate my own experience with the lactic acid preparations of milk, and regarding the ability of the child to take a high percentage of carbohydrate. With the ordinary preparation of buttermilk, wheat flour and saccharose, referred to, the carbohydrate runs up to 10 or 11 per cent., or even more. I have had a decided fear of the high percentage of fat which Dr. Marriott has been using, believing that one of the values of the buttermilk food was the small amount of butter fat in it. However, experience must be the teacher in that matter, and Dr. Marriott's observation seems to show that the fat after all can be borne better than we supposed. It will be interesting to test this further. Dr. Marriott spoke about the food preparations containing lactic acid being more digestible. This has been my own experience. The fact that it is often difficult to have the parents prepare buttermilk properly at their homes makes me desirous, in hospital practice, of placing the infants on some other food as soon as possible. We have tried often to get away from the buttermilk mixture by making one of similar composition by using skimmed milk instead of buttermilk; but repeatedly we have found it was not tolerated as well. The only difference was that of the lactic acid content present.

Dr. C. G. KERLEY, New York: Dr. Marriott's method of using lactic acid milk impressed me very favorably. I have used a great deal of lactic acid milk and protein milk but never after the fashion that the doctor has followed. I have usually employed the fat free lactic acid milk or one with a low percentage of fat in intestinal disorders, under which conditions it is extremely valuable. When the diarrhea subsides, other feeding is instituted. I have not been successful in using lactic acid milk as a general diet in young infants. I confess I would not have had the courage to use the milk in quite the strength that Dr. Marriott used it. I will be much interested in giving this scheme a trial. As regards the carbohydrates, it is quite necessary in feeding very delicate malnutrition infants to give a high percentage of carbohydrates. I usually prescribe the carbohydrate equal to 10 or 12 per cent, this being made up of the sugar that is in the milk, lactose or maltose and starch. Thin, emaciated infants, very much under weight, require from sixty to sixty-five calories to the pound. As regards the milk used in these cases, I prefer the evaporated unsweetened product. I find this much easier of assimilation than fresh cow's milk, regardless of the way in which it may be handled.

Dr. JAMES HOYT KERLEY, New York: Dr. Marriott undoubtedly has had splendid results with his carbohydrate feedings in marasmic infants. It seems to me, however, that the trouble is often caused by the protein. The casein in cow's milk forms a hard curd, while in mother's milk it forms a flocculent curd. I have had great success with evaporated milk, in which the milk has been heated to a high degree, and the protein molecule was broken into many fine particles, which do not form the hard curds in the infant's stomach as is the case with cow's milk. An ounce of evaporated milk is equal to two and one-half ounces of cow's milk, so there is no difficulty in keeping up the caloric value. Dextrin-maltose or lactose is added to the evaporated milk mixture in suitable proportions to obtain the requisite percentage of carbohydrates, just as is done with the lactic acid milk.

Dr. H. F. HELMHOFF, Chicago: I have been very much interested in Dr. Marriott's results, especially as we, too, have been interested in the sugar tolerance of atrophic infants. During the summer of 1915 we used this product in one of our stations in feeding about 125 babies with very good success. We used it as we would use a sugar and flour mixture. The difficulty of preparing the food with the syrup in the homes was such that we found it practically impossible to use it. If Dr. Marriott can show us how it can be used in the homes, it certainly would be a help in our infant welfare work, because it seems to me, from what he has said and from our experience, that it would be a cheap and very excellent food to use in infant welfare work.

Dr. LEWIS WIRTH HILL, Boston: One of the most important things in infant feeding is a proper understanding of the use of the sugars. Often we feed altogether too little carbohydrate to our babies, being afraid of producing sugar fermentation. I was, therefore, greatly interested to hear Dr. Kerley say that he often uses from 10 to 12 per cent. in feeding his babies, as I do myself in many cases. Some years ago Dr. Talbot and I investigated sugar metabolism in a baby by gradually increasing the amount of sugar in the food, from 5 to 14 per cent., and keeping the other food constituents constant. We found that the feeding of high sugar increased the nitrogen and salt retention up to a certain point (14 per cent. sugar), when the baby developed a diarrhea. The way that high carbohydrate works beneficially is probably by sparing the protein, and by allowing the baby to store and retain more nitrogen and probably more salts than he would on a low carbohydrate diet. I am in the habit sometimes of feeding my babies on a rather low protein diet, just enough to cover the nitrogen needs, and supplying most of the fuel in the form of carbohydrate, usually as a mixture of dextrin-maltose and lactose. Several years ago Dr. Dinn and Dr. Porter worked along these lines at the Infant's Hospital in Boston, and they found their babies could take from 10 to 12 and even 14 per cent. sugar in many cases without any harm, and with marked gain in weight. I believe that in constipated babies, especially those with small alkaline, rather foul stools, we need not be afraid of feeding high sugars. The baby must be watched carefully, of course, during the high sugar feeding, and if spitting up or diarrhea develops, the sugar must be reduced. The point is, however, that many babies do a great deal better on a high sugar diet (much higher than is ordinarily given) than on a low or a moderate amount of sugar, and we should not follow slavishly any set rule as to the maximum sugar that should be fed to babies.

Dr. THOMAS C. McCLEAVE, Oakland, Calif.: I was very much interested in Dr. Marriott's paper, because I have been pondering how we can give more carbohydrate to certain children. I would like to ask as to the intervals of feeding he has used in these children, and to put in the form of a suggestive question the possibility that perhaps the secret of his being able to give these children the large amount of fat that he is able to give them is dependent on the particular type of mixture he is giving them. It seems to be the whole success of his scheme. He has described his mixture of corn syrup, dextrin, maltose and dextrose. The whole explanation of the success of his scheme is dependent on the composition of his mixture.

Dr. W. McKIM MARRIOTT, St. Louis: The point raised is quite interesting in the light of some of the work we have been doing. I mentioned the fact that in the pathogenesis of this condition there is a greatly diminished volume of the flow of the blood sometimes down to as low as one-eighth of the normal. As the flow is increased by feeding, the subnormal temperatures rise and the infants begin to gain. In the preparation of these milk mixtures in the home we find the vacuum bottle convenient. The whole milk is boiled, cooled down to incubator temperature, inoculated and poured into the vacuum bottle and left over night. In the morning it is ready for use. As to the feeding intervals, we have used four hour intervals, six feedings in twenty-four hours; none more frequently than that. With those four hour feeding intervals we were able to give up to 280 calories per kilo-

gram, so it was not necessary to feed any more frequently. I draw attention to the fact also that these mixtures are quite elastic. One does not have to use the undiluted milk and add so much carbohydrate. The milk may be diluted, or the fat diminished. Of course, I realize that children of this type are likely to develop diarrhea and have to be watched. We made it a practice in the hospital to have the stools saved and to have the resident informed if there was a loose stool, so although we were feeding very high carbohydrate we felt that if we could stop it at the time one loose stool occurred no particular harm would be done.

## VACCINOTHERAPY IN ACUTE AND CHRONIC BACILLARY DYSENTERY\*

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In a previous article we gave our observations of the epidemic of bacillary dysentery of the summer of 1917.<sup>1</sup>

In 1918, especially during August and September, the malady reappeared in the Belgian army with almost as many cases as in the preceding year. In a total of something over 500 cases about 20 per cent. were severe or very serious cases and 80 per cent. were light or moderately severe cases.

In the lighter forms we were able to add nothing to our previous observations either as regards symptomatology or bacteriology. For the grave types the bacteriology was likewise essentially the same. No more than in 1917 could the most malignant forms be attributed to the Shiga bacillus, and the marked predominance of the Flexner bacillus and *Bacillus* Y in 1917 was so much greater in 1918 that in no case were we able to isolate the Shiga bacillus, and in only three cases were we able to obtain agglutination of the Shiga germ. In all three of these there was also agglutination of the Flexner bacillus in high dilutions.

From the symptomatologic point of view, our 100 serious or very grave cases could be divided into two nearly equal halves, one half being choleraic. These are the cases in which the diarrhea is accompanied by vomiting, which not only increases the loss of fluid from the body, but also prevents its restoration by the ingestion of drinks. In a certain number the vomiting came on early, appearing very shortly after the first diarrheal evacuations.

### CONDITION OF THE PATIENTS ON ADMISSION

The greater number of the sick were brought to us in an alarming state with weak, rapid pulse, a tendency to cyanosis, coldness of the extremities and more or less general muscular cramps. The treatment employed departed in nothing from that given in the aforementioned article.

The administration subcutaneously of from 1 to 2 liters of isotonic saline, together with a fluid diet, plays the chief rôle in the treatment. Frequently after twelve hours the appearance of these cases was much improved, and in a few days definite cure followed. The same rapid change for the better was observed in

the cases of 1917, so that we are seriously tempted to affirm that in the choleraic form of bacillary dysentery improvement tends to be rapid, provided the dehydration is combated from the beginning. Perhaps we must attribute our good result to the fact that, on account of the fulminating character of the symptoms at the very outset, the patients of this class came under vigorous treatment at the earliest moment.

In the other half of the serious cases, there was no suddenness in the onset, no dehydration, no collapse; but the gastro-intestinal disturbances were more resistant. The stools were persistently liquid, mixed with mucus or abundant mucopus and blood. There may, indeed, be hemorrhage of dangerous magnitude. The fever does not abate in two or three days, but persists and may last for several weeks, assuming the remittent or intermittent type. Owing to the fever, the pain, the intestinal disturbances and the loss of blood, the patient becomes progressively weaker and more emaciated. It is the ulcerative form of bacillary dysentery. In the fatal cases the patients become veritable skeletons before death supervenes. In the less unfavorable cases, the general condition is not so seriously affected, but the intestinal disturbances persist, and the disease veers toward chronicity, with alternating periods of relatively satisfactory health and more or less numerous recrudescences. As indicated above, this ulcerative form only rarely follows the choleraic form.

### FUTILITY OF SPECIFIC SEROTHERAPY

The treatment of ulcerative dysentery gave us only temporary results so long as we had recourse to the methods of the books. Specific serotherapy proved futile. Therefore, because of the inefficacy of these methods, we had, toward the end of the epidemic of 1917, employed vaccinotherapy in the chronic cases that remained. When possible to isolate a dysenteric germ from the intestine, we made and employed an autogenous vaccine; otherwise we used a vaccine of a Flexner bacillus type made from a gelose culture killed by heat. At this time the vaccine was administered subcutaneously, in progressively increasing doses, the initial dose being usually 10,000. To obtain the desired result it was necessary to raise the dose frequently to from 5 to 10 billion. These large amounts of sterilized culture are regularly well tolerated, though often during from twelve to twenty-four hours after the injection, one observes a little fever, headache and lassitude, with more frequent and less consistent stools, sometimes slight colic, and at the site of injection a little infiltration with moderate pain. All these sequelae soon pass away and, as a rule, disturb the patient but little. There are, however, exceptions to this rule. Thus, one patient, A. de M., bore every dose up to 5 million without reaction; but the next dose, being 10 million, resulted in a marked lighting up of the disease, with a moderate fever (maximum evening temperature 38.6 C.) which persisted for nine days, and the reappearance of the diarrhea (up to twelve liquid stools a day). After that he went on to recovery without further administration of vaccine. These first results have been given in our report of the epidemic of 1917.

### VACCINOTHERAPY IN OLD CHRONIC CASES

In the winter of 1917-1918, we still were receiving cases of chronic dysentery of which the onset dated back several months or several years. We applied

\* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

<sup>1</sup> Nolf, Colard, Dulière and Roskam: L'épidémie de dysenterie bacillaire de 1917 au Front belge, Arch. méd. belges, May, 1918.

the same treatment, but with this difference, namely, that the initial dose was regularly a million germs, and that the dose was raised progressively up to from 5 to 10 billion. The results obtained continued to be favorable. In every case the general condition was improved, and the intestinal symptoms steadily decreased. In the majority, the cure was complete and definite. At times there seemed to be complete cure at the end of the treatment, but at a later period the symptoms returned. In some cases the stools, although regular and only one or two a day and without blood and mucus, yet remained soft, and there persisted a little intestinal instability and discomfort. Case 1 is an instance of this kind:

CASE 1.—A. D., man, aged 32½, admitted, Jan. 29, 1918, for double parotitis, at the age of 26 had had enteritis for six months, with diarrhea and mucus and blood in the stools. Since then he had had frequent slight recurrences. On admission the stools were normal. February 8, all the local and general symptoms of parotitis had disappeared; yet though he was still in bed and on a diet of milk, rice, bread and two eggs, he was suddenly attacked with diarrhea. February 10, he had ten stools in twenty-four hours, with mucus and considerable blood. He became rapidly weak, and had anorexia and vomiting. The stools failed to show a dysentery bacillus, but the blood agglutinated Flexner's bacillus in a 1:200 dilution. February 16, the vaccine series was begun with 10,000 subcutaneously, and the intestinal hemorrhages soon ceased, traces of blood being found for the last time, March 4, after an injection of 300,000 given the day before. March 18, the patient had a soft stool, and the treatment was continued. During the months of April and May he received several doses of from 3 to 5 billion, and after a dose of 10 billion in June he seemed cured. In November he was seen again and reported himself well, but with a slight instability of the intestine.

We should probably have continued the subcutaneous method of administration of the vaccine, had we not, in other affections, particularly bacteriuria due to the colon bacillus or the staphylococcus, observed that the intravenous method of administration was more efficacious and more rapid in its effects. We therefore began the administration of the vaccine by the intravenous route in bacillary dysentery. Our first observation is that of Case 2:

CASE 2.—P. S., man, aged 26, admitted, July 1, 1918, for a benign grippal pneumonia, had suffered in 1917 from acute enteritis, of which he was not completely cured, and was tender to pressure over the sigmoid colon. The serum agglutinated the Flexner bacillus in the dilution of 1:300, and the Shiga bacillus in the dilution of 1:50. Bacteriologic examination of the stools was negative, July 8, 12 and 20, but July 25 showed the Flexner bacillus. Since July 6, a series of subcutaneous treatments with Flexner vaccine had been carried on, and, August 4, an autogenous vaccine in a dose of 1 billion was employed. August 7, 14 and 17, doses of 10 billion were given. At this time there was a notable improvement in the patient and in the stool, which had frequently contained mucus and a little blood. But as the stools were not yet quite normal, a series of intravenous injections was begun, an initial dose of 1 million being given August 17, and the series terminating, August 25, with a dose of 10 million. The patient was completely cured, August 31.

The history of this patient furnishes elements for judgment of the efficacy of intravenous vaccino-therapy in dysentery. The subcutaneous doses of from 3 to 5 billion had given him no fever, but he had reacted to each of the 10 billion doses with an elevation of temperature to 37.6 C. The intravenous doses of 1, 3 and

6 million produced no fever. Fever appeared, however (37.6 and 37.8 C.), after each of two intravenous doses of 10 million.

From the point of view of its ability to provoke a febrile reaction, the dose when given by vein was equivalent to 1,000 times as much as administered subcutaneously. But the complete disappearance of the intestinal disturbances, which the subcutaneous doses of 10 billion had not given, was accomplished by the intravenous dose of 10 million. As recently reported by the patient, the cure has remained permanent. There were other patients who gave the same general results.

#### THE INTRAVENOUS METHOD IN ACUTE DYSENTERY

These successes induced us to try the intravenous method in a number of the cases of acute dysentery of the summer of 1918. We applied the treatment not only to those with confirmed ulcerative dysentery, but also to all those in whom the course of the disease made one fear the development of the ulcerative form, that is to say, in every case in which, after one week, a dietetic and drug treatment had not brought about a cure, or at least promise of a speedy cure.

The doses were given at four day intervals, the initial dose being regularly 10,000 germs, then 30,000, then 50,000, then 100,000, etc. In general, the betterment of the patient did not long delay. The fever dropped by lysis, with some recrudescences more or less marked on the days of the vaccine therapy and the next day; and the intestinal symptoms improved coincidentally. In many cases of moderate intensity a complete cure was effected when the dose of 500,000 was reached. In the more refractory cases, it was necessary to push the vaccine up to about 10 million.

In fifty-two cases treated in this way, we had only two deaths. All the other patients left the hospital cured, except two whom military necessity forced us to send away too soon. We have no doubt that in these two cases also the continuation of the treatment would have resulted in a cure in a relatively short time. By vaccino-therapy we were thus able to avoid the dangerous tendency toward chronicity which in 1917 was produced in a considerable number of our patients. This last result we considered particularly gratifying.

The complete record of the epidemic of bacillary dysentery of 1918 shows a complete cure, at the latest in a few weeks' time, in 500 cases, except only two patients who died, and two who left before the cure was completed.

Cases 3 and 4 are two further reports of acute dysentery treated by intravenous vaccines:

CASE 3.—C. B., soldier, aged 27, admitted, Aug. 11, 1919, for an acute dysentery that began August 9, had much colic, and in twenty-four hours had twenty stools consisting of blood and mucus. There were no muscular cramps or vomiting. His serum agglutinated the Flexner bacillus at 1:200 and the Shiga bacillus at 1:200, but did not agglutinate *Bacillus Y*. The temperature ranged between 38 and 39 C. until August 22, in spite of a rigid medicodietetic treatment. By August 23 there were still eight liquid stools a day, always composed of blood and mucus. August 21, an intravenous dose of 30,000 germs was given. After August 26 the temperature remained normal, and on that day the patient had two formed stools, coated with a little mucus. The dose of vaccine was rapidly increased till it reached 10 million germs, September 14. From that date the stools had a perfectly normal appearance, and the patient left the hospital cured, September 19.

CASE 4.—C. M., soldier, aged 34, admitted, Aug. 22, 1918, was taken sick, August 19, with acute dysentery. He had sixty mucosanguinolent stools in twenty-four hours, and suffered from violent abdominal cramps. There were no muscle spasms and there was no vomiting. The serum agglutinated the Flexner bacillus 1:300 and the Shiga bacillus 1:50, but did not agglutinate *Bacillus Y*. The fever fluctuated between 38 and 39 C. until September 4, dropped slowly until it reached normal, September 13, and then the next day shot up and continued to rise until September 21, when it was 38.6 C. This secondary access of fever may be attributed to vaccination, which was begun, August 26, in a dosage of 30,000 and rapidly pushed to the higher amounts. September 15, the patient received 1 million germs; September 19, 3 million, and September 23, 5 million. After September 5 the stools were more fecal in type. From September 14 to 21, they numbered one or two a day and were formed. They continued thus until September 26, when the patient was discharged cured.

#### CONCLUSIONS

I believe I am justified in concluding from these observations that vaccinotherapy and more especially vaccination intravenously is the most effective therapeutic method in bacillary dysentery in its chronic forms and in the acute forms that show little tendency toward cure. It appears also that the method is more efficacious when it is applied early. The intravenous route has the advantage that it permits results from doses one-thousandth the size of the subcutaneous doses. Not having had occasion to try this method in cases of Shiga bacillus dysentery, it is impossible for me to speak of its utility in this form of dysentery.

In acute dysentery, intravenous vaccinotherapy cures quickly in cases exhibiting protracted fever and lasting diarrhea with hemorrhagic and slimy stools, these being the cases that are refractory to other therapeutic methods, including serotherapy.

#### A PROTEST AGAINST THE RECKLESS EXTRACTION OF TEETH\*

WALTER C. ALVAREZ, M.D.  
SAN FRANCISCO

Day after day I see people who have had half a dozen or more teeth extracted. Their former physicians had promised them great things; in some cases had even guaranteed a cure, but here they are still suffering and now greatly discouraged. Many have no chewing surface left, and the remaining teeth are often so distributed that the only thing to do is to remove them and put in plates. To my mind one of the saddest features is that, in many of these cases, an experienced physician might have foretold the unsatisfactory outcome and might have warned the orthopedist or the dentist to proceed cautiously and conservatively. The arthritis may plainly have been gouty or tuberculous, the headaches may have been due to nephritis or to advanced arteriosclerosis, and the pains in the shoulders may have been due to degenerative changes in the aortic arch. Sometimes I have secured the roentgenograms which were used in deciding which teeth were to come out and have been unable to find more than one or two roots which after years of experience I would call infected. In some, downward projections of the antrum had evidently been mistaken for abscesses. In others, it seemed to me that the

physician, quite oblivious to any possible value of the teeth to their owner, must have ordered their extraction simply because he believed it a panacea for most diseases.

I believe we have lost our heads over this thing and that the time has come to call a halt. Men have obtained such beautiful results in some cases by extracting teeth that some of them are now trying to explain most diseases on the basis of these focal infections. In practice, they pull the teeth first, and if the patient returns unbenefited, they can then look to see what is the matter with him.

As the enthusiast often regards the conservative as a man who must be ignorant of the wonderful results which can be gained by using his methods, I wish to say that since 1911 it has been practically a routine procedure in my office to roentgenograph all suspicious teeth, and I have had hundreds extracted. I would emphasize the fact that I have seen my share of the miracles described by my radical friends—I, too, have seen inflamed joints go down over night; so-called tuberculous glands disappear as suddenly; headaches leave for good, and so on; but these things have not blinded me to the fact that for one miracle I have seen many failures and disappointments. My radical friends who, from their writings, would seem never to have had any failures may perhaps ascribe my unfortunate results to conservatism and to the choice of poor dental surgeons. Although this argument may apply in regard to those cases in which I ordered the extractions, it can hardly apply to those people who were "cured" by these same radicals but who, after a period of relief, are again going the rounds of doctors' offices.

We must recognize these failures; we must face them squarely and study them with particular care. Many people are not benefited by the extraction of teeth no matter how thoroughly it is done, and no good can come from further refinements of that technic. In the middle ages if a man died it was because he had not been bled enough, or because it had not been done from the right vein. Today we know that bleeding is useful in only a few conditions. Similarly, the day will come when focal infections will not be dragged in to explain all ills of the flesh. Seeing that there are these possibilities of failure, we must be more honest and conservative with those who put their lives in our hands. By all means let us continue to look for alveolar abscesses but, if we are to keep the respect and confidence of the public, if we are to avoid damage suits, we must be more careful what we promise some of our patients in return for a toothless mouth. Before deciding whether any or all of the suspicious teeth are to come out, the physician must look the patient over from head to foot. If he is young and sound, and if he has a dangerous arthritis, endocarditis or severe headache for which no other cause can be found, I believe we are justified in insisting on a thorough removal of the diseased tissues. When, however, the patient is old and failing; or when we find high blood pressure, arteriosclerosis and nephritis, let us be careful. Focal infections may perhaps contribute to the development of these chronic degenerative diseases, but I feel sure that they are not the only or even the principal cause. Certainly my experience has been that although the removal of the teeth will sometimes seem to give the patient a new lease of life, the arteries continue to harden, the pressure continues to rise, and sooner or later the symptoms return. Hence it is that

\* Read before a joint meeting of the San Francisco County Medical and Dental Societies, May 5, 1919.

in these cases we should carefully consider all the factors involved. If the infected teeth are not serviceable, if they are loosened, perhaps hanging to wobbly bridges, or if their crowns are gone, there need be no question as to their removal. But if they are strong and serviceable, if the areas of rarefaction are small and questionable, and particularly if restoration by bridges will be impossible, let us be frank with the patient. Let us tell him that the proposed extraction is more or less of an experiment; that we will not promise him anything; but if his troubles are annoying him so much that he wants to leave no stone unturned in his treatment, he can try it.

It is one thing to order a dozen extractions when a man lies crippled with an acute or chronic arthritis, and another to order them because he feels nervous, has no energy, has indigestion, or has pimples on his chin. In the first place the patient is desperate, he is willing to take any chance to get well and will more readily forgive mistakes that arise through overzealous efforts than mistakes arising through lack of interest and neglect. In the second case, he is in no mood for big sacrifices; the treatment, even if successful, may cause more annoyance than the disease, and the physician may come in for a great deal of blame.

We must be careful, also, what we promise to those who, in addition to their root abscesses, have other sources of infection which cannot be so easily removed. I refer particularly to chronic bronchitis, sinusitis, prostatitis and urinary infections, all of which may persist in spite of expert treatment. We may perhaps have trouble, too, on account of pelvic inflammation and gallbladder disease.

The radical group of dentists tell us that most of our failures to cure are due to the fact that we have not removed all of the diseased tissue from the jaws. They would like to open up the jaw widely and dissect away the alveolar process until the tooth can almost drop out of itself. Naturally these men have a certain amount of right on their side. I, too, have seen a number of cases in which diseased bone or the abscess itself was left by the man who extracted the teeth. There are some people in whom the roentgen ray shows a widespread change in the bone around the diseased teeth, and in these cases I think it is probably advisable to remove enough of the inner or outer plate so that the operator can see what he is doing. I feel sure, however, that in the average case, a good extractor can remove the abscess, sometimes entire, hanging to the apex of the tooth.

Many of our patients will return still complaining of their old troubles even when the roentgen ray shows that the removal of diseased tissue has been complete. In some cases the bacteria which may originally have entered through the jaws seem to have obtained so firm a hold on the joints, the heart valves and other tissues that they will not leave simply because their old port of entry has been closed. In other cases, irreparable damage has been done and the joints cannot return to normal even after the disappearance of the infection. We must remember, moreover, that focal infection is probably not the only cause of arthritis, and our clinical study of this condition will not always begin and end with the search for pus.

I believe the *main* reason for our disappointments is that in many cases the alveolar abscesses seem to exercise no demonstrable influence on the patient's health. Time and again I have seen powerful, and

healthy looking men with large alveolar abscesses which they had carried probably for most of their lives. They maintained that they had never had a headache or a twinge of rheumatism, that, in fact, they had never needed a physician. When such a man remains disabled after an injury we often try to rehabilitate him by removing the abscesses. Naturally, we often fail, simply because we take away something which has never had anything to do with the case. It may be, sometimes, that these sacs are as much outside the body as is a calcified tuberculous gland in the lung. When further bacteriologic work has been done we may find that some of them are sterile, the bacteria having died out just as they do in pus-tubes. Particularly in the case of the smaller areas, the necrosis may never have been infectious in origin but may have been produced by the chemicals used during the preparation of the root canals.

Many of the dentists have become so frightened over the terrible results which they think must follow every root infection that they are refusing to fill any root canals at all. They feel that the risk to life and health is so great that a man should immediately sacrifice every dead tooth in his head. Certainly the thousands of people who for the last thirty or forty years have been chewing contentedly on dead teeth (without signs of root infection) should be grateful that these radical ideas did not prevail when they were young. The trouble with many of our dentists today is that they do not know enough about the wonderful defenses of the body against bacteria. These defenses are particularly efficient in the mouth, where, in spite of the rich flora and the continual trauma, wounds heal with surprising rapidity. Bacteria are constantly getting through the first line of defense only to be stopped at the second, and I see no reason why the body cannot in many cases protect itself perfectly from the activities of a few invaders which have reached the apex of a tooth.

#### CONCLUSION

In view of the fact that the most thorough removal of focal infections often fails to cure arthritis and other diseases, let us be more honest and conservative with our patients. Let us be careful what we promise them. Let us save serviceable teeth whenever possible. Above all, let us do unto our patients only what we would have done unto ourselves if their teeth were in our heads.

177 Post Street.

**Conservative Treatment.**—Further, in your treatment I advise you to be conservative. Don't be "blown about by every wind of doctrine"; don't take up every new thing which is brought forward in the way of treatment. Private practice is not the sphere in which to try experiments; new methods should be tried in hospital, where they can be tried under exact conditions. Do not conclude that the new thing is, necessarily, the right thing. As Clough said,

"Old things need not be therefore true,  
O brother men, nor yet the new,  
Ah! Still awhile the old thought retain,  
And yet consider it again!"

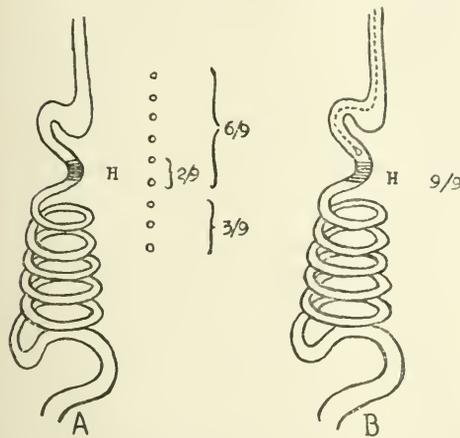
The old treatment has stood the test of time, and has, probably, in most cases, justified itself up to a point. Be sure, therefore, that the new is going to be better than the old before you adopt it. There are some men who are forever rushing after new gods, after every fresh synthetic remedy or after vaccines, for example, which they apply to their patients with only a partial understanding of their action.—Robert Hutchison, *Some General Principles of Therapeutics, The Practitioner*, September, 1919, p. 164.

THE INTRA-INTESTINAL TUBE TREATMENT OF HOOKWORM INFECTION

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Since we now know precisely the human habitat of the hookworm—namely, the first portion of the jejunum, with extension along the intestine in both directions in the severer infections—it follows that the parasites can be removed with the greatest dispatch by a method which would permit of the direct introduction into this region of a maximum concentrated dose of a drug chosen for this purpose. I believe that this can best be accomplished by means of the intra-intestinal tube treatment as devised and carried out by the gastro-intestinal service of this hospital during the past year. Up to the present writing (June, 1919), more than 250 of these treatments have been administered. The results, which seem to be



The shaded portions, H, H, represent the region occupied by the hookworms. A represents the digestive tract in a hypothetical "mouth" treatment with the drug given in three capsules, one every hour for three hours. The nine capsules are arbitrarily represented as dissolving opposite the levels indicated by their position to the right of the "tract." In case, for example, two of the capsules dissolved exactly opposite the infected area, four capsules above this point, and three below, the patient would receive the maximum benefit from two-ninths of his dose, some benefit from six-ninths of his dose, and none at all from the remaining three-ninths. In the case of the "tube" treatment, B, the patient is represented as receiving the entire dose, nine-ninths, with correspondingly increased efficiency.

superior to those obtained by methods heretofore commonly used, will be given in detail in a subsequent statement.

RATIONALE OF THE "TUBE" TREATMENT

Hookworm treatment, as generally practiced in the army, is based on the administration of a vermifuge (nowadays chiefly oil of chenopodium) by mouth, in capsules. It is obvious that just as soon as these capsules are swallowed, the physician loses control of his drug, so far as the significant factors determining its efficacy are concerned. That is, there is no way whereby he can cause the liberation of the full dose, or of any definite part of it for that matter, at the exact point where it will do the most good. Depend-

ing on the motility of the digestive tract of the patient (which varies widely in normal individuals) and on the solubility of the capsules selected to contain the oil, there is always the possibility that:

1. A considerable portion of the dose may be lost by the capsules dissolving *below* the site of the parasites; or,

2. The dose of oil may be too greatly diluted by secretions if the capsules dissolve *above* the site of infection.

On the other hand, it is equally clear that an ideal "tube" method would have the following theoretical advantages:

1. The drug would be delivered directly at the site of infection.

2. The full dose given the patient would be brought into action.

3. Instead of being given in fractions over a long period, the dose would be delivered *en masse*, its work accomplished quickly, its elimination pushed that much sooner, and the danger of cumulative toxic absorption correspondingly lessened.

In the accompanying illustrations an attempt is made to show graphically the differences between the two types of treatment.

DESCRIPTION OF THE TUBE TECHNIC

After several modifications the following procedure was adopted: The evening before treatment, the patient is given a light supper, chiefly rice and milk. There is no preliminary catharsis. The next morning, at about 7:30, the duodenal tube is swallowed on a fasting stomach and the patient is kept on his right side until the bucket has passed the pylorus.<sup>1</sup> The exact time at which the intestine is entered can be determined by the accompanying differential tests:

DIFFERENTIAL TESTS

Bucket in Stomach	Bucket in Duodenum
1. Aspiration through the tube withdraws a clear fluid, seldom bile-tinted, generally positive to Congo paper.	1. Aspiration withdraws golden yellow, viscid bile, negative to Congo paper.
2. If a definite amount (say 15 c.c.) of water is injected, and the injection is followed by a syringe-full of air to clear the tube, the greater part (more than two-thirds of this water) can be withdrawn on the next aspiration.	2. The water injected flows on into the intestine and but a small amount (less than one-third, if any), can be recovered by aspiration.
3. Injection of air is not followed at once by borborzgm.	3. Injection of air is followed at once (in some cases) by borborzgm.

As soon as Congo-negative bile is obtained, and water cannot be recovered as described above, the patient is ready to receive the drug. This is injected directly with the syringe (preferably of glass, and of about 30 c.c. capacity) and is followed by a barrel or two of air to insure the expulsion of the entire dose from the tube. So far in our work, the drug (oil of chenopodium) has most commonly been given in a dosage of 3 c.c. It is quite possible that 2 c.c. may be sufficiently potent. Work on this point is in progress. Of course, it need hardly be mentioned that doses used in the army should receive appropriate modification, when necessary, for introduction into general medical practice.

1. With the buckets (Einhorn, Rehnus) used on this service this usually took place within three hours. Unfortunately, until very recently, the writer was not familiar with the very satisfactory buckets of Dr. Jutte. The tube used by this worker is said to pass the pylorus very quickly.

Following the injection, a period of six minutes is allowed for the diffusion of the oil throughout the worm-bearing area. At the expiration of this interval, 2 to 3 ounces of a warmed saturated solution of magnesium sulphate are given transduodenally. The object of this flush, which we regard as a very essential part of the treatment, is to remove the drug quickly from the very highly absorptive small intestine in order that undue toxic effects may be avoided. That this is actually accomplished is indicated by the observation that the majority of patients have a copious watery stool containing oil (and sometimes worms) within half an hour following this procedure. The regularity with which this sequence follows is one of the most striking features of the treatment.

It may be stated parenthetically that this flush method of control opens the way to the safe use of drugs in doses ordinarily considered dangerous. At different times, we have administered as much as 4 c.c. of oil of chenopodium, 12 grains of santonin, and 12 gm. of oleoresin aspidii without undue disturbance.

After the salts are given, the tube is removed and the treatment is complete. In most cases from three to five stools follow the first. If a sufficient number do not result, further catharsis may be administered by mouth. The patient is generally sick during the day of treatment, but by supper time (5 p. m.) he is ready for a light meal, and "feels as good as ever" the next morning.

#### PROTOCOL OF AN ILLUSTRATIVE CASE

- 9:05 a. m., Rehfuss tube swallowed.  
10:33, oil of chenopodium, 3 c.c. per tube.  
10:40, magnesium sulphate, 90 c.c., warmed, per tube.  
10:42, tube removed.  
11:20, first stool: oil, 68 worms.  
12:00, second stool: oil, 56 worms.  
2:25 p. m., third stool: oil, 40 worms.  
3:45, fourth stool: oil, 19 worms.  
4:40, fifth stool: oil, 12 worms.

#### SYSTEMIC EFFECTS OF OIL OF CHENOPODIUM: ANALYSIS OF SYMPTOMS

Owing to the precise method of administration offered by the tube technic and to the fact that the drug is readily absorbed by the duodenal mucous membrane and diffuses very rapidly throughout the entire body, we have been able to make some interesting observation on the systemic ("toxic") effects of oil of chenopodium. Moreover, since we had in our material some returned gassed soldiers, as well as several pneumonia convalescents, we had the opportunity of collecting some special data concerning the effect of the drug on the respiratory tract. From this experience we have gathered the impression that oil of chenopodium seems to exercise an appreciable selective action on certain systems of the body that have been sensitized by previous disease or injury. This peculiar susceptibility we have observed in the case of the respiratory system, as stated and in the auditory apparatus and in scar tissues resulting from wounds.

In the average case, the systemic action of oil of chenopodium is observed regularly within some twenty minutes after its administration by tube. The patient then begins to experience the well-known sensation of "tingling," "numbness," "burning," and "pins and needles," throughout the body, particularly in the palms and soles. At about the same time vertigo may be complained of and nausea as well, the latter often

being precipitated by the removal of the tube. The period of discomfort seldom exceeds four or five hours.

The technic first used (which was subsequently modified) called for free preliminary catharsis, a waiting period of from ten to fifteen (instead of six) minutes after the injection of the oil, and a copious transduodenal flush of a liter (quart) or more of plain water (instead of the 2 to 3 ounces of salts finally recommended). Of the first 100 patients treated by this original method, fifty-eight showed no reaction except, in some cases, a moderate degree of tingling, vertigo and weakness. The remaining patients showed varying kinds and degrees of symptoms, but in no case have we so far found evidence of permanent damage. It was in our second series of 100 cases that the change in technic described above was instituted, forty-five patients being treated by the simplified method. A distinct improvement was observed, no less than sixty-five patients showing no ill results from the procedure. A correspondingly better showing is looked for in a series consisting entirely of cases treated by the simplified technic finally recommended.

*Digestive System.*—Of the twenty-seven patients who vomited in the first series of 100 cases, the majority did so when the last few ounces of water were being injected through the tube. In some cases the tube itself was expelled with the water. On several occasions from two to ten hookworms were discovered in the vomitus. In the forty-five cases treated by the preferred method, the incidence of vomiting was reduced to only 17 per cent. We found no evidence that the introduction of oil can be directly "felt" by the duodenal mucosa. In fact, at no time was the abdominal discomfort so frequently mentioned by others a feature in our own experience. It is my belief that this phenomenon is due entirely to ineffectual, delayed or violent purging, and that it is best overcome by direct, transduodenal saline catharsis.

*Auditory System.*—Associated with the very common dizziness there is a certain amount of ringing in the ears. There were eight patients, however, among our first hundred, in whom the latter symptom was marked and persisted longer than the day of treatment. By some individuals deafness also was complained of. In three of the eight cases a distinct history of previous injury or susceptibility was obtained. In the first patient, the tinnitus persisted in the side that had been affected by high explosives in France; in the second there had been a bilateral mastoid operation, and in the third there was a history of quinin neuritis of the auditory nerve lasting for one month six years previously. In the present series the longest duration of ear symptoms was nine days. Objective examination of the auditory apparatus was negative.

*Respiratory Tract.*—There were eight cases<sup>2</sup> in which violent, spasmodic, nonproductive coughing followed the injection of oil of chenopodium. All but one of these patients was the subject of an existing or recent disorder of the respiratory system. There were three patients convalescent from bronchopneumonia, two patients who had been severely gassed in France, and one patient who had chronic bronchitis. What is the cause of this phenomenon? That it is not the result of irritation from the tube itself is clear from the fact that whereas the apparatus is retained

2. These and subsequent figures refer to the incidence in our first series of 100 cases.

at times for hours, the cough does not commence until just about ten minutes after the oil injection. Similarly it is obvious that the effect is not due to direct irritation from inhalation of the vapor, because in that case it would follow instantaneously on the medication. On the other hand, the onset after ten minutes seems best explained by the theory that it takes just about this length of time for systemic absorption and the beginning of excretion of the drug through the expired air. As soon as this oil-laden air reaches the more sensitive parts of the respiratory tree (bronchi and trachea) in these susceptible individuals, the cough reflex is liberated and persists, presumably, until the oil excretion ceases or the irritation subsides. We have observed this paroxysm to continue as long as eight or ten hours.

*The Skin.*—Some degree of palmar tingling is the rule. Wounds with scar tissue show special susceptibility to a persistence of this symptom. Often the burning subsides in the sound member on the day of the treatment, but continues for another twenty-four hours on the injured side. There was one case of profuse sweating of the hands associated with the tingling.

*Nervous System.*—A mild euphoria with general excitation was observed in three cases. This resembles similar symptoms in alcoholic intoxication. In three other cases there was a lethargic state with toxic sleep and considerable prostration which lasted until the morning following the treatment. In this condition, hot coffee enemas were used with good results. The pulse remained uniformly of good quality. There was one case of nervous chill following the treatment.

*Circulatory System.*—Only one instance of circulatory collapse was encountered. This occurred in one of the first cases and followed the largest dose that we have given. Forty minutes after 5 c.c. of oil had been administered by tube, an increasing general reaction was followed by a sudden severe collapse with almost imperceptible pulse and cold perspiration. Active stimulation with the application of external heat brought about recovery in a couple of hours. For the next thirty-six hours there was retention of urine.

*Urinary System.*—One or two patients complained of increased frequency of urination and of pain in the back. Unfortunately our attempt to study the urine concentration, the phenolsulphonphthalein excretion, and the blood urea, proved abortive. Although we saw no evidence, so far as we went, of renal damage, we are not prepared to say whether this system escapes entirely.

#### SUMMARY

1. The intra-intestinal tube method is recommended as the method of choice for the cure of hookworm infection, on the grounds that it is more efficacious, safer and, once the duodenal bucket is in place, quicker, than the methods at present in vogue.

2. The procedure is simple and consists of the following essential steps: (a) introduction of duodenal tube; (b) injection of oil of chenopodium through the tube; (c) injection of saline flush to prevent toxic absorption of oil.

3. The specific toxic effects of drugs can be studied under the precise conditions of tube treatment. Oil of chenopodium seems to have a selective action on tissues sensitized by previous disease or injury.

## OBSERVATIONS ON THE WORK AT QUEEN'S HOSPITAL IN ENGLAND\*

GEORGE MORRIS DORRANCE, M.D.

PHILA DELTA

The hospital at Silecup, England, possessed the advantage of beautiful situation, being in the country just outside of London, away from all disturbing factors. Its organization had reached a rare degree of perfection when we arrived there, and the members of its personnel treated us with the utmost courtesy, going out of their way to see that every opportunity for study and observation was accorded us.

A unique plan was practiced in the arrangement of the different services. The division was so effected that there were sections under English, Canadian, Australian and New Zealand surgeons. This plan stimulated a healthy rivalry which assisted materially in the excellent results obtained.

The record system employed is worthy of mention. Every case was carefully studied and accurate records were kept of each patient. All symptoms, examinations and operative procedures, with photographs, were conscientiously recorded. By the method used by Captain Johnson, the roentgenologist at Silecup, it was possible to take duplicate roentgenogram plates of any given area. This system was later adopted by the American Expeditionary Forces. No attempt was made to conceal or excuse failures. The records were open to all, and the surgeons were frank in discussing their mistakes.

The patients admitted to the hospital were those suffering from injuries at least three weeks old. At first many of them had been operated on previously at the front, but experience taught the surgical staff, and later I had the opportunity and privilege of agreeing with them, that no case should have more surgery at the front than that immediately necessary for the conservation of tissue, unless the patient could be kept permanently by the surgeon performing the primary operation. In the vast majority of cases, time and tissue were lost when the plastic operation was begun in the front line hospitals.

Fractures of the maxillae were for a time treated at this hospital, but subsequently, with the increasing amount of plastic work to be done, patients with these injuries were referred to the Crayden Jaw Hospital, only those in the very severe cases, and those requiring plastic work in conjunction with their fractures were retained.

The rule followed in the treatment of fractures, except in the New Zealand section, was to remove all the diseased teeth and the teeth in the line of fracture. The British soldiers' teeth, on the whole, were in extremely poor condition, necessitating extraction very frequently, thus increasing the difficulties of the oral surgeon.

Fractures of the lower jaw, with loss of bone substance and teeth behind the first molars, were the most difficult to treat because of the tendency of the posterior fragment to ride upward and outward; to overcome this tendency, a saddle was placed on the intermaxillary splint to hold the fragment downward and inward in its proper position.

\* Read before the Section in Surgery of the Society of American Surgeons at the Annual Meeting, Montreal, Canada, June, 1919.

Major Pickrell devised an ingenious method to prevent the posterior fragment from riding upward and outward. He introduced a screw through the zygoma into the coronoid process, in this way retaining the fragment in its normal position. After union had occurred, the screw was removed.

Mr. Collier showed that in fractures of the lower jaw in the molar region, when bone substance was lost, he could avoid a graft by extracting the corresponding teeth of the upper jaw, thus letting the posterior fragment slide forward. His results were very good. One rule we all learned: To obtain union, all teeth in the line of fracture must be extracted.

#### PLASTIC SURGERY

In plastic work, this hospital holds an enviable position; the originality of the surgeons, coupled with their excellent technic, established principles in plastic surgery which will last forever. Major Waldron, of the Canadian section, was the first to use the Esser inlay, that is, the buried skin graft. This was later modified by Colonels Gilles and Newland, so that instead of introducing the graft from without, it was inserted from the inside of the mouth.

A later modification for obtaining mucous membrane for the mouth was the introduction of the free skin graft. The procedure consisted in incising the mucous membranes or scar tissue of the mouth and making a cast with modeling compound of the cavity thus produced. A Thiersch skin graft was placed over this cast of modeling compound, the latter being held by a dental appliance which had previously been cemented to the teeth. This method failed only in exceptional cases.

Colonel Gilles, the most experienced operator in the British section, frequently used a double tubed pedicle flap taken from the scalp or the chest. The advantage of the double pedicle flap is that it can be transplanted for a long distance without danger of the pedicle becoming infected. He insists that the flap, as in all plastic work, be taken from the area nearest the surface to be covered.

Cartilage grafts were preferred by all the surgeons to free bone grafts in the reconstruction of the nose and supra-orbital margin. It was found that the free bone grafts often became absorbed. No sutures were used through the cartilage to hold it in place.

Previous to our arrival, the staff had run through the entire gamut of methods of nasal construction and had adopted the Indian method as the one of choice, using in every instance a layer of skin for the inner lining. The septum was preferred for nasal support. In the event of its destruction, one or both of the turbinates were selected (if either or both were available), and a free cartilage graft was implanted high up on the forehead, in the area from which the flap was to be taken.

For the correction of shrunken eye sockets, Major Gilles implanted cartilage in preference to performing Mule's operation, in which gold or a glass ball is used, as the inlay became part of the tissues and did not act as a foreign body. The eyelids were restored by an epithelium inlay, with very good results.

Pedicle bone grafts, for example, those of the lower border of the jaw attached to the diaphragm, gave better results than the free bone grafts. Free grafts taken from the rib and tibia periosteum, with a small amount of bone attached, and known as osteoperi-

osteal flaps, were used; all gave fairly uniform results. Practically all the surgeons used catgut for ligatures and for suturing the tissues, silk-worm gut and horse-hair being used to close the skin.

Artificial noses were not favored because of their appearance and discomfort, and the necessity of constantly changing and tinting them. Practically all the patients preferred the plastic operations.

The anesthetic used was ether or chloroform, or a mixture of both. In a large number of instances, the anesthetic was administered by rectum, ether being always used in these cases. Very little local anesthesia was used.

#### SUMMARY

In my experience at Sidcup the things most impressed on my mind were the system of records, the care with which the case was studied before operation, the originality of the operators, and the courtesy and patience shown to those of us who were fortunate enough to be assigned to Queen's Hospital for study.

2025 Walnut Street.

### ORAL AND PLASTIC SURGERY IN THE INTERMEDIATE SECTION OF FRANCE\*

OBSERVATIONS OF A CONSULTANT\*

HERBERT A. POTTS, M.D.

CHICAGO

The exigencies of war always distort and change the ideas and ideals of the civilian soldier, and he is at once confronted with problems that seem insurmountable. It was a difficult task for him to reconcile his dominant idea, of serving the wounded soldier to the best of his ability, to the existing military conditions which many times seemed to overshadow his professional duties; and he was often compelled to sit with folded hands awaiting the arrival of orders, equipment, supplies, etc.

Consolation must be had from the fact that in a very short space of time a movement was successfully "put over," the magnitude of which he will never fully realize, and from the consciousness that he was ready and willing to do his part in the "biggest thing that has ever happened."

For study and comparison a vast amount of work must be done to bring the various data into form which will permit the deduction of logical conclusions. I have ventured to classify some of the case records (the few of which I have copies) from which, together with my observations in the hospitals of Orleans, Blois, Tours, Chateauxaux and Issoudun, I shall endeavor to make some deductions.

#### RATE OF FORMATION OF BONE UNION

We will first consider the time elapsing between the date of injury and the patients' arrival at our base hospital:

Of thirty-five cases of fracture of the jaws of varying degrees of severity, twenty came into our hands within one week after injury. Our treatment of these comprised the removal of teeth, roots and foreign bodies from the line of fracture, the establishment of adequate drainage, and splint-

\* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

ing or immobilization. Seventeen of these cases were well along toward a bony union, demonstrated clinically and by the roentgen ray, at the end of twenty-seven days (average).

The three remaining cases of the twenty were very severe, with extensive loss of bone and much comminution of fragments, and with severe involvement of the soft parts. Satisfactory progress with bone formation was demonstrated in these at the end of 120, ninety and sixty days, respectively.

One case seen during the second week after injury was splinted and a bony union attained within four weeks.

One case seen in the third week had a bony union with trismus; there was no displacement and no loss of bone. Under an anesthetic, impressions were taken, splints constructed which were cemented in place, and by means of rubber bands, the jaws forced apart. At the end of seven days the patient could open his jaws to the fullest extent.

Of three cases seen in the fourth week, one was ununited, owing to roots of teeth and sequestrums in the line of fracture, after the removal of which the fracture healed rapidly under a splint.

Another, which had healed in malocclusion, was improved by an artificial denture.

The other case of this group was a fracture of the upper jaw which progressed rapidly after adequate drainage was established and after it was splinted.

Of four cases seen in the fifth week, one was united in malocclusion; this was refractured and splinted, after which it healed rapidly. The three other cases were injuries of the soft parts.

Three cases seen during the sixth week all healed rapidly after the removal of dead bone and drainage.

One case seen after ninety-three days healed rapidly after the removal of dead bone and splinting.

One case, seen 180 days after injury, being fractured at the symphysis, became solid after the wearing of a splint for four weeks.

One case seen 365 days after injury presented a suppurating sinus with a partial bony union; this closed rapidly with new bone formation after the removal of the second bicuspids, whose root extended into the line of fracture.

These few cases demonstrated the crying need of immediate reduction of fragments and restoration, as far as possible, of the dental occlusion, with the retention of fragments and with the teeth held in normal position by means of splints on the upper or lower jaws, or both, which might, if need be, be held in occlusion by a removable mechanical appliance.

Displaced fragments may be held in place by temporarily wiring them together, or by circumferential wiring, or in selected cases, by external pressure. The open-bite splint is at times of service.

I have seen very few cases of trismus following these injuries unless there were foreign bodies within the substance of the muscles of mastication. The mild cases due to neighboring inflammation readily subsided.

#### TECHNIC FOR REMOVAL OF FOREIGN BODIES

In this connection, I might mention the technic of the removal of foreign bodies as practiced at Base Hospital No. 202 by Capt. L. H. Graves and Roentgenologists Jones and O'Dea. I do not recall the name of the method, but it consists of a table beneath which is a movable roentgen-ray tube, the vertical ray of which is directed upward through the foreign body. The fluoroscope, also adjustable and at right angles to the vertical ray, is lowered on the part. The movement of the tube marks the excursion of the body on the fluoroscope. Blunt artery forceps are then placed on the skin at the supposed depth of the foreign body. The tube is again moved, and if the excursion of the tip of the forceps coincides with the excursion of the foreign body, it is exactly at that depth. The forceps

are then held to mark the spot on the skin, the headlight of the operator is turned on, and a buttonhole incision is made in the skin. The forceps are introduced, and under the fluoroscope are carried by a boring motion to the body, which is grasped by the forceps and extracted directly under the eye. From one to five minutes is consumed by the whole operation, and there is no mutilation of the tissues. More than 400 foreign bodies were in this manner removed, with 100 per cent. success.

#### NERVE INJURIES

I have seen a few patients with injured hypoglossal nerves, but the injuries were either too near the condyloid foramen or too near the entrance of the nerve into the tongue to permit surgical procedure on them. The same may be said regarding the seventh nerve, as it was usually severed within the petrous portion of the temporal bone, or too near its foramen of exit, or too near its exit from the parotid gland, so that it was not promising from a surgical standpoint.

After noting the difficulty which a patient with a severed hypoglossal nerve experiences in eating and talking, I should hesitate very much before utilizing the hypoglossal to repair the facial nerve.

The sliding of the jaw to one side on opening the mouth, after injuries to the neck of the ramus, seems to be due to impaired external pterygoid function, which may be the result of muscular or external pterygoid nerve injury, and usually improves or is recovered from entirely. We see the same phenomenon at times to a mild degree following nerve blocking of the second and third branches of the trigemini.

Injury of the third branch of the trigemini in a fracture of the jaw is the rule rather than the exception and is negligible.

#### CHARACTER AND EXTENT OF INJURIES

It seems from subsequent observation of cases that even when there is extensive destruction of soft tissues, one should not delay in the reduction and fixation of the remaining bony fragments in the best possible position. This applies also to the periosteum which molds the bony new growth rather than forms it.

It seems also that anything more than a very feeble effort at primary repair of the soft parts is likely to be a failure, and that the wide open wounds after having been freed of all foreign bodies and injured tissue do better than the ones in which an effort at repair has been made.

Under constant and efficient care for a few days or weeks, secondary closure with a view of limiting scar formation may be attempted; but before attempting extensive plastic surgery, one should wait until all infection has disappeared and until the bacteria and their spores which have been incarcerated within the scar tissue have been killed.

At the earliest possible moment after injury all foreign bodies, including detached bone fragments and tissues injured by the missiles, should be cleanly dissected out, as the lacerated soft tissues do not retain their vitality and subsequently become culture mediums for bacteria.

Wide open wounds, even when extensive suppuration was present, due to lack of frequent dressing, cleared up more quickly than even partially closed ones. Careful Carrel-Dakin management, especially if the wounds did not communicate with the oral cavity, was the method of choice.

Reduction of fractures, immobilization and retention of fragments, together with adequate drainage, established with the idea of its continuance much longer than in wounds of other parts of the body, were the aims of the maxillofacial staffs within the intermediate section, and a suppurating sinus which continued more than six weeks from the time of injury was an indication for operation and removal of the usual sequestrum, after which the suppuration quickly subsided, cavities in the bone and overhanging ledges of bone being removed.

The retention of bone-forming elements in normal position, especially the periosteum with its attached osteoblasts, even in the presence of suppuration, is very important. I suspect that many cases with extensive loss of bone substance which were splinted for transit overseas, and which seemed to be cases requiring large bone-grafts, were found to have bony union by the time the patients landed, or at least had so far regenerated that very small grafts were required.

When the general order came to evacuate all cases, our aim was to splint them in the best possible occlusion, using splints which could in an emergency be quickly released, allowing the patient to open his mouth, or avoid accident by using an open-bite splint.

The general order stopping all operations except in cases of emergency prevented our doing many plastic operations which we were at that time ready to execute.

The feeding of these patients at times presented difficulties, but usually the friendly cooperation of head nurses, cooks and the Red Cross, enabled us to procure an abundance of proper food for them. A variety both in kind and preparation was also provided.

Some few patients came to us with their jaws wired together, and most of them were in good shape. It was no doubt the best means at hand, but dangerous.

I am inclined to think that the better practice would have been to expedite the transportation of the patient to the base hospital without any attempt at reduction or immobilization as the presence of any sort of appliance is at times misleading to the surgeon. He thinks that as an appliance or wire is about the teeth, the patient has been properly attended to, and may be inclined to procrastinate in sending him to the oral surgeon who, when the patient does come, finds that there has been union either fibrous or bony, in malposition, and that reduction on account of the delay is more difficult, demanding at times a refracture before proper splinting can be done.

#### A TRIBUTE

I must pay tribute to the wonderful spirit, implicit trust and confidence of the American soldier; his placid mental state and fortitude were marvelous.

There were eight tables in our operating room at Orleans and when the trains of wounded arrived eight patients were put on the tables, eight rested on the floor, and as fast as one was taken from an operating table another was placed on it. This routine was kept up until the last one was operated on and dressed. There was never a whimper or complaint from any of them. They even assisted when being placed on the table, and took the anesthetic in the most quiet way imaginable without a word of remonstrance or sign of fear, really a phenomenon almost never seen in a civilian hospital. In the wards also there were no gouches, and they appreciated to the fullest extent the efforts of officers and nurses in their behalf. My hat is off to the doughboy.

## THE BROAD TAPEWORM, *DIBOTHRIOCEPHALUS LATUS*, IN MINNESOTA

### ADDITIONAL RECORDS\*

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Cases of infestation of man by the broad, or fish tapeworm, *Dibothriocephalus latus*, have been regarded as rare in the United States. Nevertheless, Stiles<sup>1</sup> states that over thirty cases have been recognized here, chiefly among foreigners. At least four cases have been reported since that time, and I have knowledge of seven cases from Minnesota which have not been recorded.

Indeed, I am inclined to believe that there are sections of Minnesota in which it is by all odds the commonest of the large tapeworms of man. This seems true in some of the sections settled largely by Scandinavian, Finnish and Polish immigrants. Cases have been reported repeatedly as occurring among these nationalities, but have been regarded as imported. Such, indeed, most of them clearly are.

In 1906, Dr. W. S. Nickerson<sup>2</sup> reported three cases that had occurred in the practice of Dr. Owen W. Parker of Ely, Minn. The patients in two of these cases were Finlanders, but the most significant fact was that the third was a child of Finnish parentage, who was born in Minnesota and had never been outside the state. The father came to this country in 1891. Three years after coming from Finland he passed a tapeworm (*Dibothriocephalus?*). The infested child was born, April 15, 1902, in Ely, Minn. At the age of 2 years, he ceased to thrive or gain in weight, became anemic and suffered from abdominal pains. In August, 1904, his mother noticed segments of tapeworm in his stools and called the physician, who successfully treated him. Up to the time of this report, the child had remained perfectly well.

The tapeworm expelled measured 7 feet in length and was a "typical specimen of *Dibothriocephalus latus*." The scolex measured 1.75 mm. by 0.9 mm.

In the words of Dr. Nickerson, "This latter case is of exceeding importance, since there can be no question that the infection occurred in Minnesota, and it, therefore, demonstrates the fact that the broad tapeworm now has a foothold, at least locally, in this country."

So far as I have been able to learn, Dr. Parker's case is the only recorded one of *Dibothriocephalus* infestation of man in this country which is not clearly explicable on the theory that the parasite was an importation. Indeed, in spite of the apparently clear-cut nature of the evidence, the general point of view of medical men is that expressed by Kopelowitz,<sup>3</sup> who says:

There is very little evidence at present to justify an assumption that native foci of infection exist in this country.

For this reason it seems desirable to place on record two additional cases which have come to my attention

\* Published with the approval of the Director as Paper No. 174, of the Journal Series of the Minnesota Agricultural Experiment Station.  
1. Stiles, C. W.: In Osler's Modern Medicine, Ed. 2, Vol. 11, Philadelphia, Lea & Febiger, 1917.

2. Nickerson, W. S.: The Broad Tapeworm in Minnesota, J. A. M. A. 46: 711 (March 10) 1906.

3. Kopelowitz, J. C.: Bothriocephalus Latus Infection in Missouri, with Report of a Case, J. Missouri M. A. 12: 502 (Oct.) 1916.

in the course of some studies on the subject. In both of these, the available data are very meager, but the essential fact bearing on the question is clear: In neither case was there any doubt that the condition originated in Minnesota.

CASE 1.—A Minneapolis boy, aged 8 years, had been suffering from gastric trouble. On treatment, a specimen of *Dibothriocephalus*, 7 meters long, including the head, was expelled. It is preserved in the collection of the Department of Pathology of the University of Minnesota, under the number 0-17-404, but with only the significant note that the patient was born and had lived for all his life in Minnesota.

CASE 2.—A young Chippewa Indian child, on the White Earth Indian Reservation in Mahanomen County, Minn., is the second case which has come to my attention and which is even more significant than the first. Here again many data which would be of value could not be obtained, but this much is known: The child had never been away from the reservation, but was infested by a *Dibothriocephalus*. On treatment more than 3 meters of proglottids were recovered. Unfortunately the head was not obtained, or at least was not preserved. The narrowest neck segments present measured 1.5 mm. in breadth. The eggs of the worm agree very well in measurement with those of the typical *Dibothriocephalus latus*, measuring from 65 to 70 microns by 50 to 55 microns.

Such information as is available regarding the first of these cases I owe to Dr. M. Barron of the Department of Pathology of the University of Minnesota, who treated the patient. That regarding the second case was obtained through the courtesy of Mr. P. A. Starr, teacher in the Indian School at Naytahwausch, who aided me in confirming reports and who put the specimen at my disposal. To each of these I wish to acknowledge my obligation.

An unfortunate misstatement of Nickerson's conclusions has gained wide currency, evidently due to errors in the reports by Singer<sup>4</sup> (who cites "Nicherson"), and of Kopolowitz,<sup>5</sup> 1916, who says:

Nicherson has frequently found the larvae of *Bothriocephalus latus* in fish caught in the Great Lakes.

In reality, Nickerson was very careful to avoid making this statement. He does state that:

Larvae of *Dibothriocephalus* do occur in American fishes. I have obtained them from fish caught in the Great Lakes; but without feeding experiments to rear the adult worm from the larvae, it is impossible to determine the species of *Dibothriocephalus* and the probability is in favor of such larvae being of some species other than *latus*—the parasite of man (italics mine).

Recently, Hall and Wigdor,<sup>6</sup> have described a bothriocephalid tapeworm from a dog at Detroit. Four specimens were collected. As they differ from *Dibothriocephalus latus* and from related species which have previously been reported from the dog, the writers regard the species as new, and propose for it the name of *Diphyllobothrium (Dibothriocephalus) americanum*.

Dr. W. L. Chandler, of the Michigan Agricultural College, has also collected a worm of this genus from a dog at East Lansing, Mich. The worm when found was not in condition for study, but careful measurements of eggs have shown that they average considerably smaller than those of *D. latus*, being about 62 by 37 microns, as compared with about 70 by 45 microns for the latter species. Unfortunately, none of

the strobilae of *D. americanum* had eggs present, and it is therefore impossible to state whether Chandler's specimen should be regarded as of this species.

Hall and Wigdor call attention to the fact that the bothriocephalid larvae, or plerocercoids, found by Nickerson in fish from the Great Lakes may have been the larvae of their dog tapeworm. "The idea is of interest, as bothriocephalids parasitic in man are commonly capable of parasitizing dogs, and vice versa. It may be, herefore, that fish caught in the Great Lakes and consumed here in Detroit, and elsewhere, are parasitized by a plerocercoid other than that of *D. latus* but possibly capable, nevertheless, of parasitizing man."

I have received a number of complaints of "wormy bass" and other fish in the lakes of northern Minnesota, and in several instances, physicians have stated that the parasites were tapeworms transmissible to man. This conclusion obviously was based on a knowledge of the life history of *Dibothriocephalus latus*, or of Nickerson's report. On investigation, it was found that the supposed tapeworms were larval trematodes encysted in the flesh of the fish. In the case of several small-mouthed black bass, taken from Bass Lake, Mahanomen County, in early September, there were in the viscera numerous protocephalid tapeworm larvae which have been identified by Dr. George R. La Rue, as those of *Protocephalus ambloplitis* (Leidy).

However, the possibility that there may occur in this region bothriocephalid larvae other than those of *D. latus*, but equally capable of developing in the human host, is strong. Their development in the dog is suggestive, but the question as to their relation to man can be settled only by direct experimentation as opportunity offers.

## 1. CYSTICERCUS OF THE VITREOUS 2. CONGENITAL MULTIFOCULAR CYSTS IN RELATION WITH THE RETINA 3. ANTERIOR LENTICONUS

### A CLINICAL COMMUNICATION \*

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### CYSTICERCUS OF THE VITREOUS

CASE 1.—*History*.—An unmarried woman, aged 19, born in Ireland, who had been a resident of the United States for thirty four months, and whose family and personal medical history, so far as it was possible to obtain it, was unimportant, had always been a healthy girl, and with the exception of measles at the age of 14, had had no illness. Ten months prior to the examination she had noted blurred vision of the left eye. This gradually increased and was associated with the appearance of white, cloudy masses floating in front of the eye. At the expiration of five months they ceased to be apparent, and she was no longer able to distinguish even bright light.

\* Read before the Section on Ophthalmology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

4. Singer, I. J.: A Case of *Bothriocephalus Latus* Infection, *J. A. M. A.*, 64: 1618-1619, (Mar. 30) 1916.

5. Hall, M. C., and Wigdor, M.: A Bothriocephalid Tapeworm from the Dog in North America with Notes on Cestode Parasites of Dog, *J. A. Veter. M. A.*, 63: 355-367, 1918.

*Ocular Examination* (July 14, 1918).—Vision of the right eye was 20/20; of the left eye, nil. The palpebral fissures were equal in width, the muscle rotations normal. The right pupil responded promptly to light and in accommodation, the media were clear, the disk slightly reddened in outline, and there was a slight pulsation of the inferior retinal vein. A single chorioretinal artery was noted on the temporal side. The general vascular system was normal and the refraction slightly hyperopic.

The pupil of the left eye dilated readily, and there were no gross changes in the iris; but in the lower portion of Descemet's membrane were a number of punctate deposits and two or three small dots on the anterior capsule of the lens, indicating previous points of adhesion between it and the margin of the iris. The vitreous was moderately cloudy, and there were a few fixed vitreous opacities in the anterior portion of this body. From the upper and inner quadrant a gray reflex was visible, indicating a choroidal infiltration, or perhaps a retinal detachment. Owing to the cloudiness of the vitreous directly in advance of this area, it was not possible to discern accurately, or focus on, any retinal vessel. The region of the disk was visible through the hazy vitreous, and its position could be differentiated by its color; but no vessels were distinguishable.

Quite anterior in the central field of the vitreous, and well in advance of the retina of the macular region, there was a large globular mass, light gray, with a slightly darkened center. The outline was regular and its border almost transparent. It was translucent toward the center, and it was from 6 to 7 disk diameters in width. From its lower border there protruded a tubular extension transversely wrinkled, which terminated beyond a slightly constricted neck into a head, on which two bright dots, and the position of the hooklets, could be distinguished. Distinct peristaltic movements of the cyst were visible and the movements of the protruded head, neck and body were often very active. At times the head was withdrawn within the sac, very much as might be the case with the head and neck of a diminutive turtle.

During a number of observations on the days following the discovery of the cysticercus, the conditions did not materially change, except that in various movements the observations could be improved. Thus, sometimes the head was situated directly downward, sometimes downward and forward, and sometimes more to the temporal side. Depending evidently on differences in the density of the vitreous opacities, the walls of the cyst, particularly those on the temporal side, were more clearly demonstrable. In short, the movements of the parasite, to use the language of Saltzmann, presented an everchanging and interesting spectacle. Naturally, the diagnosis of cysticercus of the vitreous was readily made.

*General and Laboratory Examinations.*—The patient was a well-nourished, rather pale girl, who in a few months prior to her examination had lost weight, and quite recently her appetite had been impaired and she had suffered somewhat from nausea. But the general examinations of the heart, lungs and abdominal viscera were negative, with the exception that one roentgenogram indicated a slight thickening in the region of the gallbladder. On repetition, however, of this examination, the roentgenologist was unprepared to say that this appearance was of pathologic significance. The urine showed no pathologic content; the blood count was, red blood corpuscles, 3,450,000; white blood cells, 5,000; the Wassermann test of the blood was negative. An examination of the stools revealed the presence of ova, but no segments of the worm. It was supposed that these ova were those of *Taenia saginata*, but, as is well known, the eggs of this tapeworm and those of *Taenia solium* so closely resemble each other that they cannot be distinguished microscopically, and the ophthalmoscopic appearance of the hooklets leave no doubt that the ocular intruder was *Cysticercus cellulose* (Fig. 1).

*Operation.*—After keeping the patient under observation for two weeks, during which there was a manifest increase in the vitreous density and descemetitis, it was determined to operate, after the patient had been fully informed as to the chances of operative success and failure, and also fully

informed that if the parasite was not removed the eye was doomed to a destructive inflammation. The following operation was performed by Dr. Wiener:

An incision was made in the conjunctiva with scissors between the external and inferior rectus muscle, beyond the ciliary body and parallel with the corneal margin. Next, the sclera was incised longitudinally with a Graefé knife, the incision being 1 cm. in length, passing through the sclera, choroid and retina. At once fluid vitreous exuded. Guided by means of an electric ophthalmoscope, forceps were introduced into the opening and the cyst grasped and its removal attempted. This, however, was impossible owing to the fact that it promptly ruptured, and further efforts were not made. The wound was closed with conjunctival sutures and a dry dressing applied.

For three days there was no reaction, when pain developed in the eye, lasting for about an hour. A small point of adhesion to the iris and the lens in the upper and outer quadrant was discovered, but there was no ciliary injection. The lens, however, was quite milky in appearance. Convalescence proceeded uneventfully, and four days after operation the patient was discharged, the eye being free from irritation but the lens cataractous.

Twenty-eight days after operation, the eye suddenly became very painful, the conjunctiva was intensely congested, and there was marked ciliary injection, the iris being dull, dark, and slightly greenish in hue. The patient was advised to permit the enucleation of the eye, to which operation she consented. Following this operation there were no complications, and at the expiration of a proper period an artificial eye was adjusted, and it was noted that the patient's general condition began very rapidly to improve.

Dec. 11, 1918, or practically six weeks after the enucleation of the eye, the patient reported that a hemorrhage had occurred from the socket. She was immediately examined, and a clot of blood found at the apex of the orbit. This hemorrhage was coincident with a menstrual molen. About 1 ounce of blood was lost, but no further hemorrhage occurred. She gave the history that on one previous occasion menstruation had been associated with epistaxis. Since this date there has been no report of any complication.

According to H. B. Ward,<sup>1</sup> three different species of tapeworm larvae are known to occur in the eye and its adnexa, namely, those of *Taenia solium*, *Taenia cecchinnococcus* and the bothriocephalid tapeworms. Of these, *Cysticercus cellulose* is the most common.

Referring to the frequency of ocular, and especially of retinal and vitreous involvement, Vosgien's figures,<sup>2</sup> quoted by Ward, may be reproduced. Among 807 observations tabulated by Vosgien as recorded for a definite location, 372 were concerned with the eye, and of these, 120 of the retina and 112 of the vitreous. None the less, in individual experiences the cysticercus is not common. For example, in the often quoted figures of von Graefé, there were ninety cases in a total of 80,000 patients with eye diseases.

Extra-ocular cysticercus is of comparatively slight importance. The intra-ocular situation of the parasite may be in the anterior chamber, in the posterior chamber, even in the lens, but naturally, a cysticercus in the posterior segment of the eye, that is, under the retina and in the vitreous, is the one that presents the greatest clinical interest.

As Ward points out, the large number of cases in which this parasite has been found in the retina is noteworthy; moreover, such as are recorded as free in the vitreous body are in the majority of instances seen there after they have escaped from beneath the retina into the vitreous. Indeed, observers have main-

1. Ward, H. B.: Ocular Parasites, American Encyclopedia of Ophthalmology, 1:2:9265, 1918.

2. Vosgien: Le cysticercus cellulose chez l'homme et les animaux, Paris, 1911.

tained that the parasite always makes its first appearance behind the retina, the cysticercus having gained entrance into the vessels of the choroid, and from there has passed beneath the retina, which it detaches from the choroid. Von Graefe, however, was of the opinion that the parasite was able to develop floating in the vitreous, and Fuchs, as will be recalled, states that the cysticercus may find its way into a vessel of the retina or the ciliary body, from which position it may enter the vitreous directly without a preceding detachment of the retina.

The natural history, etiology and distribution of the tapeworm need not be discussed, as they have been dealt with fully in many articles. Among those easily accessible are the one by Saltzmann,<sup>3</sup> and in quite recent times the one by H. B. Ward,<sup>2</sup> already referred to.

Naturally, the lodgment of a *Cysticercus cellulosae*, which is the larval stage of *Taenia solium*, or pork tapeworm of man, can exist only where *Taenia solium* is found. At one time this was most frequent in northern Germany, but even here, owing to the improvement in meat inspection, etc., there has been a noticeable diminution of this form of tapeworm infection. So far as we are aware, *Taenia solium* has not been found in native Americans, but only in those who have emigrated to this country, and even so, it is very rare among them.

In general terms, the fertilized eggs of the adult tapeworm are distributed with the feces of the primary host. By some chance, for example, drinking contaminated water, eating vegetables which have been grown in land that has been fertilized with fresh manure, or dwelling in close community with persons who are suffering from tapeworm and whose habits are uncleanly, the infection is communicated, and the eggs reach the stomach of the new host, where they are hatched, and the embryo, reaching the intestinal canal, gains access to the surrounding tissues, where it may remain or be picked up by the lymph or blood circulation and sent to a distant portion of the body.

As has already been pointed out, the passage into the eye is most frequently through the vessels of the nasal tract, but the parasite may also reach the vitreous through a retinal vessel. After the embryo reaches its final destination, it develops into a bladder worm, which, if it is simple, is called a cysticercus, *Cysticercus cellulosae* being the bladder worm, or the larval stage of *Taenia solium*.

It is stated that it usually requires at least two months before the suckers and hooklets of the adult form are visible.

It is rare that an intestinal tapeworm and an ocular cysticercus are coincident, but such coincidence has been reported. It is also most unusual that more than one cysticercus shall be present in the eye; however, two in one eye have been reported by Alfred Graefe, and Schöbl observed three cysticerci in the same eye. In our patient, upward and inward there was what appeared to be a detachment of the retina. It is possible that this indicated the location of a subretinal cysticercus. Most unfortunately, the enucleated eyeball was mislaid or lost by some one in the personnel of the laboratory. Otherwise this point could have been decided, as well as a report of the pathologic histology of the globe included.

When Ward wrote his article on ocular parasites (it was published in 1918) four cases of cysticerci of the eye had been reported in the United States. Two of these presented only iris involvement, and two occupied the retinal-vitreous portion.<sup>4</sup> It is possible that the cysticercus in our patient had been subretinal and escaped into the vitreous; but certainly when under observation it was entirely free in the vitreous and well in advance of the central area of the retina.

Operative experience has taught that a subretinal cysticercus is most easily secured; next, one that is fixed in the vitreous; but the chances of success when the bladder worm is free in the vitreous are exceedingly slim. The last named condition was the case in our patient, who none the less was advised to submit to operative procedure, because in the absence of it the eye is practically sure to go on to a progressive iridocyclitis with destruction of the eyeball. Occasionally, however, cysticerci may live in the eye from two to four years, and a few cases are on record in which the residence of the parasite within the globe occupied a much longer period of time.

#### CONGENITAL MULTILOCLAR CYSTS IN RELATION WITH THE RETINA

CASE 2.—A man from the Dental Corps, aged 22, was referred to the ophthalmic service because of defective vision of the left eye. There was no history of injury and no evidence of constitutional disease. This defective vision had existed from childhood, and at the time of examination vision equaled light perception. The media were clear, the disk was pale and sharply outlined, and to its outer side there was a small crescent of choroidal disturbance. The arteries were small and straight, the veins normal in size, color and outline. In the macular region a large, white, atrophic spot, slightly greater in diameter than the disk area, was visible. Protruding from the upper half of this area there was a large cyst formation, in shape somewhat resembling an observation balloon. Its summit was best studied with +4.50 D. On the surface were a number of small vessels. It was transparent



Fig. 1.—Cysticercus of the vitreous.

3. Saltzmann: The Entozoa of the Human Eye. System of Diseases of the Eye, edited by Norris and Oliver 4: 843, 1900.

4. Turnbull: Cincinnati M. News 12: 373, 1910. Miner: M. Rec., Dec. 26, 1891.

and it covered about three fourths of the atrophic macular area.

Extending from the lower temporal edge of this cyst for a distance of about 3 disk diameters there was a narrow, transparent tube carrying two atrophic vessels. This tube resembled in appearance and size a manifest canal of Cloquet. The canal terminated in a wide-spreading cyst mass, which was less transparent than the one in the macular area, and fully four times as large. It possessed the shape of a rounded cone, with the base gradually losing itself in the peripheral part of the temporal quadrant of the retina. On its superior surface there were numerous small cysts, or vesicles, and some which were confluent. The surface of the mass was covered with vessels, which were for the most part atrophic. In the lower quadrant of the field the retina was elevated 2 diopters.

The entire middle and lower field of the fundus was occupied by retinal pigment deposits, unassociated with any atrophic spots, with the exception of one to the nasal side of the inferior temporal artery, just below the disk, and two less pronounced ones still farther below. The vision of the right eye was 20/20, and the eyeground was entirely normal (Fig. 2).

The lesions portrayed in the accompanying water color are subject to several explanations, none of which is entirely satisfactory. That edema and degeneration may result in cysts or cystic spaces in the retina is well known, and such conditions have often been found in the examination of enucleated eyeballs, the so-called Iwanoff cysts back of the ora serrata being good examples. That retinal cysts form in association with separation of the retina of long standing is also well known, and it has been suggested by Leber that some of the cases of detachment of the retina clinically recorded were really instances of cystic degeneration. Derby,<sup>5</sup>

in reporting a probable cyst of the retina and noting that clinical observations in this regard are rare, refers to Gunn's case of congenital microphthalmos and cyst of the retina, to Collins' observation of a retinal cyst which was shown to have developed between the outer and inner nuclear layers, and to Thompson's description of a cystic detachment of the retina. One of us (de Schweinitz<sup>6</sup>) has recorded a cyst of the retina in association with detachment of the retina. It is interesting that in Derby's, Thompson's and de Schweinitz's cases the cysts partly overhang the disk. Incidentally, our case does not belong in this category.

Among the many anomalies of, and associated with, persistent hyaloid artery,<sup>7</sup> various types of cysts, small and large, have been reported. Rarely, the origin of

this vessel, instead of being the usual one, is from a point more or less distant from the optic disk. For instance, in Schöhl's<sup>8</sup> case it arose 1½ disk diameters down and in from the papilla as a translucent cone with a broad base, which suggests a cystic process, and proceeded from the apex in two strands, one of which ended in the posterior surface of the lens.

In Silcock's<sup>9</sup> case the source was from a macular coloboma, and the strand reached the posterior part of the lens.

Is it possible that the balloon-like cyst in our case, from which a cord carrying two vessels passed to the temporal portion of the retina, terminating in the large multilocular cystic area, may be an eccentric vestigial hyaloid vessel with a bulbous expansion at its origin, bent over and twisted away from an approach to the posterior surface of the lens, to be fastened as is portrayed in the illustration? Choroiditis, such as we observed, probably congenital, has been reported in a number of examples of persistent hyaloid artery and its anomalies. We frankly think this theory of the appearances in our patient's eye has little if anything to commend it, but it is mentioned because of the numerous anomalies that have been reported in connection with the remnants of a hyaloid vessel and its sheath.

Doubtless the whole process is best explained by assuming that in intra-uterine life there developed some type of hemorrhagic retinochoroiditis, and that cystic changes occurred in the secondary exudative processes. There seems no doubt that the balloon-shaped mass is a cyst, and the large area in the temporal periphery of the retina almost certainly represents a mass of exudation which elevates the retina (it may have started in the chorioid) and in this elevated retina multilocular cysts have developed. What the nature of the underlying mass is we do not pretend to state, although in this connection it may be worth while to refer to a case observed and reported by de Schweinitz and Shumway<sup>10</sup> which ophthalmoscopically suggested a new growth, a glioma, indeed, but on examination proved to be a detachment of the retina, with extensive dropsical cystic degeneration of the rod and cone visual cells. It may be that the large area in the temporal part of the retina should be classified as an example, in limited space, of exudative retinitis, as described especially by Coats, with cystlike changes on its surface.



Fig. 2.—Congenital multilocular cysts in relation with the retina, and associated with quiescent pigmentary retino-choroiditis.

5. Derby: Tr. Am. Ophth. Soc. 12:827, 1909, 1911.

6. Dr. Schweinitz, G. E.: Diseases of the Eye, Ed. 8. This case was also reported in the Ophthalmic Section of the College of Physicians, Philadelphia, but the report was not published.

7. Dr. Beck: Persistent Remains of the Fetal Hyaloid Artery, Press of Robert Clarke & Co., Cincinnati, 1890.

8. Schöhl: System of Diseases of the Eye, edited by Norris and Oliver, 3:422, 1898, Plate IV.

9. Silcock: Tr. Ophth. Soc. U. K. 20:188, 1900.

10. De Schweinitz and Shumway: Dropsical Degeneration of the Rod and Cone Visual Cells of the Retina which Clinically Simulated Glioma, Am. J. M. Sc., December, 1901.

ANTERIOR LENTICONUS

CASE 3.—A recruit, aged 20, was referred by the camp infirmary for examination because of defective vision which had existed from infancy. It was possible to see him only once. Vision, right eye was 8/200; left eye, 10/200. It was not possible in the brief time at the disposal of the examiners to ascertain whether any spheric or cylindrical combination could improve vision. Each lens presented a pronounced anterior cone, which could readily be seen by ordinary daylight, looking through the anterior chamber, especially from the side, and also when the pupils were dilated. During this dilatation it was noted that the lenses were small and slightly hazy, except in the region of the zonula. Fundus examination by the indirect method detected no abnormality. The tip of each cone almost touched the posterior layer of cornea (Fig. 3).

So far as we are aware, only two cases of anterior lenticonus have been reported, one by Webster,<sup>11</sup> in which the conicity resembled that of a conical cornea. Without atropin, the following lenses raised the vision, which was 15/200, to 20/200, namely,

$$\begin{aligned} \text{O. D.} & - \frac{1}{11\frac{1}{2}} \\ \text{O. S.} & - \frac{1}{2} \text{---} 1 \text{ } 10 \text{ c, axis } 135 \end{aligned}$$

After atropin, the vision of each eye was 20/40, the right eye accepting a + 1/10 and the left eye a + 1/10  $\odot$  + 1/24 c. axis 135.

The second case is the one recorded by Van der Laan<sup>12</sup> under the name anterior polar crystalconus: the patient, a man aged 23, the anomaly being said to have developed slowly during eight years. There was a conical protuberance of the lens into the anterior chamber, occasioning through its center a high grade myopia, while through the periphery of the lens the refraction was hyperopic. The cone is said not to have differed in any way from the ordinary lens substance.

Neither of these reporters, in the abstracts which we have been able to consult, undertakes to give any explanation of this lenticular anomaly. As is well known, examinations of posterior lenticonus have usually demonstrated a rupture of the posterior capsule, and certainly displacement backward of the nucleus is a constant feature. Both of these observations of anterior lenticonus antedate the discovery of posterior lenticonus, first made in a human being by F. Meyer in 1888. Referring to this fact, Louis Dor<sup>13</sup> suggests that there may have been an error in observation, the reporters having been deceived by reflections, whereby they mistook a posterior conicity for an anterior lenticonus. Dr. Wiener, who examined the patient whose brief clinical history has just been reported, is confident that the conicity was an anterior one, as stated, so pronounced that it projected almost to the posterior surface of the cornea.

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ABSTRACT OF DISCUSSION

DR. F. H. VERHOEFF, Boston: I have seen only one certain case of intra-ocular cysticercus. Since my opportunity for seeing rare cases has been unusually great, the condition must be extremely rare, at least in the vicinity of Boston. This case was shown to me by Dr. Greenwood. The cyst was remarkably similar in size and situation to that described by the essayists. Microscopically, I have examined two cases. A specimen from one of these, a case of preretinal cysticercus, was sent to me several years ago by Professor Fuchs. The other case occurred in the practice of Dr. Marlow who removed the eye and submitted it to me for examination. This cyst was entirely subretinal, and occurring in a child, led Dr. Marlow naturally enough to make the diagnosis of glioma retinae. In each of these cases the cyst was ruptured and a marked chronic inflammatory reaction of essentially the same character had been set up. There was complete separation of the retina with formation of cyclitic membranes and formation of cicatricial tissue on the inner surface of the retina. Surrounding the cysts the infiltrates and exudates consisted chiefly of plasma cells, eosinophils, and endothelial phagocytes. Pus cells were notably scanty. In Fuchs' case there was a layer of fused endothelial leukocytes lining the external wall of the cyst. In my case the choroid was markedly infiltrated with plasma cells and eosinophils, but in Fuchs' case it was almost free from infiltration, due no doubt to the fact that the cyst was preretinal. From these cases I should judge that it is the content of the cysts that causes the inflammatory reaction, and this fact no doubt explains the reaction which followed the operative interference in the essayists' case. In regard to the case of retinal cysts reported by the essayists, I may say that I have never seen a similar case. In fact, so far as I can recall, the only case of retinal cysts that I have seen clinically was that reported by Dr. Derby and referred to by the essayists. I have frequently found retinal cysts, however, in eyes that have been removed for chronic inflammatory conditions associated with separation of the retina. These cysts seem always to be due to splitting of the retina in the layer of Henley, that is, to separation of the neuro-epithelium of the retina from the nervous portion, and are thus in a way, analogous to vesicles of the cornea or skin.

I found them once in a case of glaucoma secondary to contusion of the eye. This case was so unusual that I am passing around a section from it. The essayists offer several possible explanations for the cysts in their case, but state that none is satisfactory. The explanation, however, that they consider the least satisfactory appeals to me the most strongly; namely, that the cysts have resulted from a partial persistence of the hyaloid system associated with an abnormal development of embryonic tissue. Their suggestion that the case is in any way related to retinitis with massive exudation seems to me improbable.

As to the case of anterior lenticonus: I recall seeing a similar case about fifteen year ago, but I am unable to find the record of it. The essayists wisely refrain from attempting an explanation of this condition about which so little is known, but in a discussion such caution does not seem to be considered necessary, so that I venture to suggest two possibilities, first, that the condition is due to persistence of the conical shape of the embryonic lens vesicle, or second, that it is due to delayed separation of the lens from the cornea.



Fig. 3.—Anterior lenticonus.

11 Webster: Arch. f. Augenh. 4: 262.  
12 Van der Laan: Jahresh. f. Ophth., 11: 369, 1880.  
13 Dor, Louis, in Encyclopedie française d'ophtalmologie 7: 23, 1908.

DR. ALEXANDER DUANE, New York: Apart from the very rare cases of extreme anterior lenticonus, such as the authors have described, we occasionally see cases in which the condition exists to a moderate degree, not incompatible with fair sight. I can recall two such cases of moderate, progressive anterior lenticonus, both observed in women between 20 and 30 years of age. In both there was well marked, somewhat irregular corneal astigmatism with the rule and a total astigmatism against the rule, the latter increasing in the one case from 2.50 D to 6 D in nine years, and in the other from 4 D to 7 D in over three years. In both the ophthalmoscope showed the characteristic, small central area of metamorphopsia, shifting with movements of the eye more rapidly than the corneal reflex. In both fairly good and serviceable vision was secured by cylindrical glasses. In both also the condition was more marked in the right eye. Somewhat analogous to the congenital cyst noted by the authors was the peculiar condition I have elsewhere described, in which there was an egg shaped pigment bordered coloboma of the choroid, to one margin of which was attached by threads resembling the byssus of a mussel a slender and elongated, very delicate and transparent, apparently tubular bag, which, running straight up in the vitreous, lay parallel to the retina and about 1 mm. in front of it. At its upper end this structure tapered off into a point, to which was attached a hook-like appendage. This peculiar body differed entirely in appearance, situation, and direction from a persistent hyaloid artery, nor was it in any way like a retinitis proliferans. It remained unchanged all the time the patient was under observation (eight years). The only other fundus change was a faint, striate atrophy in the region of the macula, causing a central scotoma, which reduced the vision of 17/100. It is, perhaps, a fact of some interest that this patient was rejected for life insurance, because the examining physician had taken his coloboma of the choroid for an albuminuric retinitis. Perhaps also cystic was the condition which I have reported as occurring in a child, whose eyes, otherwise normal in appearance, showed shrunken, rudimentary optic discs, practically complete absence of the retinal vessels, and at each macula a sharp-cut round ring, which I took to be the base of a translucent protrusion of the retina, although I could not actually demonstrate this, since there were no vessels or markings, on which the presence of retinal structure over the area circumscribed by the ring could be predicated.

DR. ALLEN GREENWOOD, BOSTON: Dr. Verhoeff has asked me to discuss briefly the case he mentions, a case which was observed early, due to the fact that the cyst was between the macula and the disk, and when first seen appeared to be the size of a grain of rice, and about that shape. It was nearly round when I saw it. It projected only one or two diopters, and two or three days later it was down below the level of the macula, and later it crept up and covered the entire optic disk. It increased in size until it was about one and one half times the size of the disk, and protruded 5 D. It was easy to see that the eye would be lost by the growth of this cysticercus. Those of you who have tried to pick anything off the optic disk with a pair of forceps in one hand and an ophthalmoscope in the other can realize the difficulty—I had a pair of double reverse action forceps, where one blade revolves in the other. By making an incision between the external and the interior rectus, I brought the tip of the forceps to a level with the cyst and saw that the blades were each side of it, then I closed the forceps and removed the top of the cyst. Immediately the forceps were closed the fluid flowed into the vitreous and I got only the top part of the cyst itself. It required two operations for in the first one the vitreous clouded from hemorrhage. I made the puncture with a Graefe knife, but on account of the hemorrhage I had to wait two days before operating a second time. The patient was fine for about a month, could see finger movements, and the interior of the eye was clearing when she had an intra-ocular hemorrhage, pain for two or three days, the lens pushed forward, the anterior chamber was shallow, and the lens became opaque. The eye quieted down and remains as good as an artificial eye.

This is the only case of cysticercus I have ever seen.

DR. A. E. DAVIS, New York: I wish to report briefly a case which came under my own care. I kept this gentleman, aged 57, under observation for a number of years. He died recently. He suffered from migraine, and always had poor vision. The ophthalmometer showed astigmatism with the rule 2 D axis 90 plus 180—right eye, with the rule 2 D axis 75 plus 180—left eye. The patient, however, accepted a strong cylindrical glass against the rule, as follows:

R. V. = 20/200 : 20/50 w-5 D = -2.50 cyl. 90° L. V. = 20/200 : 20/30 w-1 D = -3 C 75°  
Reads Jaeger 1 from 9" to 15" w-1 D = -2.50 cyl. 90° Rt. plus 3 cyl. 165° left.

Because of the great discrepancy between the astigmatism, as indicated by the ophthalmometer, and that found on subjective examination, some trouble with the lens was suspected, an incipient cataract, perhaps. On examination with the ophthalmoscope, no opacity of the lens whatever was found, but a transparent protuberance of a conical shape on the front surface of the lens of each eye. The corneas were perfectly clear, except for a very minute opacity just to the outer side of the center of the left. The shadows reflected from the pupil resembled in a marked degree the shadow-crecens seen in conical cornea.

DR. S. D. RISLEY, Philadelphia: Simply as a matter of historical interest I thought this might go on record in the transactions of this section: While making some historical studies last year, I took pains to go over the printed book in which the cases reported had been kept by the secretary of the Philadelphia Ophthalmological Society, which was founded in 1871, and lived three years. During that time a general surgeon, Dr. Richard Levis, presented to the society a case in which the cysticercus in great abundance was found in the orbit under the internal rectus muscle.

DR. GEORGE E. DE SCHWEINITZ, Philadelphia: Operative success in intra-ocular cysticercus depends largely on the position of the parasite; success has most often been obtained where it was subretinal. If free in the vitreous the effort to secure the parasite is most difficult.

DR. MEYER WIENER, St. Louis: I had no difficulty in putting the forceps around the part of the cysticercus which I desired to grasp. I could see it very plainly, and see the forceps passing around the cyst. I had no hemorrhage, but when I closed the forceps and tried to withdraw it, it was the same sensation as if you took a pair of forceps and tried to pick up a piece of jelly. It closed over the cyst but there was nothing there between the points of the forceps.

**Vaccination Against Typhoid in Spain.**—Professor Peset, director of the Instituto Provincial de Higiene at Valencia, delivered by request last December an address on this subject at the Paris Faculté de médecine. His figures show that active work has been done in this line in military and civilian circles in Spain and fine results accomplished. In the army at Tetuan in 1914, for example, there were no deaths from typhoid among the 12,000 vaccinated and only 2.61 per thousand cases developed. He relates a number of striking instances showing the protection conferred by the vaccination; the one or two persons in large families who refused vaccination were the only ones who contracted typhoid during an epidemic, notwithstanding that there was no isolation, one of the vaccinated even sleeping with the typhoid patient. At Cheste, there was not a case of typhoid among the 1,200 vaccinated while there were 171 cases among the 4,800 non-vaccinated. Similar figures are cited from the epidemic at Moger in 1915, no cases of typhoid among the 363 vaccinated and 300 cases among the 7,631 nonvaccinated. Also from the epidemic at Torrente in 1917, no cases of typhoid among the 3,330 vaccinated and 407 among the 5,011 nonvaccinated. During 1918 vaccination of the members of the family whenever a case of typhoid developed at any point arrested the infection before it had a chance to assume epidemic form. Various types of vaccine are used. His address is reproduced in full in the *Laboratorio* of Barcelona 3:97 (March) 1919.

THE ACTION OF RADIUM ON  
CATARACTS\*

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Until recently there was no agent known that could in the slightest degree change or influence the natural course of the development of a cataract from its period of incipency to maturity. Surgery had reached a high degree of perfection and was followed in the majority of cases by a clinical success which meant restoration of vision. Surgery, however, does not influence or change the development of the lenticular opacification but simply removes the entire lens.

A great many attempts have been made to influence the development of cataract by chemical means, but as yet without success. In the last decade, however, a great deal of progress has been reported in radium therapy as applied to various pathologic conditions, and the field of usefulness of the biologic action of radium in the domain of therapeutics is constantly widening. Furthermore, a great many eye conditions, such as trachoma, vernal catarrh, and various tumors of the eyeball and adnexa, have been treated with radium without in any way impairing the normal structure of the eyeball or impairing its function.

One of the writers, who has done some research on the subject of chemotherapeutics of the cataract with entirely negative results, raised the question whether one might not expect that the radioactive substances may exert an influence on the development of the cataract. An *a priori* consideration of the subject showed the likelihood of such an influence by the radium rays.

As admitted by the best authorities on the subject, the capsular epithelium is most probably the starting point of cataract. Indeed, it is inconceivable that the change, or the precipitation, as it were, of certain soluble ingredients within the lens which result in the formation of the opacifications could take place without a change in the structure of the barrier membrane, which the capsule is; and since the capsule is essentially a product of cell life, the change in the barrier must be due in the ultimate analysis to an abnormality in either the structure or the function of these cells.

There is ample biologic and clinical evidence that radium produces various and very deep changes in cellular functions. In tumors and granulomas, the action of the rays consists in the inhibition of the proliferating capacity of the cells; in conditions like exophthalmic goiter, it influences and alters the functions of the cell. It is thus evident that the radium rays may alter or influence the capsular epithelium in such a manner as possibly to render the whole capsule less permeable for the abnormal agents within the general circulation or in the neighboring tissues, which later on entering the lens produce the opacifications; or else the change in the membrane may consist in its

enhanced ability to exosmose certain substances from the lens, and the lack of the latter may result in formation of opacities.

A thorough search of the literature showed that there had been no attempt made by any investigator to influence cataract with radium, with the exception of Koster.<sup>1</sup> This investigator applied radium to a great variety of eye diseases, apparently in a large number of cases. While he does not state definitely the number of cases of each disease treated, he reports on over twenty diseases, and as regards some of these diseases he distinctly states, "I have treated as many as twenty or more patients." Among others, he reports on treatment of cataract, with negative results, but states that in a case of cataracta catarulea—the star form in the anterior cortex—the opacities fell to pieces and disappeared entirely after five sittings of one hour weekly.

The method of radium therapy employed by Dr. Koster is not in accord with the modern conception of the subject. None the less, he apparently obtained favorable results in certain conditions, and there was no deleterious effect observed on the retina or on the other ocular structures. Dr. Koster used a glass tube filled with radium which he placed, uncovered and unprotected in any way, directly to the scleral conjunctiva. This is a dangerous method, since all of the soft rays remained unfiltered and could irritate and burn the adjacent tissue. In this connection, it is remarkable that an amount of radiation which would have surely caused a burn on the skin did not cause a burn of the scleral conjunctiva. It must be admitted that he used much smaller quantities than are employed at present. The therapeutic results obtained by Koster, notwithstanding his inadequate methods, the harmlessness of the procedure, which was shown by him as well as by the investigators who treated epitheliomas of the eyelids, and also the theoretical considerations mentioned above encouraged us to commence this investigation.

## METHODS EMPLOYED BY THE AUTHORS

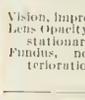
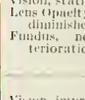
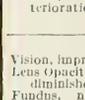
The methods employed were very similar to the technic of deep radium therapy which one of us is using at present in the treatment of malignant tumors and various other conditions. For a clear understanding of these methods it is necessary to explain here very briefly certain physical characteristics of radium.

Radium emits alpha rays, beta rays, and gamma rays. The first two act only as a general caustic on all the tissues found on the surface to which the radium is applied. The hardest beta, and especially the gamma rays, have a selective action which causes their efficacy in the treatment of deep conditions. The selectivity of the rays consists in the fact that they may influence pathologic structures while leaving the neighboring normal tissues practically intact. These gamma rays represent only about 1 per cent. of the total amount of radiations. When Koster employed in his tube 2 mg. in gamma radiations to do the work, there were possibly not enough soft radiations to injure the normal tissue; but, on the other hand, he had only an extremely small amount of gamma radiations to do the actual work. In modern technic, ten, twenty and more times the amount of radium used by Koster is employed. With the aid of various means which it is not necessary to discuss here, all the irritating soft

\* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Koster, cited by A. F. Mattice: Arch. Ophth. 43: 237, 1914.

## ACTION OF RADIUM ON CATARACT

Name	Age	Type of Cataract	Location	No. of Ap- plications	Date of Visits		Vision		Radium Application			Results		
					First	Last	Before	After Last	Lens Opacification		Fundus Before and After			
									Before	After Last				
J. V. 1	45	Senile immature (right)	Anterior cortex	30	Mar. 20/18	Mar. 31/19	Counts fingers at 1 ft.	Counts fingers at 3½ ft.				Vision, improved Lens Opacity, diminished Fundus, no deterioration		
J. P. 2	75	Senile immature	Central and posterior cortex	32	Apr. 2/18	Mar. 31/19	20 70	20 50				Vision, improved Lens Opacity, stationary Fundus, no deterioration		
O. M. 3	33	Complicated (retinitis pigmentosa) immature	Anterior and posterior cortex	40	May 19/18	Apr. 1/19	Counts fingers at 3½ ft.	20 70	—1				Vision, improved Lens Opacity, diminished Fundus, no deterioration	
J. D. 4	50	Complicated (retinitis) immature	Anterior cortex	33	June 8/18	Mar. 31/19	Counts fingers at 8 io.	Counts fingers at 3 ft.				Vision, improved Lens Opacity, diminished Fundus, no deterioration		
F. S. 5	58	Senile immature	Anterior cortex	14	June 19/18	Mar. 31/19	Counts fingers at 3 ft.	Counts fingers at 3 ft.				Vision, stationary Lens Opacity, diminished Fundus, no deterioration		
J. K. 6	47	Senile immature	Posterior cortex	23	June 19/18	Mar. 31/19	20 30	20 15	+1	+2				Vision, improved Lens Opacity, diminished Fundus, no deterioration
L. G. 7	52	Senile immature	Posterior cortex	28	July 21/18	Mar. 31/19	20 100	20 30	—1					Vision, improved Lens Opacity, diminished Fundus, no deterioration
A. R. 8	62	Complicated (glaucoma) immature	Anterior cortex	36	July 25/18	Mar. 3/19	20 40	20 20	—1	—4				Vision, improved Lens Opacity, stationary Fundus, no deterioration
F. G. 9	75	Senile immature	Posterior cortex	29	Aug. 13/18	Mar. 31/19	With correction 20 20	With correction 20 20	+2	+2				Vision, stationary Lens Opacity, stationary Fundus, no deterioration
C. G. 10	62	Senile immature	Central and posterior cortex	21	Aug. 29/18	Mar. 31/19	20 100	10 200	—1					Vision, decreased Lens Opacity, diminished Fundus, no deterioration
S. K. 11	50	Senile immature	Central and anterior cortex	23	Sept. 3/18	Mar. 20/19	20 40	20 30						Vision, improved Lens Opacity, diminished Fundus, no deterioration
C. R. 12	64	Senile immature	Anterior and posterior cortex	21	Sept. 5/18	Mar. 20/19	20 200	20 200	—1					Vision, stationary Lens Opacity, diminished Fundus, no deterioration

ACTION OF RADIUM ON CATARACT.—CONTINUED

Name	Age	Type of Cataract	Location	No. of Applications	Date of Visits		Radium Application			Results		
					First	Last	Vision		Lens Opacification		Fundus Before and After	
							Before	After Last	Before			After Last
R. K. 13	74	Senile Immature	Anterior cortex	27	Sept. 7/18	Mar. 20/18	$\frac{20}{70} - 2$	$\frac{20}{50}$		Vision, improved Lens Opacity, stationary Fundus, no deterioration		
L. L. 14	53	Senile Immature	Anterior cortex	8	Sept. 19/18	Mar. 20/18	$\frac{20}{200}$	$\frac{20}{100} - 1$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
I. S. 15	49	Senile Immature	Posterior cortex	20	Sept. 25/18	Mar. 20/19	$\frac{20}{30}$	$\frac{20}{15} + 2$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
R. M. 16	56	Senile Immature	Posterior cortex	13	Sept. 20/18	Mar. 20/18	$\frac{20}{100}$	$\frac{20}{50}$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
I. W. 17	73	Senile Immature	Posterior cortex	17	Nov. 7/18	Mar. 10/19	Counts fingers at 6 ft.	$\frac{20}{50}$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
A. R. 18	62	Senile Immature	Anterior cortex	15	Nov. 7/18	Mar. 16/19	$\frac{20}{30} - 4$	$\frac{20}{30} - 4$		Vision, stationary Lens Opacity, disappeared Fundus, no deterioration		
J. V. 19	45	Senile Immature (left)	Anterior cortex	4	Jan. 29/19	Mar. 25/19	$\frac{20}{40}$	$\frac{20}{30}$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
P. S. 20	38	Complicated glaucoma immature	Anterior cortex	9	Jan. 19/19	Mar. 25/19	Counts fingers at 6 ft.	$\frac{20}{30}$		Vision, improved Lens Opacity, diminished Fundus, no deterioration		
H. D. 21	48	Senile Immature	Central and posterior cortex	7	Jan. 31/19	Mar. 20/19	$\frac{20}{40} - 3$	$\frac{20}{40} - 3$		Vision, stationary Lens Opacity, diminished Fundus, no deterioration		
F. I. 22	56	Senile Immature	Anterior and posterior cortex	6	Feb. 1/19	Mar. 20/19	Counts fingers at 4 ft.	Counts fingers at 4 ft.		Vision, stationary Lens Opacity, stationary Fundus, no deterioration		
M. A. 24	58	Senile Immature	Posterior cortex	5	Feb. 1/19	Mar. 20/19	$\frac{10}{200}$ myopia	$\frac{10}{90}$		Vision, stationary Lens Opacity, diminished Fundus, no deterioration		
P. M. 24	67	Senile Immature	Posterior cortex	5	Feb. 13/19	Mar. 20/19	$\frac{20}{70}$	$\frac{20}{70}$		Vision, stationary Lens Opacity, stationary Fundus, no deterioration		

rays are filtered off and only the selectively acting gamma rays are utilized. The actual technic consisted in covering the radium with brass, photographic paper and gauze, and placing it over the closed eyelid. The distance between the radium substance and the eyelid was about 2 cm. The application usually lasted two hours.

The main difficulties that an investigator encounters when he attempts to test the efficacy of any measure on the development of a cataract is the fact that the disease is frequently very slow in progressing and may remain stationary for a long period. It is even assumed by some authors that occasionally a cataract may spontaneously improve for a time. None the less, it is the experience of every ophthalmologist that by far the greater number of senile cataracts follow the usual course and mature in a period of from six months to two years.

A statistical analysis of 131 cases reported by Dr. Nevens of the Liverpool Eye and Ear Infirmary is very characteristic of the usual experience. Of his cases, seven, or 5 per cent., matured in less than one month; twenty-six, or 20 per cent., matured in a period of between one and six months; thirty, or 23 per cent., matured within one year; thirty-five, or 27 per cent., matured in two years; nine cases, or 7 per cent., in three years; seventeen, or 13 per cent., in between three and seven years; and seven cases, or 5 per cent., in between twelve and twenty years, thus giving a total of 75 per cent. that matured within the first two years and only 18 per cent. that took more than three years to mature.

It is thus clear that in a certain number of consecutive cases selected for study, not less than three fourths of such cases, in the natural course of events, would reach maturity within two years, and would consequently have to show a good deal of progression within the first year.

The material used for the present investigation consisted of all the cases of immature cataracts seen by one of us in his routine clinical and private practice during the time of the investigation, twenty-four cases being included.

Twenty patients had senile cataracts of the usual type. In the majority of the cases, both eyes were affected, but only one eye, which was less mature, was treated. Four cataracts were complicated; one was due to a retinitis pigmentosa, one to an iridocyclitis, and in two instances chronic glaucoma was present. An iridectomy was performed in the latter cases, but the cataract was not due to any trauma. None of the patients suffered from true diabetes or nephritis, with the exception of one who showed sugar, traces of albumin, and a few hyaline casts. The type, extent and location of each cataract is noted on the accompanying chart.

Three of the patients received applications of radium for one year; three for eleven months; two for ten months; two for nine months; six for eight months; two for seven months; three for four months, and three for three months.

The result of the radium treatment in these cataracts as regards vision and lens opacification is as follows: There was a combined improvement in the lenticular opacification and vision in twelve cases; lens opacification disappeared in one case without improvement in vision; opacification diminished in five cases with stationary vision (in one case vision decreased); opaci-

fication was stationary but vision improved in three cases; both vision and opacification remained stationary in three cases. In a word, twenty-one cases, or 87.5 per cent., showed some improvement.

The method of procedure in the examination of these cases consisted of the usual methodical examination of the eye, including also an examination of the urine, and physical and blood examinations when deemed essential.

The examination of the visual acuity and the drawings of the lenticular opacities required especial attention to several details, as follows: The illumination of the room and the test charts was of the same character at each examination. Several corresponding letters, numbers, and illiterate charts were used. After the results of the visual acuity test, functional test, and the refraction were determined and recorded in each case, the pupils were dilated with a 1 per cent. homatropin solution for the purpose of examining the details of the fundus and also for a detailed drawing of the opacification. A combined focal examination was made of the lenticular opacity, namely, with a condensing lens and a corneal loop, and then a drawing of this opacity was recorded. The cataract was next observed with the Loring ophthalmoscope through its aperture, the patient always fixing a definite object in space, in order to procure a good view of the entire opacification, and a drawing of it was made. A 20-diopter lens was then inserted in the aperture of the ophthalmoscope for a drawing of the finer details of the lens opacification. In order that the latter examination should be accurate, a distinct fixed opacity of the lens was noted at a definite angle with a strong convex lens in the ophthalmoscope. Then another drawing was made of the opacification; this drawing also served as a guide for future examinations. Finally a drawing was made of the fundus details with the aid of a Loring ophthalmoscope. In a certain number of cases an electric ophthalmoscope was necessary to view the fundus, as the opacity was very dense. Four drawings were made of each case before radium was applied, and subsequent drawings were made at stated intervals.

The chart presents graphically the type of the cataract, the extent of the opacification, the length of time during which the treatment was continued, the number of treatments given, and the results obtained, so that it is hardly necessary to give in the text a detailed history of each individual case. Therefore only some of the cases which present salient features will be discussed in greater detail.

#### REPORT OF CASES

CASE 1.—*Senile Cataract*.—Examination before the application of radium gave the following results: The patient was able to count fingers at 1 foot. With focal examination the lens had a diffuse grayish appearance; with the ophthalmoscope a faint fundus reflex was obtained through the periphery of the lens. Five days after treatment began the patient could count fingers at 3 feet; ophthalmoscopic examination of the lens showed it to have a diffuse grayish aspect, while from its periphery a large fundus reflex was visible. Seven days after the beginning of treatment the patient could count fingers at 4 feet; oblique examination showed the lens to be of a grayish color, having a few whitish dots and small striae scattered near the central area; the ophthalmoscope revealed a much larger fundus reflex, with distinct sector striations radiating from the periphery of the lens. The improvement obtained remains to date, and consequently there has been no progression of the disease during a period of ten months. It is of particular interest to note that in this case

the vision today, ten months after the beginning of radium application, is better than before the radium treatment began; furthermore, a nearly complete fundus reflex is now obtainable, whereas before the application of the radium only at a narrow rim around the periphery was a faint reddish reflex transmitted from the fundus.

**CASE 3.—Complicated Cataract (Retinitis Pigmentosa).—**The patient gave a history of syphilitic infection occurring seventeen years previously. He received antisyphilitic treatment for several years, but had had none for two years before coming under our observation. The Wassermann blood reaction was positive. Disturbance in vision was first noticed thirteen years before; the vision gradually deteriorated, regardless of frequent syphilitic treatment. The first examination was made on May 19, 1918. The vision of the right eye was 20/200; with the left eye the patient counted fingers at 3½ feet. The field was markedly contracted concentrically; the fundus details, though cloudy, showed the typical picture of the disease. Ophthalmoscopic examination of the lens and fundus showed a distinct fundus reflex, which allowed the lenticular opacifications to be studied; they consisted of anterior and posterior cortical opacifications; the anterior had a sector arrangement, the posterior was curvilinear, and in between these opacifications a fine granular appearance was seen with here and there evidences of small globules or vacuoles. One week after the beginning of the radium application the left eye was examined, and the condition found was as follows: Vision equaled counting fingers at 7 feet. The fundus details were more clearly seen, the striations were less apparent, and the vacuoles or fine globules were more evident. No change was noticed in the papilla or in the retinal pigment. Nine days later the examination showed the vision to be 20/200. Ophthalmoscopic examination of the lens showed a larger area free from opacification; there were fewer striae, and the fine globules were more evident. Twenty-six days after the beginning of treatment the vision was 20/100—1; ophthalmoscopic examination showed more of the fundus, the striae were finer and appeared more tortuous, and the opacifications showed a distinct sector-like arrangement. Apparently the vacuoles were less numerous than at the previous examination (later they gradually disappeared entirely). This objective appearance remained stationary, but the vision improved to 20/70, Jan. 9, 1919, and has so continued to date. While this cataract is not a purely senile one, the pathologic condition in this lens is probably identical with that found in senile cataract. If the lenticular opacity were due to the syphilitic infection, one would have expected some improvement from the antisyphilitic treatment; but despite such treatment the vision deteriorated until radium applications were instituted, after which the lenticular opacification diminished and the vision improved.

**CASE 6.—Senile Cataract.**—The patient's left eye had been under observation for the previous eleven months. Examination before radium was applied showed the vision to be 20/30. Lens examination with the ophthalmoscope showed mainly an isolated peripheral opacification. The fundus was normal. Radium was first applied, June 20, 1918, and has been continued uninterruptedly to date. The lenticular opacity and vision gradually improved. Nov. 12, 1918, ophthalmoscopic examination with the aperture gave a faint shadow of the opacification, which had formerly been very evident with this method. Detailed study of the lens indicated that the opacification was less dense than before, owing to the disappearance of some of the striae and of some of the finer granules which bordered the larger opacifications. The vision was 20/15, and the fundus remained unaltered. This case represents a diminution in the opacification of the lens. The vision, which was useful at the beginning of the application, is now practically normal, and has been in this condition for the past ten months. A point of especial interest in this case is that the right eye, which had a matured cataract when first observed, received several applications of radium during the first month. It was then extracted without any technical difficulties, and a very good functional result was obtained; the patient, who is a baker, claims that he could do his

work better before, when he had one blind eye and the other with a vision of 20/30 than he can today when the right eye is aphacic and the left has a vision of 20/15.

**CASE 7.—Senile Cataract.**—The patient has been under observation for the past ten months. The first examination was made, July 11, 1918. The vision at that time was 20/100. The lenticular examination showed three prominent radial sectors and peripheral curvilinear opacifications. Between these striae a moderate amount of opacification was apparent. The vision gradually improved under radium treatment, being 20/30, Sept. 9, 1918; but the opacifications, which had remained unaltered to this date, did not disappear until March 12, 1919, when a redder fundus reflex was distinctly apparent in this area. The important point in connection with this case is the fact that whereas the improvement in vision began a few weeks after the first application of radium, the diminution in the opacification did not appear until eight months after the beginning of the treatment, indicating that the action of radium may be continuous and cumulative in cataracts as well as in malignant tumors. In this case also the other eye, with a mature cataract, was treated before extraction. No technical difficulties were encountered during operation, and a good functional result was obtained.

**CASE 15.—Senile Cataract.**—The vision was 20/30; hypermetropia, 0.75; corrected to 20/20. Lenticular examination showed a broad peripheral curvilinear opacity. The fundus was normal. The patient complained mainly of floating opacities in the vitreous, which were muscae volitantes. The first radium application was given, Sept. 26, 1918. March 18, 1919, the vision was 20/15. The lenticular opacity was less dense and defined, while the floating opacities had entirely disappeared. After treatment it is common for these patients to observe that these muscae volitantes have disappeared.

**CASE 17.—Senile Cataract.**—The urine examination showed sugar, albumin and granular casts. The patient could count fingers at 6 feet. The lenticular opacity consisted of an extensive opacification of varying density. The fundus examination showed a blurred disk margin. Radium was applied, Dec. 27, 1918. Feb. 22, 1919, the vision was 20/70. The lenticular opacity became less dense in its central area and also on its nasal aspect. March 23, 1919, the vision was 20/50; the lens condition and the fundus were not altered. In view of the striking improvement in vision, and by analogy with Case 7, it is quite likely that in the next few months the opacification in this case will show further diminution.

**CASE 18.—Senile Cataract.**—Dec. 25, 1918, the patient's vision was 20/40+1. The lenticular opacity consisted of numerous small granules in the anterior cortex. The fundus showed a few grayish spots on the nasal side of the disk, of vascular origin. Feb. 20, 1919, the vision and fundus were unaltered, but the granules were distinctly less numerous. February 27, after repeated examinations, the small granules could not be seen. The vision and fundus were unchanged. The importance of this lies in the fact that the disappearance of the small granules after two months of treatment indicates that an early small cataractous formation may be cleared up by radium.

#### COMMENT

It is extremely difficult to obtain a correct estimate of changes occurring in the course of the development of a pathologic process which is so extremely chronic and protracted as a cataract usually is. Nevertheless, it appears to us that some of the phenomena observed are so striking and characteristic of the influence of the radium rays on the processes that it is impossible to conceive of them as mere coincidences.

Of the twenty-four cases studied, in 87.5 per cent. there has taken place some change for the better. As a rule, this improvement occurred in the first few weeks of treatment. After that, the condition usually remained stationary during the period of observation. But it must be understood that it was the improved condition which remained stationary, and in no

instance within the 87.5 per cent. did the lenticular opacification retrograde to the original condition as found before the initiation of the radium treatment.

In studying the changes which took place in the treated cataracts, three phenomena, depending in these patients on the function of the cataractous lens, were considered; namely, the vision, the appearance of the lens, and the visibility. By vision, was meant the amount of visual perception obtained by the patient through the cataractous lens; by the appearance of the lens, was indicated the amount and character of opacification found in the lens on an examination by the aid of transmitted light and by focal illumination; by visibility, was meant the ability of the ophthalmologist to perceive a more or less clear image of the details of the fundus through the cataractous lens.

A study of the results shows that in a certain number of cases both the vision and the amount of opacification were definitely improved; in a second group of cases the opacifications diminished, but there was no improvement in vision; in a third group, the vision was improved, while there was no change observed in the amount of opacification. In a few cases of this group an impression was gained that a brighter fundus reflex was obtained after treatment.

It is self-evident that the patients in the first group were improved. It is also easy to understand that an improved or diminished lenticular opacity may not be accompanied by any improvement in vision. The amount of vision which a cataract patient possesses depends more on the location of the opaque area within the lens than on the extent of the opacification. Striae, sectors, and large granules situated in the peripheral region may not impair the vision at all; while a smaller area of opacity situated in the center of the lens may very markedly affect the vision though not a great deal of the lens is involved. It is thus possible that certain striae or granules may diminish in size or completely disappear without in any way improving the vision. The greater objection may be raised that both the improvement in vision and the brighter fundus reflex are characteristics of too subjective a nature to be considered as clinical improvements without the supporting evidence of a change in the objective findings in the lens opacification; none the less, it must be granted that it is quite conceivable physiologically that both the vision may be improved and the fundus may appear brighter, and still no objective change in the picture of the lenticular opacification be noted.

If for the purpose of our discussion we regard a normal lens as analogous optically to a transparent fluid, then we may consider a diffuse lenticular opacification as analogous to an opaque emulsion consisting of minute granules evenly distributed in a transparent fluid. When the number of these granules is very great, or in other words the diffuse opacification is very dense, then no red fundus reflex can be obtained; when the number of granules is less or the diffuse opacification is not so dense, then we observe a faint reddish reflex from the fundus. Furthermore, when an objective finding has shown that such a red fundus reflex has become brighter, such a phenomenon can only have been caused by the disappearance of a certain number of the minute granules from the opaque lens. That these minute granules may disappear under the influence of radium is evident from the fact that in a certain number of our cases much larger granules disappeared under treatment.

This diminution of the quantity of the granules must be followed by both a brighter fundus reflex and some improvement in the vision of the patient.

We therefore maintain that while the best results were obtained in those cases in which there appeared an improvement in all the three phenomena described, we must also consider as improved clinically those cases in which there was direct improvement only in vision or in visibility. On the basis of such calculation there were in all twenty-one cases improved.

These twenty-one cases, or 87.5 per cent., represent such a high percentage of the cases treated that it is impossible to consider the result a mere coincidence. Furthermore, with the exception of one case, it was possible to maintain this diminution of the opacification as well as the improvement in vision and visibility during the period of observation, which was in every case not less than a few months, and in view of the fact that the majority of cataracts mature within a period of two years, most of the cataracts treated should have shown a certain amount of progression.

The time of observation is too short to determine whether this initial improvement can be maintained under treatment at stated intervals, or whether sooner or later the radiation will cease to be effective and the cataracts go on to maturation; but the results thus far obtained are very striking.

The biologic phenomenon that the course of development of a cataract may be, temporarily, at least, altered or inhibited by the action of the rays is fairly well established by this study. Furthermore, this investigation leaves no doubt as to the harmlessness of this agent. In order to establish the fact that any amount of the most intensive radiations leaves untouched the other structures of the eye outside of the lens, many of the patients were given longer and more frequent applications of radium than were actually needed. Moreover, in the beginning of the study larger quantities of radium were employed than are being used at present, and still there was no ill effect.

It is of importance to add here that five cases of matured cataract were also treated with large amounts of radium in order to ascertain whether a preoperative radiation would interfere in any way with the technic or the functional results of a subsequent operation. These patients were then operated on. No difficulties were encountered in the course of the operations, and the postoperative results were as favorable as the results in the nontreated eyes.

We therefore submit that, since there is no other agent in the therapeutic armamentarium which can influence the development of cataract in any degree at all; since surgery at its best leaves an aphacic eye which for practical purposes is frequently less satisfactory than the partial vision of a patient with an immature cataract; in view of the further fact that it is absolutely established that radium does no injury to the eye and does produce some, if ever so slight, biologic alteration in the lens, it is imperative that these clinical investigations of radium therapy in cataracts be continued by competent investigators, the subsequent results checked, and a definite conclusion reached.

#### SUMMARY

1. The application of radium to the eye is harmless.
2. There is diminution of lenticular opacifications under the influence of radium.

3. Should a cataractous lens become matured subsequent to radium treatment and should then an operation be required, no difficulties will present themselves.

4. It is therefore advisable to submit a sufficiently large number of immature cataracts with useful vision to a proper course of radium treatment so that a correct estimate of the value of the method may be obtained.

#### ABSTRACT OF DISCUSSION

DR. ISAAC LEVIN, New York: I am merely a radium therapist, and it is not for me to pass judgment on the clinical results. In fact, I will take it for granted, for the sake of argument, that we have thus far shown nothing, and that I stand today exactly where I did one year ago when Dr. Cohen asked me whether it is permissible or advisable to try radium in cataracts. When a new agency in therapy is applied to the human organism, the first requisite is "do not dare to do any injury." That must be borne in mind. I want you to understand that radium application, in the quantity, quality and dosage as used today in therapy of malignant diseases, does not injure any normal tissues of the organism with the exception of the epithelium of the skin, of the leukocytes, of the spermatozoa and the graafian follicles. All other tissues of the body resist the rays and are not injured by it. Nerve tissue, ganglion cells of the brain and the structures of the eye, are the most resistant tissues to the action of the rays. There is ample evidence in the literature as well as in my own work, that the largest amounts of radium employed in therapy do not destroy or injure normal tissues of the eye. I shall cite a case to illustrate this contention. I have a patient at the Montefiore Hospital who is suffering from sarcoma of the right upper jaw and the antrum. For the last year large doses of roentgen ray and radium were applied. The radium tubes were buried in the tumor, right near the orbit. The bone of the floor of the orbit is destroyed by the tumor so that the radium tube was lying for twenty hours at a time on several occasions right under the right eye. The roentgen rays were applied in the mouth also close to the eye. The eye remains absolutely normal now after one year of treatment. Thus intensive radiations correctly applied do not injure the eye. The next question is, how does the radium affect the lens? There is ample experimental evidence that it does not injure a normal lens. What may its influence be on a cataractous lens? We maintain that radium arrests the development of the cataract, and consequently has a beneficial influence on the condition. But even if further investigation should show that it has no such effect on a number of cases, it still does not injure the remainder of the organ. Therefore, the radium application in incipient cataracts should be employed for a number of years and thus a true estimate of the method obtained.

DR. ALLEN GREENWOOD, Boston: For the past fifteen years I have been following out a line of treatment which I have realized lessened my operative work in cataract cases to a marked degree. In my experience lenses showing a few spicules down and in are little affected and develop slowly; this is true also of nuclear opacities occurring in the highly myopic, and cases in which, besides the spicules, there are nebulous clouds or fine granular spots throughout the lenses, which are the vast majority of cases that interfere with vision. I give a hopeful prognosis and at once institute the following treatment: One per cent. solution of dinonin (ethylmorphium hydrochlorid) is dropped into the affected eye three nights out of each week, and after a few months three nights out of every other week. It is well known that the continuous use of dinonin will be of little value, but used as above, this drug, which is the one which most markedly affects the lymph circulation and hence the capillary circulation, exerts a decided influence on the nutrition of the lens. The often repeated effect of this improvement in circulation will frequently dissipate lenticular opacities and retard their future development.

DR. E. L. JONES, Cumberland, Md.: Some time ago I published a pamphlet on "The Usefulness of Dinonin in Early Senile Cataract," and another one on the arrest of cataract in its early stages. I have used this treatment for more than ten years and I have a number of patients whose vision after a lapse of ten, eight, and six years, still continues to show improvement, and it was brought about through treatment of this character in the early stages of the disease. It is of little use in the later stages. In cases of reading vision, a few doses of dinonin will clear up the dust formation or mist; but while the cataract will clear up the spicula remain. The cataract is like a thicket, with leaves on the twigs and branches in the summer time; and after the summer, the leaves fall off and the twigs and branches remain. That is comparable to the spicula. I use dinonin with mercuric cyanid, and it works well in a majority of cases.

DR. JOHN E. WEEKS, New York: We all recognize that cataract is due to an interference with the nutrition of the crystalline lens. The epithelium of the anterior portion of the capsule is defective, as shown by Hess. There is the development of granules and minute hyaline globules forming liquor morgagni, and in addition there is erosion of the fibers of the lens to some extent where the gray spiculae are found. A disappearance of the cloudiness of the lens by absorption of the granules and the globules is sometimes observed. This is all we can hope to produce. We cannot cause the opacities due to erosion of fibers to disappear. In my opinion increase in the nutrition of the crystalline lens, either by improving the patient's general condition or by increasing the circulation in the anterior segment of the globe, may cause an arrest of development of cataract in some cases, a retardation in the development in some, and will be without effect in others. For the last thirty years I have been working on this hypothesis. I have used drops consisting of glycerin, boric acid and water. The glycerin produces a hyperemia of the anterior segment of the globe at every application, and may be used indefinitely without harm. I have discarded dinonin, as it produces stimulation only over a short period of time. Dr. Greenwood has permitted an interval to elapse after using it three times, so that when used again it produces a further stimulation of the circulation. He has reached results similar to my own. It is immaterial what agent you employ provided it is harmless and sufficient stimulation is produced. I have observed the results of the use of glycerin in considerably more than 1,000 cases in private practice, records of which are in my office. The results have been satisfactory in perhaps a higher percentage of cases than that reported by Dr. Cohen as having been obtained in the treatment with radium.

DR. F. PARK LEWIS, Buffalo: There is an element of danger in allowing the impression to go out that this is a remedy for cataract and that it can be used without danger. I am not sure about that, for certainly it cannot change the metabolism of the lens and at the same time do no harm. Furthermore, I do not think we should employ a remedy empirically, which does not take into consideration the origin of the disturbance. The metabolic changes which have taken place in the lens are frequently the result of toxins in the system, from focal and other infections in the teeth or tonsils. Any remedy is unscientific which does not take into account the cause of the trouble which we are trying to control.

DR. S. D. RISLEY, Philadelphia: For many years I have been interested in the etiology of cataracts. I presented my first paper on the subject in 1889. The paper was based on eighty-six cases of beginning opacity of the lens, in each of which the record was sufficiently complete for analysis. During the intervening years, following a careful study of the eyes of the schoolchildren in Philadelphia made from 1878 to 1881, I recognized fully the importance of choroidal disease, since it was present in all of the eyes which had become myopic in the schools. Therefore, when any patient came into my office, after this fact had been grasped, no matter what the age of the patient, I treated the choroidal inflammation often by persistent and prolonged use of atropin and corrected any existing refraction error. It was very soon

observed that patients with incipient cataract, were greatly benefited by this treatment. Not only were they relieved from asthenopia, but the swelling and opalescence of the lens grew less and the sharpness of vision as shown by the test card often improved. While I have never seen spicules or banks of opacity disappear, in any case, I was convinced by these studies of the importance of choroidal disease over the nutrition of the avascular tissues: the lens, the vitreous body and the cornea. All cases of refraction error had therefore been treated by more or less prolonged use of mydriatics and careful correction of refractive defects and abnormalities of binocular balance. In eighty-six cases I found incipient cataract, as I have stated. The records were sufficiently complete for analysis, and there had been found refraction defects, choroidal disease and degenerating vitreous. To my surprise and gratification the opacity of the lens had not advanced after the treatment. The vision in many cases had improved; the asthenopia had disappeared, and the eye remained well after many intervening years. This experience was first published in 1889. Many hundreds of persons have been treated since, but added experience has but served to confirm the views then expressed. The essential fact in all this was the importance of uveal disease as a factor in the impairment of the nutrition of the avascular structures of the eye: the vitreous body, the crystalline lens and the cornea. In a large percentage, constituting the majority of the cases coming under study, the choroidal disease was associated not only with commencing opacity of the crystalline lens, but with a degenerating vitreous; dilated anterior ciliary vessels and uncomfortable eyes with failing vision. So frequently were the anterior ciliary vessels dilated, that I have come to regard this condition as an indication of uveal disorder. It soon became obvious also that the uveal disease was often but a local expression of some systemic disorder, as cardiovascular disease with kidney involvement. Indeed, I believe that the uveal tract of the eye is as liable as are the kidneys to participation in systemic dyscrasias, and therefore, that the treatment of these affections is often quite as important as any local measures which may be adopted.

In addition to the prolonged use of the mydriatic, of which I have no dread, even in aged people, I have often used at the same time twice daily, weak solutions of phosostigmin ( eserin) salicylate, especially where the anterior ciliary vessels were engorged. This drug has been used because I believe it contracts the blood vessels and so stimulates the circulation which would be quite in accord with the suggestion made by Dr. Weeks.

Dr. G. J. SAVAGE, Nashville, Tenn.: Several things can be done in incipient cataract. I endorse practically everything they have said; but there are two things they have not said, and my experience with one of these for twenty-five years makes me a strong believer in its efficacy. One of the two suggestions comes from Dr. Woodruff, and that is, "Why may not the Crooke lenses do these patients some good?" The other thing I have been using for twenty-five years in every case of incipient cataract. It is a cell-building dose of mercuric chlorid and potassium iodid. Cataract will not develop when there is normal nutrition in the anterior segment of the eye. Anything that will improve cell-activity in this part will help the cataract condition in its inception. One one-hundredth grain of mercuric chlorid and 1 grain of potassium iodid after each meal for five weeks, and then one week of rest, and then five weeks of treatment and one week of rest, and so on, will check the cataractous changes which have just begun, in many instances.

Dr. A. S. GREEN, San Francisco: Following my return from India five years ago, and since then, I have been using Smith's method for the treatment of incipient cataract. This consists of a subconjunctival injection of 15 minims of mercuric cyanid, 1:4,000. Intense swelling of the conjunctiva results which subsides in from four to ten days, but the redness does not disappear inside of a month. In addition to this treatment, however, we prescribe an eyebath consisting of a 1 per cent. solution of potassium iodid, every morning and every other night. On the alternating night the patient uses one drop of a 2 per cent. solution of dionin, which is

gradually increased to a saturated solution. This treatment is kept up for six months. Smith makes this point, that there is little use in giving this treatment when vision has fallen below 50 per cent. It is a treatment that can be given by any ophthalmologist, and the improvement in our hands has been as good as those reported with radium.

Dr. EDWARD JACKSON, Denver: To go back to radium, perhaps the lack of interest in that phase of the subject has been due to the feeling that it was not available for most of us to try. I think it is important that any treatment that purports to influence a cataract should be investigated, and that the profession should arrive at some conclusion as early a time as possible, as cataract cure without operation is all that is necessary to attract public attention to any proposed means. The possibility is before any one to use radium. It is not necessary to have a radium institute, or to be where large amounts of radium are accessible. The radium emanation has all the physical, electrical and other properties of radium salt, and will very soon be available anywhere in the country. No radium reaches maturity, that is, after thirty days it remains with very little change for a long time; but the radium emanation given off from large amounts of radium has the same properties; but it loses its property very rapidly. I think in four days it loses one half of its efficiency; and at the end of one month, it is practically inert. Since the close of the war it is possible to furnish the radium emanation anywhere. Of course, the physician can arrange for its use; on a certain day he can receive his supply and use it in a considerable number of cases. In that way it becomes practicable for a large number of us to employ and to experiment with this method. One half of the radium of the country is manufactured in Denver, and it was impossible for any of us to get any of it until the close of the war.

Dr. S. LEWIS ZIEGLER, Philadelphia: I think that we should place on record a warning against the statement that radium cannot injure the eye when used in close contact with the cornea. Those who have seen a roentgen-ray burn of the cornea know that it is one of the most persistent and painful lesions. I have seen but one case, that of a surgeon who was wholly incapacitated by the intense pain. Relief could only be gained by enucleating the eye, although good vision was still present. The analogous action of roentgen ray and radium should make us pause, therefore, before recommending this agent to be applied by those who may prove to be careless and ignorant in its use.

Dr. MARTIN COHEN: I have been under the impression, possibly wrong, that from reports dionin and mercuric cyanid and other products have not been as efficient as they may appear. If the products do what is claimed, then radium is only an aid. The twenty-four patients were examined consecutively, and after treatment of three, four and five weeks, they have responded with objective results which I have tried to show on the screen. If radium is effective in epithelial growths and degenerations then it seems the cataract problem might be attacked from that point. We know that radium does not injure the capsular epithelium in normal frogs' eyes. As regards affecting the cornea, we believe that if properly applied to the cornea radium will produce the results mentioned and cause no ill effects to the structures of the eye. We are interested in this problem from the scientific standpoint, and stated that radium is applied only in early cases of incipient cataract, and that some benefit was obtained by the absorption of the lenticular opacities.

**Is Your Community Fit?**—Is malarial fever a health problem in your community? Has a survey been made by experts to advise as to proper methods for control? The Anopheles mosquito, carrier of this disease, may be breeding in collections of water which need draining, filling, stocking with fish, or other measures for mosquito control. Control malaria in your community and you may find you have less labor shortage, the physical well-being of your people may show a marked improvement, and your community may enjoy a great economic uplift.—*Pub. Health Rep.*, April 25, 1919.

EARLY FUNCTION AFTER WAR  
WOUNDS OF THE EXTREM-  
ITIES \*GEORGE W. HAWLEY, M.D.  
NEW YORK

In injury or disease of the extremities, surgery is dealing with a motor. When a man injures an arm or a leg, what he is chiefly concerned about is the restoration of that motor to its previous functional capacity, or as near the original as possible. The patient is not interested in the methods employed, but in the recovery of a valuable motor. Theoretically, the surgeon is supposed to have the same point of view; but he has devoted more time to the methods of immediate surgical relief, and has not been thinking always in the terms of motor function. This is quite natural, because in surgery of the head and trunk the services of the surgeon are usually at an end after the completion of the operation. After the wound has healed he is more or less powerless in his attempts to exercise control over the function of the deep-seated, stationary, internal organs.

The conditions are very different in surgery of the motor-skeleton, where skeletal, joint and muscle function are so much under the direct control of the surgeon, and where delay, neglect, and failure in the after-treatment count for so much in the ultimate result. Just as the delay in hours in beginning motion after orthotomy for septic arthritis by the Willems method means so much for the success or failure of the treatment, so also does delay often affect other injuries of the limbs. Instead of the labors of the surgeon being chiefly operative, they involve exacting and time-consuming service outside of the operating room.

It is not too much of an exaggeration to say that there has been little comprehensive effort up to the present time to salvage the potential cripple. What has been done to limit the disability in unavoidable deformities and to prevent unnecessary disability in avoidable deformities? Who will venture an estimate of the number of avoidable deformities among the 700,000 war cripples in France, or among the army of industrial cripples produced in this country every year?

In civil surgery it is still more or less the custom to treat a fracture as a broken bone, and not as a motor with a broken part. It is not uncommon in many excellent hospitals for much, if not all, of the treatment in these cases to be carried on by members of the junior staff. The interest of the surgeons and all concerned is frequently limited to the early immediate surgical treatment, and, as every one knows, many patients are sent to their homes to work out their own salvation as best they may. In civil surgery there has been no real compulsion to obtain complete and early recovery in extremity injuries. No agency exists to compel the profession, the hospitals or industry to effect an intelligent salvage of the potential cripple.

In this respect, civil surgery has much to learn from military surgery. Theoretically, in military surgery the army organization demands that the wounded or injured soldier be treated primarily with the object that he be returned to active military duty in the shortest

time, or eventually discharged with the least degree of permanent disability. Unfortunately, however, no machinery existed in the military service to accomplish what military necessity required, and none had been developed in civil practice. It was necessary to create the organization and develop the technic of execution. Such an organization was created in the United States Army, and the process of fitting it into the general scheme has been in operation during the past year.

While the problem of the restoration of the function of the damaged motor-skeleton is not a new one, no one has fully understood the importance of early motion, or the evil results of delay. In civil practice, nearly every one has been more or less conscious of the unfortunate results of failure to begin motion early, and every one is familiar with the convalescent stiff joint; but only among war cripples can one appreciate the appalling results of neglect, in wounds not only of the bones and joints, but also of the soft parts.

To Depage is due the credit for demonstrating the value of early active motion in the treatment of war wounds, and to Willems for his mobilization treatment of joints. To those who have had occasion to observe and direct the efforts to reestablish early function in recent wounds of the extremities, it is no exaggeration to say that the results have been, on the whole, little short of marvelous; but much has yet to be learned and a great deal of care must be exercised in the application of motion to recent injuries of the motor-skeleton.

## ABSTRACT OF DISCUSSION

DR. WILLIAM W. PLUMMER, Buffalo: The subject of Dr. Hawley's presentation reduces itself practically to agreement and confirmation. In the matter of after-results from the secondary closures, the results as shown by him are obvious; and those who had the opportunity to be at General Hospital No. 9 last summer and see some of this work know that there is no short cut to happiness in the matter of getting such results. What impressed itself on me was the necessity for close study of detail in the treatment of these cases. Any of the results obtained in any of the hospitals in France, if comparable to these, were only attained after the case had been carefully and industriously followed by the men in charge of the various wards; and with all the advantages of the various treatments that we found useful and standardized, it boils itself down to the man doing the work. There was opportunity to see, a short time ago, in sharp contrast, a large group of men undergoing physical therapy in which this group was being developed by the purely mechanical method of supervised passive exercise, and another group in which the men were doing the exercise, as the British say, "on their own." There was no comparison in the results. Those that were supervised were getting good results quickly; and the others, who were depending on apparatus and that sort of thing, were not.

DR. JOEL GOLDBLUM, Boston: One or two points should be remembered in the treatment of these badly infected wounds and in the use of the Carrel-Dakin method of treatment. Without any question, it is the best method of sterilization for septic wounds, provided that the technic can be carried out satisfactorily. There is, however, a difference of only 0.5 per cent. between the strength that possibly gives a harmful effect and that of an inert solution; and any so-called solutions of this kind that are stable are undesirable, because it is the instability of the solution and the rapid giving off of chlorine that make it desirable. In the military stress at the front, you cannot often get the technic demanded, and if you cannot, do not fuss with this method. Give it up and use a dressing made of plain yellow soap and water, which is practical and scientific, and is one of the best dressings for septic wounds that you can put on, if you cannot con-

\* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

trol the Carrel-Dakin technic. In the British hospitals, in P. S., where they could not control the Carrel-Dakin standard dressing, they used a solution of yellow soap on the wound. It did not dry, and harmful organisms cannot grow in a strongly alkaline solution. The mucus will be softened, and will come off easily; and such a dressing can be put on in the wild. Other solutions can be used in the same way. Another point: In the latter part of these infections, the sepsis is chronic; we used to call it chronic pyemia; and in the lists of our battle casualties for the last six months, almost all the seriously sick had chronic pyemia, which means that the temperature ran up within a day or two, and an abscess formed in some part of the body. When this condition declares itself, the abscess is inert and practically sterile. All that you need to do, then, is to put the knife in and drain it. You do not need to use the surgical solution of chlorinated soda. Those who are old enough to know about surgery in pre-antiseptic days will remember that the things we have seen in France are exactly the things that we saw in those days.

Dr. RICHARD H. SAYRE, New York: I have found that a combination pulley by which the patient can pull on a chain and raise himself, when immobilized and suspended in bed, is simpler and more useful than the ordinary compound pulley with a rope which has to be belayed. He can pull himself up and down, and by means of the sprocket which articulates with the chain, fix himself in any position desired.

Dr. WILLIS C. CAMPBELL, Memphis, Tenn.: I should like to ask Dr. Hawley whether he has had any experience with gonorrheal arthritis or other types of acute infectious arthritis treated by the mobilization method.

Dr. H. WINNETT ORR, Lincoln, Neb.: No discussion of this subject should be considered complete until a word of caution has been given regarding the danger of rendering apparatus ineffective by attempting to provide motional treatment. It works out in a great many cases that attempts to provide knee or elbow motion render the apparatus ineffective between the times when the motion is given. Apparatus for fixation and traction must be kept in position during the entire time of treatment, if results are to be obtained from its use.

Dr. JOSEPH BYRNE, New York: I have always admired the enthusiasm of the orthopedists in the problem of restoration of function, and for many years have collaborated in this neurosurgical orthopedic work with Drs. Alfred S. Taylor and Samuel W. Boorstein. Secondary suture and early restoration bear an intimate and essential relation to the mechanism of degeneration and regeneration not only of nerve trunks, but also of the finer nerve branches supplying the injured parts. Integrated function of all kinds has a close dependence on the integrity of the neural arcs, both afferent and efferent, as well as on their related correlating and coordinating mechanisms. Hence, what takes place within the neural mechanisms during the stages of degeneration and regeneration after nerve injuries is of vital importance. After injury of a nerve the related neuron bodies in the dorsal root ganglions may undergo complete degeneration or merely exhibit axonal reaction phenomena. In the latter case, function is suspended temporarily in the related axons for a period of from fourteen to twenty-one days, and for a much longer period where infection complicates the injury. It is obvious, therefore, that where infection is present, as in war injuries it usually is, no benefit is to be gained by primary suture, as nerve regeneration cannot take place until after the tissues have become sterilized. Connective tissue, however, forms much more readily in the presence of a waning infection and offers an impenetrable barrier to the axon branches when these begin to sprout from the central segment. Where, however, a period is allowed to elapse after sterilization of the wound, the neuron bodies take on hypermetabolic activity, which allows remarkably the outgrowth of the new axon branches after a secondary operation. Add to this the preparation already completed in the distal segments of the injured nerves by the formation of the tubulized protoplasmic bands for the reception of the outgrowing axon branches, and the conditions are ideal for rapid neural restoration after a secondary operation. Where very small nerve branches have been torn across, in

infected or sterile tissues, early movement of the parts aids greatly regeneration in the torn nerve by breaking up the connective tissue barriers, thereby throwing the connective tissue itself into an embryonal state which favors penetration by the axons.

Dr. GEORGE W. HAWLEY, Bridgeport, Conn.: I should like to emphasize a point brought out by Dr. Orr, that of the extreme care that must be exercised when using motion, early motion, in injuries of the extremities. It is really a new field, and we have a great deal to learn yet. It is a matter, largely, of combining effective fixation with motion. In answer to Dr. Campbell's question, unfortunately we had very little experience in the treatment of infected joints. For some reason we had comparatively few joint wounds; so I really can say very little, almost nothing, regarding the mobilization treatment as applied to the arthritis of the type that we see in civil practice. The next few years will present to us the problem of trying to adapt the best that war surgery has developed during the last four years, especially to the treatment of injuries of the extremities.

## RESULTS IN THE MODERN TREATMENT OF DIABETES\*

HENRY RAWLE GEYELIN, M.D.

NEW YORK

It seems appropriate at this time, after four years or more of trial, to review the therapeutic results that have been obtained with the Allen treatment for diabetes, which has received such universal adoption by the medical profession. With this in view I am going to discuss certain aspects of the treatment of diabetes, and with the help of charts illustrate some of the results obtained during the past four years, during which time we have treated patients according to the general principles laid down by Dr. Allen.

It is not necessary to go into a detailed description of the modern treatment, as it has received a great deal of attention in medical literature during the past four years and the reader, doubtless, is familiar with it. I have been much impressed, however, by the fact that, while many practitioners who have employed the fasting treatment have quite generally appreciated the use of the preliminary fasting period to abolish glycosuria and acidosis, they have not fully appreciated the great importance of the subsequent method of regulating the diet and the importance of keeping the patient free from sugar and ketone bodies. Probably the most important feature of the after fasting treatment is the proper regulation of the relative proportions in the amount of protein, carbohydrate and fat in the diet and the appropriate distribution of half days and fast days. Under the older methods of treatment it was the common practice to keep the carbohydrate intake very low and make up for its absence by feeding large amounts of protein and fat, particularly fat. The object was to keep up the patient's nutrition and body weight. How injurious to the diabetic process the high fat feeding can be has been well shown by Allen on dogs, and can be readily demonstrated in our diabetic patients.

The high fat feeding of former years has probably led to more fatal outcomes in diabetes than any other one factor. This has been so forcibly impressed on me in the past four years that I am inclined to say that

\* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

coma may be averted in almost all our cases, even in the presence of infections, provided the fat of the food is kept at the proper level, or in extreme instances totally eliminated. One reason that it has taken so long to recognize the harmful effects of diets over-balanced in fat has been the fact that the effects are very insidious. For example, a patient may be put on a diet very high in fat and very low in carbohydrate and remain sugar and ketone free for a long period of

This table shows in the second column to the left the total number of diabetic patients treated in the Presbyterian Hospital during the years 1912 to 1918, inclusive. During 1912, 1913 and 1914 all the cases were treated by the old method of treatment. During 1915 most of the cases were treated by the old method, but some were treated by the modern treatment, as shown. From 1916 to 1919 all patients received the newer treatment.

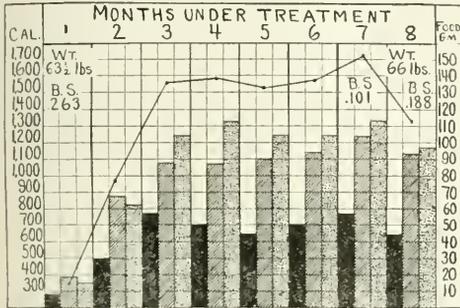


Chart 1.—Course of diabetes in Case 1. In this and the following charts, the numbers on the extreme left border indicate the number of calories. The numbers on the extreme right border represent the grams of food. The numbers at the top of the charts indicate the months during which the patient has been under treatment. The three columns in each numbered space represent the average daily intakes of food; in grams reading from left to right they are: carbohydrate, protein and fat. In Charts 3, 4 and 6 the figures 1=3, 3=4 at the top represent three-month periods. The continuous and irregularly horizontal lines running across the charts represent the total caloric intake. The body weights are indicated by "Wt." The blood sugar values are indicated by "B. S." and are given in percentage amounts.

time; but without further change in the food, the time invariably comes, if the fat in the diet is high enough, when the blood sugar begins to rise and the blood carbonate begins to fall, then sugar and ketone bodies in steadily increasing amounts make their appearance in the urine. With this as a rule go all the subjective symptoms of mild acidosis. The danger of acidosis is not the only one, for there is also the difficulty of reestablishing the food tolerance and rid-

It will be noticed, first, that the number of patients treated by the modern method in three and one-half years is more than double that treated by the older method over a similar period of time, owing largely to the fact that it became known that the hospital was studying diabetes. In spite of the greatly increased number of patients, who were equally divided between the medical and the surgical wards, the mortality percentage (Column 4) has been notably diminished. It will also be noted that there are proportionately fewer deaths from coma during the past three and one-half years. This, I think, is due to the early withdrawal of fat from the diet on admission to the hospital, and the institution of fasting treatment.

Probably the most striking feature of this comparison is the great increase in the number of patients discharged free from sugar and ketone bodies. Except for the patients that died, there were only six patients out of ninety-five in 1918 discharged with sugar (and this was only in traces). These patients who were discharged sugar free derived more benefit from their hospital stay than did those in preceding years, because in addition to being sugar and acetone free and being on a properly balanced diet, all those intelligence permitted received instruction in calculation of their diets and the use of Benedict's solution in testing for the presence of sugar in the urine. They were thus able to control their condition in a much better manner.

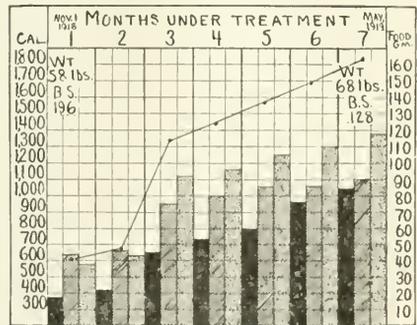


Chart 2.—Course of diabetes in Case 2.

RESULTS OF OLD AND NEW METHODS OF TREATMENT

	Cases		Deaths		Deaths In Coma		Dish Sugar Free		Dish Ke- tone Free	
	Year	No.	No.	%	No.	%	No.	%	No.	%
Old Method	1912	24	6	25.0	1	66.6	3	12.5	12	50.0
	1913	37	5	13.5	4	80.0	18	48.6	23	62.1
	1914	39	7	17.9	5	71.4	19	48.7	12	30.5
	1915	24	9	37.5	5	55.5	15	58.0	11	45.8
	Total	124	27	21.7	18	66.6	50	39.8	59	47.3
New Method	1915	10	1	5.0	0	0.0	16	63.5	14	73.4
	1916	71	8	11.2	2	25.0	58	81.6	57	81.0
	1917	80	11	12.0	3	27.2	78	86.1	60	66.6
	1918	65	12	12.6	3	25.0	82	89.1	70	75.9
	Total	275	32	11.6	8	25.0	231	86.0	207	75.3

ding the patient of his subjective symptoms, which in severe cases takes several months at a much lower caloric level.

In order to demonstrate in a general way the favorable results of the modern treatment (they are not all favorable) I have prepared the accompanying table, which offers a rather striking comparison between the results obtained with the new and old methods of treatment.

The comparison between the old and new methods of treatment is just as striking in the subsequent care of these patients outside the hospital. It used to be the aim in the dispensary to keep the glycosuria as low as possible; but always from 80 to 90 per cent. of the patients who returned for their dispensary visits showed traces of sugar or more, whereas under present day care less than 40 per cent. return for their regular visits showing sugar in the urine. It is not possible in this paper to take up a more detailed and statistical comparison of the old and new methods of treatment

as they apply to the dispensary care, but later on I shall show charts of patients originally treated in the hospital whose subsequent course has been carefully followed and controlled outside the hospital.

The table does not demonstrate one other advantage that has been very noticeable in the new method of

(fasting value) should be maintained at the normal or nearly normal level.

Half days or fast days, depending on the severity of the case, are given when sugar appears, and additional half days or fast days are given at regular intervals with the purpose of increasing further tolerance. If with this system of treatment we also obtain faithful cooperation of the patient in following his diet and testing the urine daily, together with timely observations of the blood sugar, improvement unquestionably occurs for periods of from one to three years at least, and possibly longer. This in a very general way sums up the treatment that has been carried out with the patients whose charts are given. All of these charts are from cases chosen, not because the patient showed an unusual type of diabetes, but because the case was rather typical of certain common forms of the disease and because they illustrate what treatment can or cannot accomplish in these groups.

Charts 1, 2 and 3 represent the course of diabetes in a certain group of young people. All of these patients have done well.

CASE 1.—A boy, aged 12, had shown sugar for one month previous to going under treatment. The onset had been sudden and the symptoms were severe. The day he appeared for treatment he was distinctly drowsy, the skin was very dry, and he was breathing deeply. It required four fast days to make him sugar free, and his average daily food intake for the first month was very low, a little over 300 calories. His food tolerance could not be raised above this level. For the next seven months his food was steadily increased until 1,700 calories were reached. This was obviously too much for him at this time, and the more frequent fast days and slightly lower regular diet that was instituted lowered his average daily calories for the eighth month, which was May, 1919. So far in June his diet has averaged 1,400 calories daily and I think will be maintained

treatment, namely, its effect on surgical conditions in association with diabetes. In cases of gangrene, carbuncles and other local infections, the results of combined medical and surgical treatment with its effect on the saving of life and preservation of limbs have been very much better than with the previous method of treatment; in fact, many operative procedures which were done hitherto have been rendered unnecessary.

As I indicated earlier in the paper, the most difficult part of the treatment for both the patient and the physician comes after the original fast, which we will assume has been effective in eliminating glycosuria and controlling acidosis.

The next step is gradually to increase the food until traces of sugar appear in the urine. A fast, or half day, is then given to eliminate glycosuria, and following this the patient is put on a slightly lower intake of carbohydrate, protein and fat, various ones of all these foods being gradually increased until a definite tolerance is determined. The manner of increasing the various foods, that is, carbohydrate, protein and fat, varies considerably with the type of case and also, to some extent, with the personal judgment of the physician. In a general way we aim to reach:

1. A much higher allowance of carbohydrate than was customary under the older methods of treatment. (It is astonishing at times to see how much more carbohydrate may be tolerated when we adopt the general policy of keeping the fats low.)
2. An allowance of fat ranging from 130 to 180 gm., depending on the patient's tolerance (it may be much lower).
3. A protein intake of about  $1\frac{1}{2}$  to 2 gm. per kilogram of body weight.

The urine must be kept free from sugar and ketone bodies, while the blood carbonates and blood sugar

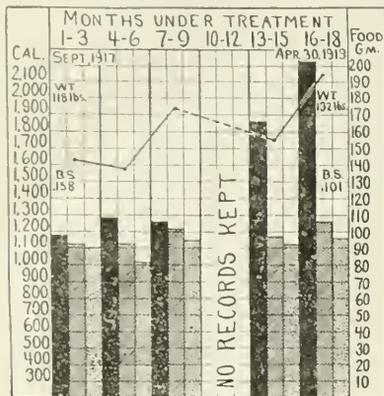


Chart 3.—Course of diabetes in Case 3.

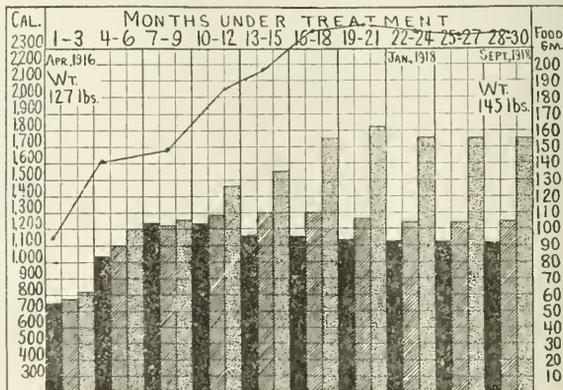


Chart 4.—Course of diabetes in Case 4.

at this point for from two to four weeks with the hope of gradual increase. He has not lost weight in this time but feels well, is quite active, perhaps too much so, and leads a normal life except as regards his diet.

CASE 2.—A girl, aged 11, had had diabetes for two months before coming under observation. Her history was essentially the same as the boy's and it took three fast days to rid her of sugar. She has had half days every two weeks and has shown sugar only twice in seven months. This child has shown a steady gain in tolerance, her present diet being

85 gm. of carbohydrate, 90 gm. of protein and 120 gm. of fat, and is one of five very favorable cases of children seen in the past four years. It is, of course, impossible to say what her prognosis is, but it would be more favorable than that of the preceding case.

CASE 3.—A man, aged 23, has been under treatment since September, 1917. Sugar was first discovered in a life insur-

continued diets too high in fat. How difficult it was, how long it took to develop a food tolerance, and how permanent this tolerance has been since 1916 is well shown in Chart 4. Unfortunately, the tolerance acquired by many similar patients is not so high as in the case of this man.

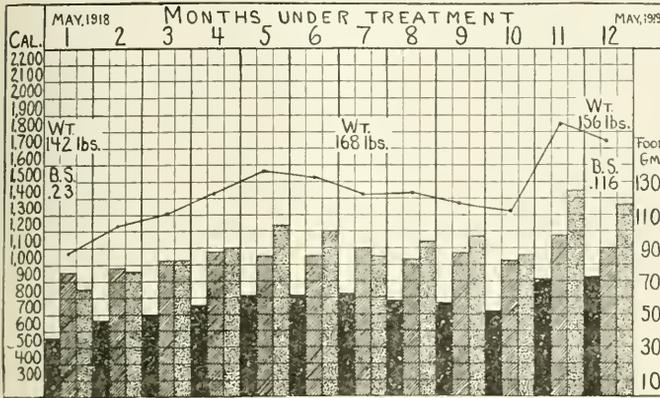


Chart 5.—Course of diabetes in Case 5.

ance examination. For two months previous to institution of treatment, he had followed a diet spasmodically. Glycosuria was eliminated in one fast day and the food was increased within six days to 60 gm. of carbohydrate, 90 gm. of protein and 70 gm. of fat, which produced glycosuria in considerable amounts. Chart 3 shows the subsequent course of events. This patient has been very faithful and has followed his diet religiously and very accurately, weighing all of his food for a long time; and when he became very proficient at this he began estimating the amounts of food, controlling this at intervals by periods of two to three weeks in which he weighed all the food. He has shown definite traces of sugar from time to time in daily tests, but has always been able to clear up the sugar by reducing his carbohydrate only. The patient has had almost no half days or fast days. He has been able to gain his normal weight and do a full day's work as electrical engineer. His blood sugar begins to rise as soon as he raises his carbohydrate intake above 250 gm, or if he stays on a daily intake of 250 gm. for more than one week.

Charts 4 and 5 are those of older patients who have done well. They have increased their food tolerance, and have gained in weight. Both were originally fairly severe cases, particularly Case 4.

CASE 4.—A man, aged 57, first came under treatment in April, 1915. He was showing much sugar and large amounts of diacetic acid in the urine. He was also suffering from very painful neuritis in both of his legs, which kept him awake at night. He had had diabetes for five years and had been on a very high fat diet with moderate restriction of carbohydrates but had never been sugar free. It took six fast days to render him sugar free, and for six weeks it was impossible to raise his tolerance above 900 calories, in spite of a very restricted intake of fat. He continued to have pains in the legs and show traces of diacetic acid in the urine. Fast days were liberally distributed throughout this entire period. It was not until his tolerance had been raised to about 1,600 or 1,800 calories that the pains and diacetic acid began to disappear.

This patient illustrates very aptly the fact previously referred to, namely, the bad effect produced by long

CASE 5.—A man, aged 47, had had diabetes for one year previous to his first visit. Sugar had always been present in large amounts and he had lost 80 pounds. He was so weak he could hardly walk and had been very drowsy and nauseated at times. He also had a very high fat intake; but his carbohydrate intake had been well over 100 gm., as the result of a generous allowance of gluten bread. It took three fast days to make him sugar free. The upward trend in this case has been somewhat interrupted twice, but he has gained in weight, is able to do a full day's work, and shows a normal amount of blood sugar.

I do not wish to give the impression that all cases of diabetes at this or at any other age show such favorable and

encouraging progress; but of those who follow treatment day in and day out with the care that these patients have, it is very unusual for them to do badly and show a progressive down hill course.

Among older people, that is, those over 30 years of age, I have seen very few patients with uncomplicated diabetes who have followed strict treatment go steadily down hill. This does not mean that many diabetics of this age have not shown downward progress, for many have; but with the exception of the few cases just mentioned, they have all flagrantly violated their dietary regimen. It has been considered almost axiomatic that diabetes in the young is fatal. That such may not

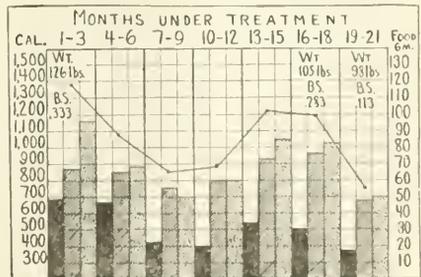


Chart 6.—Course of diabetes in Case 6.

always be the case is suggested by some of the results just cited. But for a certain group of diabetics, more often encountered in the young than in the old, there is no doubt that an inherent tendency to a downward course does exist and persists until death, in spite of any treatment. Such a case is Case 6.

CASE 6.—A woman, aged 23, had had diabetes for one year. It has never been difficult to clear up glycosuria by fast or half days, but this patient has always shown a tendency to

develop high blood sugar on even a very low food intake. Now after almost two years of faithful adherence to diet, with many changes in the relations between carbohydrate, protein and fat, she has gradually lost tolerance. There has been a loss of 28 pounds in weight, and there can be no doubt that she is slowly and steadily losing ground. Her present tolerance may be noted on chart.

There have been several other similar cases at this age; but only two of the patients have faithfully kept the diet. It would seem most advisable in this type of case to feed the patient, allow glycosuria in moderate amounts to continue, and make an attempt to build up the strength.

#### CONCLUSIONS

As the result of the experience of the past four years in dealing with many diabetic patients treated by the above described methods, and as the result of reviewing complete records of these patients who have been cared for under the modern treatment, there are certain inevitable conclusions to be drawn:

1. Diabetes in its severe and acute form is not limited to the first three decades of life, but may be found at any age, although rare in persons over 30. In my experience it is more common between 50 and 70 than between 30 and 50.

2. Absolute adherence to the diet is essential to a maximum degree of successful results in treatment. Without there is no hope unless the diabetes is very mild; and even in that case there is great risk of it becoming severe.

3. Fast days and half days are of great help in treatment of the majority of patients, but are not necessary as routine measures in all cases at all times.

4. It is wise for a patient under treatment to realize that he is not a normal person on a normal diet and to regulate his mental and physical activities, and, therefore, his caloric output, by his caloric intake.

5. Exercise should be advised only in exceptional cases and in proportion to the amount of energy afforded by the caloric intake. Rest rather than exercise should be urged.

6. Long continued diets overbalanced in fat (180 gm. and over) are harmful, and their harmful effect is insidious. Aside from their immediate effects in the production of acidosis and glycosuria, they have a depressing effect on tolerance. This effect is overcome only by long periods of low caloric intake.

7. We have no cure for diabetes; but we have a greatly improved method of treatment, particularly as regards prolongation of life and the avoidance of surgical complications, as many observers who have employed the general principles of treatment advanced by Allen will testify.

#### ABSTRACT OF DISCUSSION

DR. ALFRED STENDEL, Philadelphia: In the beginning of his paper Dr. Gevelin stated that while the modern treatment of diabetes is now quite generally understood, there is a question in the minds of many practitioners regarding the latter part of the treatment, and with many the after-treatment is the most difficult. This has been precisely my experience. Beginning with the same form of treatment in 1915 my results have been substantially the same as his, and the after-treatment of the disease has been that which has given me the most difficulty. I am quite certain that if I had all of my figures here they would show about the same proportion of cases in which the patient was rendered sugar free and ketone free in a relatively short time; but a very considerable number of these cases subsequently relapsed owing to imperfect methods of

treatment, failure to carry out instructions and various other causes. I want to point out particularly the difficulty of determining when and whether a case of diabetes is actually cured. One of my most instructive experiences was made in the case of a young man who had been sugar free and ketone free for nearly four years, and for three years had had a normal blood sugar figure despite the fact that he was on quite a substantial general diet. As a result of a mild attack of influenza his diabetic condition immediately relapsed, and he died in coma in seventy-two hours. Several other less striking cases have illustrated the unwisdom of asserting that a case of severe diabetes has been cured. The underlying conditions of the disease are apparently not cured, though the patient may have been got to a place where with some care in his mode of life the disease remains inactive. In milder diabetes there can be no doubt that a complete cure is much more frequent and can with greater propriety be assumed to have been attained. I do not wish to give the impression that even in severe cases a complete cure is an impossibility, but wish to insist on the importance of a distinction between rendering a patient temporarily sugar free, ketone free and with a normal blood sugar figure and absolute cure.

DR. JACOB ROSENBLUM, Pittsburgh: I think these figures are misleading, that there are few hospitals in this country which would allow such a large percentage of the older cases to go out with glycosuria. My difficulty in the adoption of this method in many cases has been that the patients are not intelligent, they will not stick to it, and in many cases they consider themselves too intelligent and tell you "we will not stand for such restrictions in our diets," and I think that the older methods of treatment have still a place. In cases which have to come to operation, in pregnancy and in children, I feel that the Allen treatment is certainly the best to use.

DR. PHILIP ROY, Washington, D. C.: This subject is very interesting. I was called to see a gentleman who had lost one leg by gangrene; the other leg was badly swollen; his urine contained 3 per cent. of sugar and it was also filled with casts and albumen. Under the Allen treatment the swollen leg has become better, and he is enjoying good health and attending daily to his business. I have not seen him for a year, but I know that he is perfectly well.

DR. H. O. MOSENTHAL, New York: In regard to the after-treatment: The primary treatment is to render the patient sugar free, and whatever method we pursue makes little difference. The big difference of Dr. Allen's treatment from others is that we can render practically every person sugar free. The one problem we have to meet is when we cannot make the person sugar free, and have to restrict the diet in such a way that he cannot obtain enough nourishment to live. The form of diet that we have to give such a person is a mixture of art and routine. Formerly, we gave these people high fats and raised the calories in this way. But now the question of restriction of fats is the best course, and the best service which Allen has given us.

DR. E. P. JOSLIN, Boston: Dr. Gevelin's paper gives much encouragement. It is a striking fact that prior to 1915 one quarter of all diabetic patients entering the hospital died, and that since that date the mortality has been reduced to 10 per cent.; that prior to 1915 two thirds of the patients died in coma, and since that date a very small percentage die in coma, e. g., two out of forty. The statistics of the Massachusetts General Hospital showed that between 1893 and 1914 no improvement in diabetic treatment was obtained but since the Allen treatment was introduced marked improvement has taken place.

DR. L. F. KEELER, Washington, D. C.: I am gratified at the conservatism of Dr. Stengler relative to the curing of diabetes. Cases are reported free of sugar for a time and then relapse. I would like to ask Dr. Gevelin whether the increase from 19 to 95 represents a percentage increase of diabetic conditions or just an increase of cases that came to the hospitals, and if the latter, why did they come to the hospital? Since the enforcement of the food and drugs act we have done a great deal by restricting the statements

appearing on packages, and one disastrous result is that these people have transferred their statements to newspapers. We have a number of cases under consideration now where people are using the mails to treat diabetic cases by means of drugs.

DR. L. G. HEYN, Cincinnati: I had a patient who had been rendered sugar free for some time, and had applied for a life insurance examination. This particular company has a habit of giving all candidates from 100 to 150 gm. of glucose on an empty stomach. He remained sugar free. I think this was a very severe test.

DR. C. M. GRIGSBY, Dallas, Texas: I have never derived as much benefit from any therapeutic measure as I have from Dr. Allen's treatment for diabetes. In the statistics here, however, I wonder whether they are of full value, because in the last four years, we have had cases in the hospitals which were much more amenable to treatment than were those of the older days.

DR. H. RAWLE GEVELIN, New York: The time limit on all papers prevented my emphasizing and illustrating, by means of the charts, certain points concerning the treatment of diabetes. Whether the diabetes be mild or severe the patient should be made to realize that he must regulate his activities according to the amount of food he is able to take and remain sugar free. Mild cases of diabetes, cases that in all probability would always remain mild, may be rendered severe if diets, much overbalanced in fat, be administered over too long a period of time. As regards the glucose tolerance test, it should not be given often in the case of mild diabetes and certainly should not be used in cases of severe diabetes. I consider that the improvement in the treatment of diabetes made in the past five years has been quite remarkable and may yield the most favorable results in some cases. Whether or not diabetes is on the increase, or whether we are discovering it earlier, is a question which requires a thorough study of life insurance and other statistics of similar character before we can arrive at direct conclusions.

## THE INFLUENCE OF DESICCATION ON HUMAN NORMAL ISOHEMAGGLUTININS\*

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The practical importance of human normal isohemagglutinins in determining the suitability of prospective donors for the transfusion of blood has been emphasized many times. The quest for an accurate, rapid and convenient method of determining the compatibility of donor and recipient has led to the development of a large number of methods to supersede the older time-consuming methods described in the various textbooks.<sup>1</sup> The methods of Epstein and Ottenberg<sup>2</sup> and Fishbein,<sup>3</sup> designed to accomplish a large number of tests with a small amount of blood, were simplified first by Weil.<sup>4</sup> Rous and Turner<sup>5</sup> then added the advantage of further blood economy. The time-

saving method of Brem<sup>6</sup> was improved on by Moss,<sup>7</sup> but involved the use of washed corpuscles; this was obviated by Minot's modification,<sup>8</sup> which is quite similar to the method of Lee.<sup>9</sup> These were followed by the methods of Coca,<sup>10</sup> Vincent<sup>11</sup> and Abelman,<sup>12</sup> but the methods as employed by Karsner<sup>13</sup> and Lee<sup>9</sup> in military hospitals testify to their efficiency.

As a further means of saving time and affording greater convenience, Sanford<sup>14</sup> has recommended the use of dried serums. He allowed the serums to dry in air on cover-slips, after which they were wrapped in paper and kept in the icebox. For grouping an unknown blood, the dried drops of serums of Groups II and III were dissolved in one drop of the cell suspension and the grouping made according to the classification of Moss. He observed that the serums still possessed marked agglutinating properties after more than two months. Karsner<sup>15</sup> noticed that in France there seemed to be a deterioration and loss of specificity of the agglutinins a short time after they were dried. It was with this in mind that the following experiments were carried out:

### EXPERIMENTS

Serums of Groups II and III were used, and dilutions of 1:2, 1:4, 1:8, 1:16, 1:32 and 1:64 were made with physiologic sodium chlorid solution. Small drops of undiluted serum and of each dilution were allowed to dry on glass slides in the air. The initial agglutinating titer was noted and tests were made at the end of each week for twelve weeks. One third of the slides (A)<sup>16</sup> were kept in the dark at room temperature, another third were kept in the refrigerator (B), and the remainder were kept in a vacuum desiccator over sulphuric acid (C). The corpuscles used were from individuals of Groups II and III, and the same individuals were used throughout the experiment. Further, in order to avoid variations in agglutination due to the quantity of cells used in the tests, a standard cell suspension was used throughout, namely, a suspension made by mixing in 1 c.c. of physiologic sodium chlorid solution the amount of blood which would fill the capillary tube of a white cell counting pipet, and which we have found to be the optimal concentration for isohemagglutination tests. Since the erythrocyte count of the individuals used remained practically constant, the resulting cell suspensions were also constant. The dried serum drops were dissolved in a loopful of cell suspension of each group. Since agglutination occurred more slowly in the higher dilutions, as has been observed by Ottenberg, and since, if agglutination occurred in any dilution, it did so within thirty minutes, that time was taken as a standard during which the mixtures were frequently observed microscopically. The slides were kept inverted in a moist chamber during this period, and for observation were placed in the same position on a slide the ends of which were raised by means of two small pieces of glass glued on with balsam, thus affording a very serviceable hanging drop preparation.

At the same time a series of small capillary tubes were drawn out and filled with the various dilutions of both

\* Aided by a special grant from Mr. H. G. Dalton.

<sup>1</sup> From the Department of Pathology, Western Reserve University, School of Medicine.

<sup>2</sup> Webster, R. W.: *Diagnostic Methods*, Ed. 5, Philadelphia, P. Blakiston's Son & Co., 1916, p. 653.

<sup>3</sup> Epstein, A. A., and Ottenberg, R.: *A Method for Hemolysis and Agglutination Tests*, Arch. Int. Med. **31**: 206, 1909.

<sup>4</sup> Fishbein, Morris: *A Method of Selection of Donor for Blood Transfusion*, J. A. M. A. **55**: 793 (Sept. 7) 1912.

<sup>5</sup> Weil, Richard: *Sodium Citrate in the Transfusion of Blood*, J. A. M. A. **64**: 425 (Jan. 30) 1915.

<sup>6</sup> Rous, Peyton, and Turner, J. R.: *A Rapid and Simple Method of Testing Donors for Transfusion*, J. A. M. A. **64**: 1980 (June 12) 1915.

<sup>7</sup> Moss, W. L.: *Blood Transfusion with Special Reference to Group Tests*, J. A. M. A. **67**: 1906 (July 15) 1916.

<sup>8</sup> Minot, W. L.: *A Simplified Method for Determining the Isoagglutinin Group in the Selection of Donors for Blood Transfusion*, J. A. M. A. **68**: 1905 (June 23) 1917.

<sup>9</sup> Lee, R. T.: *Brit. M. J.* **2**: 684 (Nov. 24) 1917.

<sup>10</sup> Coca, A. F.: *J. Immunology* **3**: 93 (March) 1918.

<sup>11</sup> Vincent, B.: *A Rapid Microscopic Agglutination Test for Blood Groups, and Its Value for Testing Donors for Transfusion*, J. A. M. A. **70**: 1219 (April 27) 1918.

<sup>12</sup> Abelman, H. W.: *Surg., Gynec. & Obst.* **27**: 88 (July) 1918.

<sup>13</sup> Karsner, H. T.: *Transfusion with Tested Blood*, Including the Grouping of 1,000 Bloods and a Method for Use at Advanced Hospitals, J. A. M. A. **70**: 769 (March 16) 1918.

<sup>14</sup> Sanford, A. H.: *A Modification of the Moss Method of Determining Isohemagglutination Groups*, J. A. M. A. **70**: 1,171 (April 27) 1918.

<sup>15</sup> Karsner: Personal communication to the authors.

<sup>16</sup> See protocols.

serums. These were kept in the refrigerator and used in the same way as the dried serums, paralleling each test exactly in technic (D). Each tube held a drop of moderate size sufficient for making one test. For use, the sealed ends were broken off and the contents expelled on the slide, a most convenient procedure and even more rapid and economical than using serum kept in ampules.

RESULTS

The results, as may be seen in the protocols, showed that deterioration began about the second or third week in the higher dilutions and gradually involved the lower dilutions; that complete deterioration never occurred in the undiluted serum; that after the third to the fifth week there appeared a loss of specificity, each serum agglutinating the corpuscles of both Groups II and III, the loss of specificity occurring first in the undiluted serums and gradually involving the higher

dilutions, until at the end of the tenth week, and often as early as the seventh, none of the dilutions were specific for the proper cells. Throughout the experiments the undiluted serums possessed marked agglutinating properties. Curiously enough, it will be observed from the protocols that approximately coincident with the gradual loss of specificity in the higher dilutions, the previously deteriorated dilutions gradually regained their agglutinating power up to the original titer, though without specificity. In no instance was any agglutination observed in dilutions higher than the original titer of the serums. The occurrence of these changes has not been constant as to time in the various series of experiments carried out, but the protocols will serve as a fair example of the results observed.

In the tubed serums, no deterioration or loss of specificity occurred at any time, even in the case of one

PROTOCOLS\*

Serum	Corpuscles	Dilution	Normal Control	Weeks										Remarks	
				1	2	3	4	5	6	7	8	9	10		
				1	2	3	4	5	6	7	8	9	10		
A	II	1	—	—	—	—	—	—	—	—	—	—	—	—	Dried in air. Preserved at room temp.
		2	—	—	—	—	—	—	—	—	—	—	—	—	
		4	—	—	—	—	—	—	—	—	—	—	—	—	
B	II	1	—	—	—	—	—	—	—	—	—	—	—	Dried in air. Preserved in refrigerator	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		
C	II	1	—	—	—	—	—	—	—	—	—	—	—	Dried in air. Preserved in desiccator	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		
D	II	1	—	—	—	—	—	—	—	—	—	—	—	Tubed	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		
E	II	1	—	—	—	—	—	—	—	—	—	—	—	Phenolized (0.5%) Dried in air. Preserved in refrigerator	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		
F	II	1	—	—	—	—	—	—	—	—	—	—	—	Frozen, dried, and preserved in desiccator	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		
G	II	1	—	—	—	—	—	—	—	—	—	—	—	Dialyzed, dried in air. Preserved in refrigerator	
		2	—	—	—	—	—	—	—	—	—	—	—		
		4	—	—	—	—	—	—	—	—	—	—	—		

\* Figures in the dilution column represent dilutions of serum in physiologic sodium chloride solution, 1, 1:2, 1:4 and 1:8. No agglutination occurred with dilutions higher than 1:8. The agglutination of corpuscles of groups I and IV, which occurred in all dilutions of both Serums II and III in every series after prolonged drying, is not indicated. The sign + indicates agglutination; — indicates no agglutination; ± indicates tendency to agglutination.

series which remained at room temperature for more than three months.

In another series, phenol (0.5 per cent.) was used as a preservative, after which the drops were made and dried in air and kept in the refrigerator. The results observed by the usual weekly tests were the same as with the other dried serums (E).

#### EFFECT OF THOROUGH DRYING

The question of the thoroughness of the drying then presented itself. Shackell and Harris<sup>17</sup> have pointed out that deterioration of the virus of rabies in dried cord is due to imperfect methods of drying and the exposure to air, the atmospheric moisture of which is sufficient to dissolve the salts in a very concentrated form in a few hours and so destroy the virus.

Accordingly, the method of desiccation worked out by Shackell,<sup>18</sup> which he states "could be used for the absolute preservation of immune serums as well as the concentration of low potency toxins," and which has been employed by Achaline and Phisalix<sup>19</sup> in the "preservation of vaccine virus in hot countries," and applied by Hitchens and Hansen<sup>20</sup> to the preservation of typhoid vaccine and by Hammer<sup>21</sup> to the preservation of various bacteria, was followed in another series of experiments, and careful attention was paid to the details of technic as suggested by Shackell. A well-made vacuum desiccator with smooth ground glass surfaces and tightly fitting stopcock was placed in a salt and ice freezing mixture. When the maximum cold was reached ( $-10^{\circ}\text{C}.$ ) the slides were prepared, placed in the desiccator and frozen as rapidly as possible. The desiccator was exhausted by means of an ordinary water pump which was able to exhaust from 20 to 30 mm. of mercury, and the freezing, which occurred very quickly, maintained for twenty-four hours. The desiccator was exhausted and the sulphuric acid shaken up every day in an effort to assure as complete dryness as possible. These serums were used in exactly the same manner as the other dried specimens with apparently no difference in the results obtained, except a slight retardation of one or two weeks in the onset of deterioration and loss of specificity (F).

In another series the serums and various dilutions were dialyzed in parchment dialyzers for seventy-two hours before drying in order to eliminate the salts, the concentration of which might be the cause of the observed changes; the usual qualitative chlorid test, silver nitrate and potassium bichromate, was taken as an indication of salt content and found to be negative. The slides were then prepared, dried in air and kept in the refrigerator. The results obtained by the regular weekly tests were quite similar to those previously noted in the other dried serums (G).

Various serums which had dried in the flasks in which they were kept failed to show this loss of specificity. Why this was the case when a large amount of serum was allowed to dry as contrasted with the results obtained by drying small drops has not been determined; but this work is being carried on to determine, if possible, the factor or factors concerned.

including the influence of bulk; this, however, has usually been found to hasten rather than retard deterioration.<sup>22</sup>

A further interesting observation was made when suspension of corpuscles of Groups I and IV were used. Here again agglutination of those cells occurred in all dilutions. These tests were made after the eighth week, when the loss of specificity had been observed in all of the dilutions; but there is no doubt that agglutination of the normally unagglutinable corpuscles of Group IV would have been observed as soon as loss of specificity was noticed had the tests been made then. This agglutination of corpuscles of all the groups by each of several serums which belonged originally to Groups II and III emphasizes the agglutinative power of serum to be of vastly more importance in the process of agglutination than the agglutinability of the cells, and refutes the assumption of specific iso-agglutinophilic substances.

Hartman<sup>23</sup> has suggested, as a convenient method of grouping bloods, the use of serums dried on filter paper. This procedure was also carried out with serums of Groups II and III, the drying being done in air and the papers kept at room temperature. Proper agglutination occurred only with those papers which had been saturated with undiluted serum or the 1:2 dilution, and in these instances agglutination was never as marked as was seen regularly with the tubed serums or even with those dried on slides. Loss of specificity occurred occasionally, but it was often impossible to determine accurately whether or not such slight agglutination occurred because of the considerable amount of dirt and debris which constantly occurred and which, per se, frequently caused clumping of the corpuscles and greatly interfered with the accurate observation of such slight agglutination as frequently occurred. Regardless of the factors of deterioration and loss of specificity, this, together with the objections of loss of time in dissolving the serum and the inconvenience compared to the use of tubed serums, is sufficient reason to discard the method.

We also found it impossible, even with rapidly dried serum, to redissolve all the material by adding the amount of distilled water or physiologic sodium chlorid solution necessary to restore the original volume, and there was usually a reduction in the agglutinating titer of such redissolved serums. A Group III serum, which originally agglutinated in a 1:16 dilution, agglutinated only up to 1:2 when redissolved, and then only very weakly, whereas the original undried serum still maintained the original titer.

Any attempt to explain the deterioration and loss of specificity of iso-agglutinins at the present time could not be anything more than a speculation. The exact cause of the phenomenon of agglutination or adequate explanation of the specific character of iso-agglutinins for specific groups of cells has not been determined, and until the accurate conception of this phenomenon is advanced and accepted, it would be folly to attempt an interpretation of the changes that have been observed. The diminution in agglutinating power of iso-hemagglutinins in dried serum similar to that in heated agglutinating serum may find analogy in the deterioration of bacterial agglutinins that have been preserved at room temperature.

17. Shackell, L. F., and Harris, D. L.: *J. Am. Pub. Health Assn.* 4: 52, 1911; *J. Infect. Dis.* 8: 47, 1911.

18. Shackell, L. F.: *Am. J. Physiol.* 23: 325, 1909.

19. Achaline and Phisalix: *Lancet* 2: 1027, 1911.

20. Hitchens and Hansen: *Jour. Am. Pub. Health Assn.*, 2: 175, 1913.

21. Hammer, B. W.: *J. M. Res.* 24: 527, 1911.

22. See references 15 and 16.

23. Hartman, F. W.: *New Methods for Blood Transfusion and I. Serum Therapy*, *J. A. M. A.* 71: 1658 (Nov. 16) 1918.

The explanation of the loss of specificity is baffling, for it is a phenomenon previously unobserved in antibodies. Doubtless, the answer lies within the field of colloidal chemistry, and its determination would seem to offer a considerable opportunity for investigation into the physicochemical changes occurring in dried serums due to various influences, including among others, age, alterations in hydrogen ion concentration, in electrical conductivity and in the dispersion of agglutinating substances, and the presence of otherwise feeble but non-specific "para-agglutinins." It has been considered sufficient at present to have established the facts and to present these observations concerning isohemagglutination.

#### CONCLUSIONS

1. Normal human iso-agglutinins exhibit deterioration within from two to three weeks and loss of group specificity within from three to five weeks after drying, regardless of the method of desiccation employed or the previous addition of a preservative or the elimination of salts by dialysis.

2. Complete loss of specificity with coincident acquisition of non-specific agglutinating power occurs within from seven to ten weeks after desiccation.

3. The agglutination of corpuscles of all groups by a serum that has lost its specificity for particular groups emphasizes the agglutinative power of serum to be far more important in the mechanism of agglutination than the agglutinability of the corpuscles, and refutes the assumption of specific iso-agglutinophilic substances.

4. There is a considerable reduction in the agglutinin titer by the redissolving of dried serum in enough distilled water or physiologic sodium chlorid solution to restore the original volume.

5. The use of undried serum, put up in small capillary tubes, is a most convenient, rapid and economical, as well as accurate, method for grouping blood.

### A NEWLY RECOGNIZED CAUSE OF PULMONARY DISEASE—ASCARIS LUMBRICOIDES\*

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It has long been known that the common roundworm of man (*Ascaris lumbricoides*) and the closely related and probably identical parasite of the pig (*Ascaris suum*) sometimes occur aberrantly in organs other than the small intestine, their usual location. Until the recent investigations of Stewart,<sup>1</sup> however, the fact that *Ascaris* is regularly parasitic in the lungs during an early stage of its development was not even suspected. Stewart's experiments have been repeated

by Yoshida<sup>2</sup> and by Foster and myself,<sup>3</sup> and Stewart's important discovery that the larvae of *Ascaris*, after hatching in the intestine of an animal that swallows the eggs, migrate to the lungs and then return to the intestine, has been fully confirmed. With reference to the rat and mouse theory, however, Foster and I have reached conclusions that are not in accord with Stewart's view that rats and mice may serve as intermediate hosts of *Ascaris*. Contrary to this view we have clearly shown that no intermediate host is necessary, and that infection of man or pig occurs as a result of swallowing the eggs of the parasite.

Briefly, the course of development is as follows: The eggs pass out of the intestine of an infested animal (man or pig) in the feces. The eggs are not infective until the contained embryos develop to a vermiform stage, which requires a period of two weeks or more, according to the temperature of the surrounding medium, oxygen supply, and moisture. Accidentally the embryos may hatch outside the body; but in this case they quickly perish. Within the highly impermeable egg shell, however, the fully developed embryo is very resistant to cold, dryness and other unfavorable conditions, and may remain alive for long periods of time, five years and possibly longer. If swallowed by some mammal, the eggs that contain fully developed embryos hatch in the small intestine. They will also hatch if artificially introduced beneath the skin.

Unless accidentally carried out of the body in the feces, the newly hatched larvae leave the lumen of the intestine and migrate to the liver, though some possibly go more directly to the heart, in both cases apparently aided by the circulation. From the liver, where they remain in most cases only a few days, they migrate to the lungs, evidently by way of the hepatic veins, inferior vena cava, heart and pulmonary arteries. They are stopped in the lungs by the capillaries, enter the air vesicles and bronchioles, pass up the bronchi and trachea, then into the esophagus, and finally reach the small intestine, where, if the animal infested is a suitable host, they establish themselves and continue their development to maturity. Occasionally some of the larvae appear to return to the heart from the lungs, as they may sometimes be found in the spleen, under the peritoneum of the abdominal cavity, and in other locations that they could scarcely reach except in the systemic circulation. In such locations they may attain the same stage of development that is reached by those in the lungs, but it seems unlikely that they can succeed in regaining the intestine or in continuing their development.

In rats, mice, guinea-pigs and rabbits, *Ascaris* larvae undergo the same migrations that they do in the pig and presumably in man, the only essential difference being that when they return to the alimentary tract after passing through the liver and lungs, they are unable to develop further and soon pass out of the body in the feces. The larvae thus eliminated in the feces are only slightly resistant to unfavorable conditions and die in a short time. The possibility of their being ingested by and continuing their development in a human being or pig after passing through a rat or mouse is of theoretical interest but seems to be of no

\* Read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

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2 Yoshida, Sadao: On the Development of *Ascaris Lumbricoides*, J. Parasitol. **5**: 105 (March) 1919.

3 Ransom, B. H., and Foster, W. D.: Life History of *Ascaris Lumbricoides* and Related Forms, J. Agric. Res., Dept. Agric. **13**: 395-398 (Nov. 19) 1917; Recent Discoveries Concerning the Life History of *Ascaris Lumbricoides* (authors' abstract), Anat. Rec. **15**: 341-342 (Jan. 20) 1919; Recent Discoveries Concerning the Life History of *Ascaris Lumbricoides*, J. Parasitol. **5**: 93-99 (March) 1919.

practical importance. As shown by Foster and myself, very young sheep and goats are better adapted as hosts for *Ascaris* than rats, mice, guinea-pigs or rabbits, since the larvae after their passage through the lungs may establish themselves in the intestine and develop to a stage approaching maturity, though they seem unable to reach their full growth as they do in man or pig.

In experimentally infected animals (rats, guinea-pigs, etc.), *Ascaris* larvae may be found in the liver as early as two days, in the lungs and trachea as early as three days, and in the intestine following their passage through the lungs, as early as six days after the eggs are swallowed. They are common in the lungs from seven to ten days after infection, becoming scarce in the liver as they become numerous in the lungs, and can be found passing down the esophagus in large numbers from eight to ten days after infection. During their migrations before returning to the intestine they increase in size from a length of about 0.25 mm. when newly hatched to a length of as much as 2.5 mm., commonly 1.5 mm. At the same time they undergo considerable change in structure, and molt at least twice. In the case of rats, mice, and other animals in whose intestines the parasites are unable to establish themselves, the larvae are all, or practically all, eliminated within a little over two weeks after infection. In closing this brief outline of the life history of *Ascaris* it may be of interest to note that if fully incubated eggs are injected beneath the skin of a guinea-pig they not only hatch as first shown by Martin,<sup>4</sup> who did not, however, follow the migrations of the larvae, but the larvae later appear in the lungs, just as they do when the eggs are swallowed.<sup>5</sup>

The fact that *Ascaris* in the course of its development regularly passes through the liver and lungs naturally raises the question as to the damage it may do during its migrations. Evidently it has capacities for harm not suspected so long as it was assumed, as formerly, that after hatching from the egg, the young worm simply settles down in the intestine and grows to maturity. Just how important it may be under natural conditions as a cause of disease of the liver, lungs or other organs that are invaded by the migrating larvae remains to be determined. Under experimental conditions, however, it has been found that the migrating larvae may seriously injure the lungs. As first observed by Stewart, experimentally infected rats and mice commonly die of pneumonia a week to ten days after infection, and the same is true of guinea-pigs and rabbits. Larger animals, such as young pigs, if heavily infested, may likewise succumb to pneumonia incident to the invasion of the lungs by the larvae; and even when a comparatively few eggs have been swallowed, more or less definite symptoms of pulmonary trouble, such as difficult and quickened respiration and fever, may commonly be noted about a week after infection. The symptoms of a disease known as "thumps," which is highly destructive to young pigs, are similar to those shown by pigs suffering from *Ascaris* pneumonia experimentally produced. Indeed, it is quite certain that in many of the cases of "thumps" *Ascaris* is an important etiologic factor, and evidence recently collected in field investigations shows very clearly that

*Ascaris* pneumonia is responsible for much of the loss of life and stunting of growth that occur among young pigs.

By analogy it is reasonable to suppose that *Ascaris* may occasionally if not frequently be involved in the production of pulmonary disease among human beings, especially young children. Young children are known to be more susceptible to infection with *Ascaris* than older persons, just as young pigs are more susceptible than older pigs; and it may be presumed that they resemble young pigs also in being more liable to suffer from *Ascaris* pneumonia than older persons.

As a matter of fact, certain observations are on record that are at least in harmony with the supposition that in human beings, as well as in various other animals in which the fact has been proved by experiment, *Ascaris* larvae may be a source of injury to the lungs. Over fifty years ago a German physician, Mosler,<sup>6</sup> fed *Ascaris* eggs in numbers as large as several dozen to healthy children of various ages. In no instance did the children afterward pass worms following anthelmintic treatment, and the experiment thus gave negative results so far as concerned the development of the worms from the eggs. In some cases, however, Mosler observed that the children a few days after the eggs were given to them suffered from fever and difficulty in breathing. He was inclined to doubt that these symptoms were caused by the experiment. In the light of our present knowledge, however, it is altogether likely that the symptoms in question were produced by an invasion of the lungs by *Ascaris* larvae.

Another experiment on man is recorded in the literature in which the ingestion of *Ascaris* eggs was followed by pulmonary symptoms. This experiment was carried out by Lutz<sup>7</sup> in South America, the subject being a grown person who volunteered for the experiment. Incidentally it may be remarked that Lutz's experiment stands in agreeable contrast to Mosler's, which, in the use of children as experiment animals, is quite indefensible from a moral standpoint.

Lutz's volunteer was 32 years old and was stated to have been absolutely free from *Ascaris* infestation for at least twenty years, living in circumstances and amid surroundings and with personal habits such that there was little likelihood of infection from sources outside the experiment. During the experiment, special care was taken to avoid conditions usually considered favorable to parasitic infection. A small number of *Ascaris* eggs were swallowed on a number of different days, namely, January 4, 5, 6, 7, 19, 23, 25 and 27, the average number of eggs per day being estimated at twelve, only about a third of which contained fully developed embryos. Altogether, therefore, about 100 viable eggs were swallowed, fifty in the early part of the month and fifty in the latter part of the month. Early in the experiment the subject suffered from acid dyspepsia, repeated vomiting, and a slight remittent fever, in addition to which an unusually severe bronchitis soon developed. These symptoms were gradually replaced by symptoms of an intestinal catarrh. The early symptoms were considered probably accidental by Lutz; but the persistent abdominal symptoms seemed to indicate a positive result from the experiment, and the patient accordingly was given an anthelmintic treatment, February 1. From the feces following this treatment, thirty-five immature ascarids from 5.5 to 13 mm. long were recovered.

Assuming that these worms came from the eggs fed in the early part of January, it is of interest to note

<sup>4</sup> Martin, Andre: Recherches sur les conditions du développement embryonnaire des nematodes parasites, Ann. d. sc. nat., Paris, 2<sup>o</sup> ser. 87, Series 9, 18 (12): 1151, 1913.

<sup>5</sup> Ransom, B. H., and Foster, W. D. (Footnote 3), second and third references.

<sup>6</sup> Mosler, quoted by Leuckart, Rudolph: Die menschlichen Parasiten und die von ihnen herrührenden Krankheiten. Ein Hand- und Lehrbuch für Naturforscher und Aerzte, Leipzig und Heidelberg, 2: 337, 1867.

<sup>7</sup> Lutz, Adolph: Zur Frage der Uebertragung des menschlichen Säugetierparasiten. Weitere Mitteilungen, Centralbl. f. Bakteriol. 3: 425-428, 1898.

that their size from twenty-five to twenty-eight days after infection corresponds closely to that of the worms found in the small intestine of a young goat twenty-seven days after it had been fed *Ascaris* eggs in an experiment carried out by Foster and myself, the length of the worms in the latter instance varying from 4.3 to 11.4 mm., averaging 7.9 mm. (twenty-nine worms measured out of several thousand present). There is thus practically complete agreement in the size to which the worms developed in the same length of time in the two experiments.

As to the significance of the early symptoms noted by Lutz as well as those observed by Mosler a few days after the ingestion of *Ascaris* eggs by human beings, it is quite possible that they were merely coincidental; but it seems much more likely that they were the result of the invasion of the lungs by the young parasites. Whether or not any importance is ascribed to the lung symptoms observed by Mosler and Lutz, the fact that *Ascaris* larvae can cause pneumonia in lower animals clearly indicates that they may do likewise in human beings. This possibility should receive serious consideration by those who have opportunity for its investigation, particularly in cases of pulmonary troubles among young children who are living amid surroundings favorable to gross infection with *Ascaris*.

#### SUMMARY

To recapitulate, some of the more important facts that have been established by recent investigations on *Ascaris lumbricoides* and conclusions to be drawn from them may be thus summarized:

Infection occurs as the result of swallowing eggs of the parasite containing fully developed embryos, no intermediate host being necessary.

After the young worms hatch in the intestine they do not immediately settle down, but migrate to the liver, lungs and other organs, meanwhile undergoing considerable growth and development.

Those that reach the lungs return to the intestine by way of the trachea and esophagus, then settle down and develop to maturity if in a suitable host (man, pig); otherwise they are soon eliminated in the feces (rat, mouse, guinea-pig, rabbit), or in some hosts (sheep, goat) may undergo an abortive development that falls short of fertile maturity.

Pneumonia commonly occurs in experimentally infected animals about a week to ten days after infection, at a time when the invasion of the lungs by the migrating larvae is at its height.

Mosler in 1867 and Lutz in 1888 recorded the occurrence of pulmonary symptoms in human beings following the experimental administration of *Ascaris* eggs. In the light of our present knowledge it is very probable that these symptoms were the result of invasion of the lungs by migrating *Ascaris* larvae.

The question of the occurrence of pulmonary troubles in human beings as a result of *Ascaris* infection should receive careful investigation, especially in the case of young children.

#### ABSTRACT OF DISCUSSION

DR. THEO ZBINDEN, Toledo, Ohio: I was recently interested in a case in which the diagnosis was made of foreign body in the lung. Dr. Hubbard made two bronchoscopic examinations and found nothing. The roentgen ray showed nothing. The patient's symptoms would last a few hours or a day or two, and then disappear. However, a few weeks after the last attack the child passed a full sized ascaris

worm. I would like to know whether the adult worm could have caused these symptoms by passing upward into the esophagus, and obstructing the larynx, or whether a number of larvae were passing out of the trachea. According to Dr. Ransom's description the larvae are very small and not likely to cause symptoms of obstruction.

DR. HENRY ALBERT, Iowa City, Iowa: Dr. Ransom referred to a condition in young pigs called "thumps." I would like to ask him if an investigation has been made regarding the relationship of worms to thumps. It is a common disease and it seems to me that the opportunity for making such an investigation should be easy to find. It is also a common observation among farmers that coughing is one of the usual symptoms of worms in hogs. I presume that there is a direct relationship between such and the irritation caused by the larval form of the ascaris in the lungs. I would like to ask Dr. Ransom if postmortem examinations of the animals have been made and if so what were the findings.

DR. C. C. BASS, New Orleans, La.: These observations have opened a future that we do not at the present fully estimate. When we recall the very widespread prevalence of this disease in man, especially in institutions, such as orphan homes, and among the poorer class of people, we can begin to appreciate the importance of this observation. Do the larvae which attack the lung damage it in the same way that the hookworm larvae do? If we infect animals experimentally with a small number of hookworm larvae, many small hemorrhages occur in the lung. Of course, if many worms are present, then massive hemorrhages occur and these may get large enough to kill the experimental animal in two or three hours.

DR. B. H. RANSOM, Washington, D. C.: As to Dr. Zbinden's question: I think in that case it was merely a matter of the aberrant wandering of a well developed or mature ascaris. Ascarids have the habit of crowding into narrow passages, into the bile ducts or pancreatic ducts, and cases are on record in which they have been found wandering in the esophagus, entustachian tubes, and in various other places outside of their normal location. As to the question of "thumps" in pigs, we have investigations under way, the results of which are not yet available. These investigations are being carried out in the Middle West and we hope to have some definite results from this season's work. Referring to Dr. Bass's question as to how the ascaris larvae injure the lungs, that matter is still under investigation, but they do very much as hookworm larvae do, produce minute hemorrhages. It is very characteristic in the case of experimental animals that have been infected with ascaris to find small petechiae scattered over the lungs and in some cases there are large hemorrhagic areas either as a result of a heavier infection or of other conditions that we do not exactly understand. The other question asked by Dr. Bass was in reference to age susceptibility. In the case of human beings, it is quite evident that children, because of their habits, are, perhaps, more exposed to infection than older persons, but I do not see how that explanation could be sufficient in the case of pigs, because as far as my observations have gone, adult pigs are likely to be just as much exposed to infection as younger pigs, and in fact their exposure is probably greater from the simple fact that they are older and have consequently had more opportunities to become infected. As a matter of fact the statistics we have gathered show that young pigs are more often and more heavily infected than older animals. I don't see any way of explaining the difference in the case of pigs except on the basis of the difference in age susceptibility.

**Treatment of Mental Disorders.**—The problem of mental disorders as now understood is no longer properly formulated by the phrase "the care of the insane." Mental disorders of many forms and in many stages are extremely prevalent. Those regarded as insane are simply the cases whose capacity for adjustment to the requirements of organized society has failed to such degree that they have become a burden or a menace.—W. L. Russell, *Canadian J. Mental Hygiene* 1:162 (July) 1919.

DESENSITIZATION OF PERSONS AGAINST  
IVY POISON

JAY FRANK SCHAMBERG, M.D.  
PHILADELPHIA

In an informal discussion<sup>1</sup> of a paper at the Detroit session in 1916, I announced that I had been able to protect persons susceptible to attacks of ivy poison by the internal administration of minute but increasing doses of the tincture of *Rhus toxicodendron*. Later my assistant, Dr. Strickler, made an alcoholic extract of the plant, which after aqueous dilution was injected subcutaneously and was found to be effective in preventing attacks.

During the past few years I have been employing this method in my private practice, with uniform success. I have treated almost a score of susceptible persons, and all have remained free of dermatitis during the ivy season, whereas prior to undergoing this treatment they rarely escaped.

I may briefly mention the case of a 12-year-old girl who for several years had spent a couple of months in bed each year from severe and repeated attacks of dermatitis venenata. She was so susceptible that she could not traverse a lane where ivy grew without being attacked. After taking the treatment she was rendered immune except for an extremely slight attack which developed as a result of her purposely handling the ivy plant to test her resistance.

The method of treatment which I have been carrying out is as follows: I prescribe:

B	Tincture of <i>rhus toxicodendron</i> .....	Cc. .
	Rectified spirit .....	5
	Syrup of orange, sufficient to make .....	100

The patient is instructed to take the mixture in half a glass of water after meals, as follows:

Breakfast, Drops	Lunch, Drops	Dinner, Drops
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21

When this dosage has been reached, for purposes of convenience and simplicity, the patient takes a *teaspoonful* in half a glass of water merely *once a day*. This should be continued throughout the ivy season.

It has been my experience that the immunity (if one call it such) established after one month's administration will persist for about a month afterward. After this, susceptibility is prone to return.

TREATMENT OF AN ATTACK OF IVY POISON

The same mixture appears to exert a favorable influence on attacks of ivy poisoning in preventing an extension of the process, and in abbreviating the duration of the attack. In order to bring the patient more quickly under the influence of the drug, I administer it as follows:

Breakfast, Drops	Lunch, Drops	Dinner, Drops
2	4	6
8	10	12
14	16	18

Teaspoonful once a day, well diluted.

It is, of course, necessary to establish the fact that the ivy has been the cause of the dermatitis. *Rhus toxicodendron* tincture would probably be of no value in treating poison oak, primrose or other forms of

plant poisoning. I think it is more than likely, however, that desensitization against these poisonous plants could be accomplished by using extracts of *Rhus diversiloba*, *Primula obconica*, etc., in the same manner as detailed above.

The results obtained by this method in fortifying the resistance of persons against ivy poison suggest the possibility of achieving similar results against various pollen catarrhs—hay fever, rose cold, etc. If one can incriminate the particular pollen at fault, an extract taken by mouth might conceivably bring about a desensitization. This method is so much simpler than administration by hypodermic injection that it would appear to me to be worthy of trial.

1922 Spruce Street.

**Therapeutics**

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY. A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

RESULTS IN THERAPEUTICS

Therapeutic truths not only deserve reiteration—they demand it. To determine what is the truth is most difficult, especially in therapeutics. Unfortunately, much of what passes as therapeutic knowledge is merely tradition or opinion; too much of our therapeutics is based on opinion. A fact is characterized by constancy, and constancy of results is what we need, above all, in therapeutics. Much of our treatment is not constantly successful because based on incomplete observation, on mere opinion. A definition for "constancy of results," as used here, might be called for. Of course, we cannot expect 100 per cent. results in therapeutics. The reason for this is the complexity and variability of the conditions to be met. The human body is not a test tube. We often cannot fathom all the factors at work. Hence it may easily occur that we employ our therapeutic reagents in conditions under which the desired result cannot happen. The more clearly and closely we draw the therapeutic indications, and the more accurately we adapt our technic to meet the requirements of the particular case at hand, the more nearly will our results approach the ideal of 100 per cent. However, to save ourselves disappointment, it is almost as important to know under what conditions our remedies must fail, as it is to know when they may be expected to succeed.

USE AND ABUSE OF CATHARTICS

The following is the first of a series of articles on pharmacology, physiology and practical application of the common laxatives and cathartics.

The physician who knows when to employ a cathartic has mastered an important lesson in therapeutics. In these days of revolution and reform, nothing is too well established to be questioned, too sacred for attack. The dictum, "Qui bene purgat, bene curat," shall give way to the maxim, "The less purging, the better."

CATHARSIS A CAUSE OF CONSTIPATION

That cathartics are a frequent cause of constipation may be gathered from such utterances as these:

In my opinion one of the most common sources of constipation in this country is the pernicious habit of resorting to

1. Schamberg, J. F., in Discussion on Eczema, J. A. M. A. 48: 87 (Jan. 13) 1917.

the use of drugs to secure a daily stool. . . . If we except England, there is no other country in which chronic consti-  
pness is so prevalent as it is here; and it is equally true that  
in no other land do people so frequently resort to the indis-  
criminate and senseless use of medicine in order to move the  
bowels. . . . It is a lamentable fact that not a few parents  
have the insane idea that, if they do not administer a cathar-  
tic frequently to their children, dire results will follow; and  
as their anxiety they eventually bring about or aggravate  
the very condition which they wish to avoid, namely consti-  
pation.<sup>1</sup>

A. C. Adams<sup>2</sup> would go so far as to prohibit the  
giving of cathartics to children, excepting under medi-  
cal supervision. He urges that the medical profes-  
sion attack the advertisements and display of aperients  
as inimical to the public health. With this we fully  
agree. The philosophy underlying the admission of  
cathartics into the advertising pages of newspapers  
and lay periodicals that discriminate against other  
forms of "patent medicines" displays the unfortunate  
lay notion that cathartics can do no harm. In point  
of fact, cathartics are not only habit-producing drugs;  
but, as in certain cases of intestinal obstruction, they  
may even kill.

However, while entering on such a campaign, let  
us be sure that our own hands are clean. A cathartic  
prescribed by a physician is no less liable to produce  
the cathartic habit—a habit that means increasing ill  
health—than one taken by the patient on his own  
initiative. Indeed, when the physician prescribes the  
remedy, the patient feels all the more certain that it  
is good for him, and he is likely to continue taking it.  
After all, the medical practice of the laity reflects the  
past practice of the medical profession.

Cathartics produce constipation in several ways:  
Excessive evacuation does not leave enough residue  
to excite bowel movement the next day. The patient,  
believing or instructed that he ought to have a daily  
bowel movement, repeats the dose; and he is well  
started on the way to a drug habit. For now fatigue  
of the musculature from overstimulation, or muscular  
spasm from abnormal irritability of the mucosa, due  
to excessive irritation, are likely to assert themselves,  
leading to the necessity of progressive increase in  
dosage and potency of the drug. Even the mildest  
and blandest laxatives, as well as enemas, must be  
charged with a tendency to get the bowel into slug-  
gish habits, for the very ease with which soft or  
liquid contents pass along the large bowel diminishes  
the necessity for muscular effort, and leads to atony  
and ultimate atrophy.

#### THE ACATHARTIC TREATMENT OF CONSTIPATION

In an extensive clinical study of constipation,  
Thayson<sup>3</sup> arrives at the conclusion that habitual  
constipation, as distinguished from secondary or symp-  
tomatic constipation, can be cured without the use of  
cathartics. This form of constipation usually begins  
before the age of 26 in women and 31 in men. The  
constipation beginning after these ages is generally  
secondary to some other disturbance. While he con-  
siders an atonic condition of the intestine, frequently  
hereditary, to be the predisposing cause in habitual

constipation, yet he believes that acathartic treatment  
should be resorted to in such cases, and that such  
treatment is generally successful. By going to stool  
at a regular time each day, regardless of whether  
there is a desire or not, and devoting fifteen minutes  
to an effort to have a passage, natural movements can  
usually be secured by the third or fourth day. Now,  
if this can be done in middle life at a time when the  
constipation has become a habit of many years' stand-  
ing, how much easier should it be to cultivate a correct  
habit in a little child, even though it had a hereditary  
tendency to constipation.

The psychotherapy of constipation, in which Paul  
Dubois<sup>4</sup> has been one of the most prominent pioneers,  
consists in implanting in the patient's mind the con-  
viction that constipation is merely a faulty habit that  
can be overcome by proper hygiene and diet and with-  
out recourse to evacuants or enemas, and in antag-  
onizing the fear that attempts at defecation will prove  
ineffectual. Frantic straining at stool may actually  
inhibit the process. Of course, before resorting to  
psychotherapy, we should first convince ourselves and  
what is quite as important, the patient, by means of  
physical, roentgenographic and sigmoidoscopic exami-  
nation that no organic disease of the bowel exists.

The psychic treatment is accompanied by correction  
of sins against hygiene. It is evident that those whose  
diet is at fault need diet and not drugs. The consti-  
pation of those with sedentary habits requires exer-  
cise—perhaps only calisthenics, walking, etc.—while  
those whose nervous system is below par from exces-  
sive work and worry need rest and recreation to  
enable the intestine to resume its proper function.

A word of warning should accompany even this  
treatment. The patient should be told that, if he does  
not succeed in obtaining a daily movement, it does not  
matter. We must not permit the patient to make of  
his bowel a fetish for daily and devoted worship.  
Says Samuel Jones Gee:<sup>5</sup>

Many of those who are continually complaining of con-  
stipation are suffering more from fear and hypochondria  
than from anything else. It is no law of nature that the  
bowels should be relieved punctually once in twenty-four  
hours. Some persons feel in better health when the bowels  
act once in two or three days; free evacuations are followed  
by a sense of weakness. Patience and contentment with  
nature's operations are not the worst remedies for constipa-  
tion.

While this may be true of the adult, it must be  
admitted that it is probably just as undesirable for an  
infant to go for several days without an evacuation  
as it is to get it started on the cathartic habit. If the  
bowel is permitted to retain fecal matter for a long  
time, the rectal reflex becomes chronically dull.<sup>6</sup>  
To prevent this, when the infant's bowels have not moved  
for more than twenty-four hours, a soap suppository  
or a simple glass rod suitably bent as suggested by  
Eggleston,<sup>7</sup> may be used. Of course, modifications  
of the diet, and giving an infant opportunity for exer-  
cise, are the chief measures to be employed in devel-  
oping regularity of bowel movement in infants.

1. Gant, S. G.: Constipation, Obstipation and Intestinal Stasis, Philadelphia, W. B. Saunders, 1916, p. 69.

2. Adams, A. C.: The Cause and Cure of Constipation, Brit. M. J. 2: 315 (Sept. 21) 1918.

3. Thayson, T. E. H.: Bidrag til den Kroniske Habituelle Obstipationens Klinisk og Røntgenologi, Ugesk. f. Læger 81: 4, 37, 91 (Jan. 2, 9, 16) 1919.

4. Dubois, Paul: The Psychic Treatment of Nervous Disorders, New York, Funk and Wagnalls Company, 1906.

5. Gee, S. J.: Medical Lectures and Aphorisms, New York, Oxford University Press, 1908, p. 271.

6. Sutherland, G. A.: Constipation in Children, Latham and English System of Treatment, 2: 432.

7. Eggleston, Carey: Simple Appliance for Training Infants to Stool, J. A. M. A. 70: 156 (Jan. 19) 1918.

## SPASTIC CONSTIPATION

In spastic constipation, cathartics, excepting the blandest of laxatives, such as oils, are contraindicated. When the patient suffers from colic—with or without meteorism—when he has a feeling as though the evacuations were unsatisfactory, when he presses a good deal at stool and evacuates long, thin, flattened fecal masses (though they may have other shapes) and when, on palpation of the abdomen, one can roll colonic segments under the hand like cords, and on rectal examination the bowel fits closely around the finger like the finger of a glove, cathartics not only are useless but they aggravate the disturbance. In these cases, antispasmodic treatment is indicated.

## PELVIRECTAL CONSTIPATION

In pelvirectal constipation (Hertz's<sup>8</sup> dyschezia), recognized by the fact that on roentgenologic exam-

ination the upper portions of the colon are emptied in the proper time, while the bismuth is retained for days in the sigmoid flexure and rectum, purgatives are likewise not only useless, but harmful, as they can act only when fluid stools are produced, which at one and the same time wastes nutriment and leads to intestinal atony. It is characteristic for this condition that enemas act much better in producing evacuation than do physics given by mouth, a fact of which some of these patients are well aware. Here the most important part of the treatment is to keep the rectum and pelvic colon empty, so that these may in time regain their normal tone and irritability. This can be accomplished by the regular use of enemas or of suppositories. Increasing the irritability of the rectal mucosa by the use of appropriate irritants is also likely to have a curative tendency.

## REMOVAL OF IMPACTED FECES

For the removal of impacted feces enemas rather than purgatives should be used. The latter merely add to the colic which is usually present and which indicates that the intestinal musculature is already contracting excessively.

(To be continued)

<sup>8</sup> Hertz, A. F.: Constipation and Allied Intestinal Disorders, London, 1909.

**Passage of Human Infections.**—When the people generally and preachers, editorial writers and other teachers understand that human diseases are spread almost entirely from one human victim to another, it will be possible to focus attention on the main avenues of passage and control them. Until they do, we shall continue to be inefficient in controlling infectious diseases. In looking to all possible trails and ignoring the main ones, we are about as efficient as a young, untrained hunting dog which tries to divide his attention on a dozen tracks at the same time. Like him, we shall continue to run our legs off and finally lie down, confused and entirely satisfied that the thing "just can't be done."—*Milwaukee Health Bulletin* 281.

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

**HIRATHIOL**—Ammonium Sulphoichthyolicum.—An aqueous solution of a synthetic product, the important medicinal constituents of which are ammonium compounds containing sulphur in the form of sulphonates, sulphones and sulphites.

*Actions and Uses.*—See sulphoichthyolate preparations (New and Nonofficial Remedies, 1919, p. 319). It is claimed that hirathiol is equivalent in every respect to the original ichthyol.

*Dosage.*—Since this article is claimed to be closely similar to ichthyol, its dosage is probably like that of the older preparation (see New and Nonofficial Remedies, 1918, p. 160).

Manufactured by Hirasawa Chemical Industrial Company, Tokyo, Japan (Takamine Laboratory, Inc., Clifton, N. J., U. S. selling agents). No U. S. patent. No U. S. trademark.

Hirathiol is a brownish-black syrupy liquid, having a characteristic empyreumatic odor.

It is soluble in water, glycerin and alcohol. It is miscible with fats. The aqueous solution of hirathiol (1:10) is faintly acid to blue litmus. The aqueous solution (1:20) yields a greenish-black, resin-like precipitate upon the addition of hydrochloric acid. This precipitate is soluble in ether; it is also soluble in water, but if dissolved in the latter solvent, it is again precipitated by the addition of hydrochloric acid or sodium chloride test solution.

Boil an aqueous solution of hirathiol (1:10) with potassium hydroxide test solution. Ammonia is evolved.

Hirathiol loses 46.5 per cent. of its weight when dried at 100 C. Weigh from 5 to 6 Gm. of hirathiol into a flask, and 25 Cc. of potassium hydroxide test solution and 100 Cc. of water. Distill the mixture until no more ammonia passes over, collect the distillate in 15 Cc. of normal sulphuric acid, to which 1 drop of methyl orange test solution has been added, and titrate the excess of acid with tenth-normal potassium hydroxide. The amount of normal sulphuric acid consumed corresponds to 3.18 per cent. of total ammonia (NH<sub>3</sub>).

Weigh from 5 to 6 Gm. of hirathiol into a beaker, add 50 Cc. of water and 10 Cc. of a 10 per cent. solution of albumen, followed by 5 portions of 5 Cc. each of diluted hydrochloric acid, shaking after each addition. Make up the mixture to a volume of 500 Cc. and filter through a dry filter. Heat 200 Cc. of the filtrate to boiling, add 10 Cc. of barium chloride test solution and allow the mixture to stand for twenty-four hours. Collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate obtained corresponds to 6.16 per cent. of ammonium sulphate.

Weigh from 0.5 to 1 Gm. of hirathiol into a Kjeldahl flask, add 30 Cc. of water and 5 Gm. of potassium chlorate followed by 30 Cc. of nitric acid, and evaporate the mixture to about 5 Cc.; add 25 Cc. of hydrochloric acid and evaporate to 5 Cc.; again add 25 Cc. of hydrochloric acid and evaporate to 5 Cc. Then add 100 Cc. of water, heat to boiling and add 10 Cc. of barium chloride test solution, allow the mixture to stand for twenty-four hours, collect the precipitate of barium sulphate, heat and weigh. The weight of barium sulphate corresponds to 10.23 per cent. of total sulphur.

Calculate the ammonia obtained in the ammonium sulphate, as previously determined in hirathiol, and subtract the result from "total ammonia" as previously determined. Multiply the remainder by the factor 1.88. The result represents the sulphur present as "sulphonic sulphur." Calculate the sulphur contained in the ammonium sulphate as previously determined in hirathiol, and subtract the result from "total sulphur" as previously determined. The remainder (8.74 per cent.) represents the sulphur present in the organic, sulphonic acids contained in the substance. Subtract the "sulphonic sulphur" as previously calculated, from the sulphur in the organic acids, as previously calculated. The remainder corresponds to 5.73 per cent. of organic ("sulphide") sulphur.

Hirathiol is incompatible with acids, saline solutions, and fixed alkalis.

**MEDICINAL FOODS** (see New and Nonofficial Remedies, 1919, p. 165).

**SOY BEAN GRUEL FLOUR.**—A flour prepared from the soy bean having approximately the following composition: protein, 44; fat, 20; sucrose, 10; ash, 4.3; fiber, 2; water, 4.6.

*Actions and Uses.*—Soy bean gruel flour may be used for preparing muffins. It is indicated in cases in which a diet relatively free from carbohydrates is desired, as in diabetes, amyloaceous dyspepsia, etc. It has also been suggested for use in the diet in obesity. The nutritive value of 500 Gm. of this flour corresponds approximately to 2,027 calories, of which 902 calories are due to protein, 205 calories to carbohydrate, and 920 calories to fat.

Manufactured by the Cereco Company, Tappan, N. Y. No U. S. patent or trademark.

Soy bean gruel flour is made from soy bean with the removal of as much of the hull as is practicable.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 18, 1919

## THE LACTOSE CONTENT OF HUMAN MILK

Investigators of the alimentary disturbances of infants cannot succeed completely in interpreting their problems until they know something about the comparative composition of the intake of food and of the output of fecal residues in the cases with which they are concerned. Regarding cow's milk and the various feeding mixtures that have been concocted for pediatric practice, it is not difficult to secure dependable information. Such foods for the period of infancy have become standardized, so to speak, with the result that the physician who has occasion either to prescribe them or to judge of some result attributable to the ration used can gain a fairly accurate estimate of their food values in terms of the proximate principles.

The composition of human milk has heretofore not seemed to be equally certain. Enough analyses have been reported to show an unexpectedly large range of variation for fat and also some for protein. Although the average fat content of breast milk approximates from 3 to 4 per cent., maxima and minima of 9 per cent. and 1.5 per cent., respectively, have been recorded by dependable analysts. Talbot<sup>1</sup> reported that the percentage of fat depends more on how completely the breasts are drained and the amount of late milk which gets into the sample than on the stage of lactation. This illustrates the analytic difficulties involved in the study of the composition of human milk, and consequently the uncertainty as to the responsible factor to which digestive disturbances following the use of this food may be chargeable.

Until recently these uncertainties of composition have, perhaps, been greater in respect to the sugar in milk than for any other familiar component, owing to the unsatisfactory methods of analysis in vogue. At the Harvard Medical School and the Massachusetts General Hospital in Boston, Denis and Talbot<sup>2</sup> have secured enough dependable data to establish certain

fundamental facts as to lactose in human milk. The average amount of milk sugar in sixty samples was 7.2 per cent., with a general tendency for the content to increase throughout the period of lactation. It has long been known that the amount of lactose is low in colostrum; but the relative fixity of the higher figures in the later milk have not been so well realized. In the Boston samples, during the first ten weeks of lactation, two thirds of the specimens contained less than 7 per cent. lactose; whereas after the tenth week there were four times as many samples which contained between 7 and 8 per cent. as there were samples that contained less than 7 per cent., and many others which contained more than 8 per cent. of lactose. Since the weakest milk in these numerous samples, after the colostrum period, contained 5.5 per cent. of lactose, and the richest 8.35 per cent., the contrast between human milk and cow's milk in respect to their sugar content becomes emphasized once more. The sugar in cow's milk rarely exceeds 5 per cent.

## THE FACTORS INVOLVED IN CYANOSIS

Like several other signs of deviation from the normal, cyanosis has long been a familiar symptom meriting recognition from the physician, notably in diseases of the circulatory and respiratory systems. The bluish color of the skin and mucous membranes is by no means always manifest when respiration becomes impaired. Thus, in the coma of diabetes there may be asphyxial conditions without cyanosis. Strangely enough, despite the frequency with which this striking sign is observed in clinical experience, there has been no convincing and tenable explanation of precisely how cyanosis originates. Anatomic changes in the capillaries cannot be held to explain the characteristic changes in color. The production of blood pigments like methemoglobin having an unusual color has been postulated as a possible cause of cyanosis, particularly the so-called enterogenous cyanosis in which products of intestinal putrefaction have been held responsible for the alteration of the blood pigments.<sup>1</sup> Even if this doubtful reaction occurs it can at best account for relatively few cases in which the cyanotic symptoms are observed.

The most probable explanation of the blueness of the skin has seemed to lie in the amount of reduced hemoglobin present in the peripheral circulation. The precise factors implicated in cyanosis seem at length to have been definitely established by the careful researches of Lundsgaard<sup>2</sup> in the medical clinic of the University of Copenhagen. They demonstrate that abnormally high oxygen unsaturation of the blood in the peripheral capillaries is a cause of cyanosis.

<sup>1</sup> Talbot, F. B.: Lactose, Fat and Protein Content of Woman's Milk, *J. A. M. A.* **73**: 138 (July 12) 1919.

<sup>2</sup> Denis, W., and Talbot, F. B.: A Study of the Lactose, Fat and Protein Content of Woman's Milk, *Am. J. Dis. Child.* **18**: 93 (Aug.) 1919.

<sup>1</sup> Wells, H. G.: Chemical Pathology, Philadelphia, 1918, p. 580.

<sup>2</sup> Lundsgaard, C.: Studies of Cyanosis, I, Primary Causes of Cyanosis, *J. Exper. Med.* **30**: 259 (Sept. 1) 1919; II, Secondary Causes of Cyanosis, *ibid.*, p. 271.

Despite this, however, no proportionality exists between the intensity of the blue and the amount of reduced hemoglobin. This, Lundsgaard says, may in small part be due to individual peculiarities of the skin and the subcutaneous tissue, which are known to influence in anemia the relation between paleness of the skin and the decrease in hemoglobin.

According to Lundsgaard's recent investigations, when the mean capillary oxygen unsaturation, which is calculated as the mean between venous and arterial unsaturation and is normally about 2 to 3 per cent. by volume, is increased to about 6 to 7 per cent., cyanosis appears. For this reason 6 or 7 per cent. may be called the threshold value of mean capillary oxygen unsaturation for the incidence of cyanosis. However, if the blood is completely saturated with oxygen in the lungs, the oxygen unsaturation of the venous blood may increase to 13 or 14 per cent. before cyanosis appears.

As might be expected, the change in the color of the venous blood due to oxygen unsaturation may arise in various regions of the body. In any event, the appearance of cyanosis will depend on the degree to which the venous blood happens to be oxygenated when it reaches the place at which unsaturation takes place and also on the vigor of the reduction proceeding therein. The increased oxygen unsaturation may, furthermore, be brought about either by an increased reduction of oxyhemoglobin to reduced hemoglobin in the peripheral capillaries or by an incomplete oxidation of the venous blood in the lungs. For example, abnormally great reduction during passage through the capillaries occurs during exercise, or when the blood flow is retarded, as in decompensated heart conditions. The other condition—incomplete oxidation in the lungs—may occur in certain maladies of the lungs and heart, and likewise when the alveolar oxygen tension is greatly decreased, as at high altitudes.

Obviously there must necessarily be a certain minimum of hemoglobin in the blood for cyanosis to result; for, as Lundsgaard points out, patients suffering from anemia in extreme degree cannot turn cyanotic. According to him cyanosis cannot be produced when the blood pigment is reduced to the point at which the oxygen capacity is below 6.5 per cent. by volume.

The bluish color arising under the conditions just discussed should be clearly distinguished with respect to its genesis from abnormal skin color associated with an increase above the normal number of red corpuscles in the circulation. Such a polycythemia or erythremia may be encountered at high altitudes and in certain forms of heart disease. The oxygen unsaturation in such cases does not exceed normal values. Usually the color of the skin is more reddish than blue, suggesting congestion or ruddiness rather than cyanosis; in fact, the oxygen content of the venous blood is likely to be greater even than that found in normal persons. Although the color of the skin in polycythe-

mic patients has been described as "cyanotic," it will be preferable, now that its underlying distinction from cyanosis is clearly understood, to follow Lundsgaard's suggestion<sup>3</sup> henceforth to designate the condition by the name erythrosis, or false cyanosis.

#### BACTERIA AND VITAMINS

The demonstration that the nutritive welfare of the higher animals is dependent on an adequate supply not only of the familiar foodstuffs but also of certain as yet unidentified "food accessories," the so-called vitamins, has been stimulating in various fields of biologic science. The hypothesis of the rôle of vitamins in nutrition has been transferred to the growth of plants by Bottomley<sup>4</sup> with results that speak strongly for an analogy between plants and animals with respect to the promoting factors. Subsequently the possible part that may be played by substances analogous in function to the vitamins of animal nutrition has been debated with respect to the multiplication of bacteria.

Bacteriologists have long recognized the difficulties attending the production of cultures of micro-organisms on synthetic mediums prepared from purified substances. Blood serum, tissue extracts and decoctions and other mixtures of largely unknown chemical make-up have been employed by preference as culture mediums for bacteria. For a long time the necessity of supplying such tissue products was assumed to be attributable to the fact that the lowest forms of life can attack only a limited group of fairly simple compounds. The native proteins, for example, are singularly resistant to direct disintegration by bacteria; whereas the cleavage products of proteins, the amino-acids, form an excellent nitrogenous pabulum for microbial nutrition. Lately, however, it has become apparent that mixtures of even such simple nutrient fragments as amino-acids, sugars and inorganic salts, in mixtures of suitable reaction are poor culture mediums. To earlier evidences of the need of something more in the successful cultivation of bacteria, particularly the more delicate pathogenic varieties,<sup>5</sup> further testimony has been added in the case of the diphtheria organism by Davis and Ferry<sup>6</sup> of Detroit. They found that it could not be cultivated in synthetic mediums composed of amino-acids and mineral salts adjusted to the optimal hydrogen-ion concentration. Addition of the extractives creatin and creatinin, and the purin bases xanthin and

3. Lundsgaard, C.: Erythrosis, or False Cyanosis, *J. Exper. Med.* **30**: 295 (Sept.) 1919.

4. Bottomley, W. R.: Some Accessory Factors in Plant Growth and Nutrition, *Proc. Roy. Soc. London, Series B*, **8**: 42-57, 1914-1915.

5. Cole, S. W., and Lloyd, D. J.: The Preparation of Solid and Liquid Media for the Cultivation of the Genus *Bacterium*, *J. Path. & Bacteriol.* **21**: 367, 1916-1917. (Cordle, M. H., Howe, J. G., and Clark, M. A.: Experimental Study of the Cultural Requirements of the Meningococcus, *Brit. M. J.* **11**: 676, 1916. Lloyd, D. J.: On Vitamins, Amino Acids and Other Chemical Factors Involved in the Growth of the Meningococcus, *J. Path. & Bacteriol.* **21**: 111, 1916-1917. Agabro, H., and Lyroux, R.: Contribution à l'étude des vitamines utilisables en culture des microorganismes; application à l'étude de l'influenza (B. de Pfeiffer), *Compt. rend. Acad. Sci. Paris*, **107**: 391, 1918.

6. Davis, L., and Ferry, N. S.: Studies on Diphtheria Toxin, II. The Rôle of the Amino Acids in the Metabolism of Bacterium Diphtheriae, *J. Bacteriol.* **14**: 17 (May) 1919.

hypoxanthum, was of no advantage. Typical luxuriant growth of *Bacterium diphtheriae* was obtained in a mixture of 99.5 per cent. of synthetic medium and only 0.5 per cent. of bouillon. Production of active toxin, however, required the presence of 10 per cent. bouillon. "Peptone" permitted only deficient growth and toxin formation. Davis and Ferry believe that such observations suggest a vitamin requirement, furnished in these cases by the beef infusion, not only for the luxuriant growth of the diphtheria bacillus but also particularly for strong toxin production. Incidentally, they believe that the results obtained favor the view that diphtheria toxin is not a synthetic product but rather "a catabolic substance elaborated by *Bacterium diphtheriae* only in the presence of certain amino-acids and accessory factors, the latter probably of a vitamin character."

Kligler<sup>7</sup> has recently noted, in studies made at the Rockefeller Institute for Medical Research, that the growth of a large number of pathogenic bacteria, including the streptococcus, pneumococcus and meningococcus, is favorably influenced by the addition of small amounts of tissue extracts. Beef heart, rabbit and cat tissues, and human nasal secretions contain substances favorable to the growth of the organisms tested. The mucosa of different organs, spleen, liver and kidney, are relatively rich in these substances, while muscle is relatively poor. The favorable effect of the extracts is manifested by an enhancement of growth and a reduction of lag. Neither the extracts alone nor the culture medium alone was capable of supporting bacterial growth suitably. Kligler interprets his results as evidence that the facilitating substances belong to the category of the vitamins; and since ether extracts are without the potency referred to, the conclusion is further offered that the vitamins favorable for bacterial development belong to the water-soluble rather than to the fat-soluble type.

#### "COLLOSOLS": AN UNCRITICAL ENGLISH ENDORSEMENT

Under the auspices of the British Association for the Advancement of Science, there has just appeared a report on the present status of colloid chemistry.<sup>8</sup> The work has been recognized as sufficiently important to receive the endorsement of the government Department of Scientific and Industrial Research. Of particular interest to physicians is the chapter on "Administration of Colloids in Disease" written by Alfred B. Searle, "consulting chemist, Sheffield." After a somewhat academic generalization of colloidal drugs, the "thesis" is devoted largely to the "Colloids"—proprietary preparations made by the Crookes Laboratories. The "scientific" evidence presented by Searle for col-

loids in medicine reads as if the advertising literature of the Crookes concern had been considered ample source of information. Thus: "Colloidal Manganese," besides having been "used with remarkable and surprising results in the treatment of cocceogenic skin diseases, . . . gives excellent results [in impetigo, chronic scorrhic eczema and acute folliculitis] when employed in conjunction with intramine"! The grave danger of the intramine therapy has been known for more than two years both here and abroad,<sup>9</sup> in fact, one author stated that in cases of intramine injections, "the pain is undiluted torture." In a style as bombastic and verbose as the usual house-organ write-up, the report recklessly details all sorts of conditions in which so-called colloids—and particularly the "Colloso!" brand—have been recommended, but derogatory findings are conspicuous by their omission. Even Sir Malcolm Morris is quoted as lending his name (and title) to the endorsement of "Colloso!s."

In the United States the medical profession has created a means whereby physicians need not be misled by such "high" authorities as evidently has been the case with our English confrères. Once more the value of the Council on Pharmacy and Chemistry is strikingly manifested. What are the facts about "Colloso!s"? The Council has reported that a number of the "Colloso!" preparations were not colloids at all, and "if . . . injected intravenously as directed, death might result, making the physician morally if not legally liable";<sup>10</sup> that in the cases in which the therapeutic claims were examined, the claims were found to be either exceedingly improbable or exaggerated; furthermore, that the A. M. A. Chemical Laboratory found "Colloso! Cocaine," on analysis, to contain only 40 per cent. of the claimed amount of cocaine.<sup>11</sup>

Such are the findings which have been presented to the American physician. But the British physician is now being made the object of an intensive advertising campaign for "Colloso!s," based in part on an uncritical, pseudogovernmental endorsement. Just so long as the English profession will not protect itself by creating a competent board to examine and judge proprietary medicines and to control methods of exploitation, just so long will such extravagant and even cruelly misleading claims continue to impede scientific progress in therapeutics.

9. Ferrivine, Intramine and Colloso! Iodine, J. A. M. A. **69**: 841 (Sept. 8) 1917.

10. Colloso! Preparations, J. A. M. A. **72**: 1694 (June 7) 1919.

11. Colloso! Cocaine Not Admitted to N. N. R., J. A. M. A. **72**: 1094 (April 12) 1919.

**Marriage Laws Regarding Venereal Disease.**—Thirteen states, namely, Alabama, Indiana, Michigan, New Jersey, New York, North Dakota, Oregon, Pennsylvania, Utah, Vermont, Virginia, Washington and Wisconsin, have laws enforced relating to venereal disease in connection with marriage. The laws vary in wording, but the purport of all is to prevent the marriage of all infected with acute syphilis or gonorrhœa.

7. Kligler, I. J.: Growth Accessory Substances for Pathogenic Bacteria in Animal Tissues, J. Exper. M. **20**: 31 (July) 1919.

8. British Association for the Advancement of Science. Second Report on Colloid Chemistry. Published for the Department of Scientific and Industrial Research by His Majesty's Stationery Office.

## Current Comment

### PATENTING THERAPEUTIC AGENTS

In the past, therapeutic agents and apparatus have been controlled by patents and trade-marks for profit. If there have been exceptions, they have been rare. The Principles of Medical Ethics of the American Medical Association contain this statement: "It is unprofessional to receive remuneration from patents for surgical instruments or medicines." This does not mean that the patenting is wrong in itself; there are occasions when it is wise, if not necessary, to obtain a patent in the interest of the public and, in the case of surgical instruments and medicines, of the medical profession. In certain instances it is absolutely necessary that the article produced shall maintain a definite standard of quality and purity—and, it may be added, shall be sold at a reasonable price. Enterprising pharmaceutical manufacturers have usually been ready to appropriate the results of scientific research by investigators or therapeutic measures suggested by practicing physicians. Not infrequently, in such instances, the desire for financial gain has caused the marketing of such products with extravagance, if not false, claims as to their value. Yet the patent laws may be used so as to protect and benefit the public and the medical profession. In research laboratories, work is being carried on resulting in the production of new therapeutic agents. It is important that these agents shall be so controlled that they may be made available without subordination to commercial interests. It has become practically necessary, therefore, for research workers to protect their products in the interest of the public welfare and scientific medicine. It has not been an easy matter to decide how best to bring about the desired results. This question has been before the Board of Trustees of the American Medical Association, and in 1914 the House of Delegates passed a resolution authorizing the board to accept at its discretion, patents for medical and surgical instruments and appliances, as trustees, for the benefit of the profession and the public, provided that neither the Association nor the patentee should receive remuneration from these patents. The Rockefeller Institute for Medical Research has solved the problem in a similar manner. In connection with the report of the discovery of several new arsenic compounds, Jacobs and Heidelberger,<sup>1</sup> working in the Rockefeller Institute, say:

It may be appropriate to mention here that this substance and related compounds, described in the present and following papers of the series, are covered by U. S. Patents Nos. 1,280,119-27. Patents have also been applied for in foreign countries. All discoveries made at the Rockefeller Institute are made freely available to the public, in accordance with the philanthropic purposes of the institution. In order to insure purity of product and protection against exploitation, it has been deemed necessary in certain instances to protect the discoveries by patents. It is the purpose of the institute to permit any drugs which may prove of practical thera-

peutic value to be manufactured under license by suitable chemical firms and under conditions of production which will insure the biological qualities of the drugs and their marketing at reasonable prices. Other than through the issuance of license, the Rockefeller Institute does not participate in any way in the commercial preparation or sale of the manufactured chemicals; and it receives no royalties or other pecuniary benefits from the licenses it issues.

Here we have medicine at its best. The altruism of pure science operating for the benefit of the general public; scientific therapeutics freed from commercial domination.

### VARIETY OF DIET IN THE ARMY

To many persons the dread of a monotonous, unvaried diet represents one of the supposed unpleasantnesses of army life. It is assumed by them that only a slightly varied routine of simple foods is the customary, if not the essential, feature of the dietary of troops. Monotony and limited range of food combinations are traditional accompaniments of institutional management which have all too often been the subject of criticism from "humanitarian" investigators. There have doubtless been times, as there still are places, in which consideration of the regimen of persons with restricted liberty has been unfortunately neglected. Today, ignorance can no longer serve as a valid excuse. In the light of present day knowledge of nutrition, disregard of the relation of diet to human welfare can only be ascribed to indifference. "How about the army?" it may be asked. "Are not the paramount needs of drill and equipment, of marches and battle, allowed to relegate dietary niceties to desuetude?" Once upon a time the answer might have been, "Yes"; but the statistics now published by the Section of Food and Nutrition in the Medical Department of the U. S. Army give a different reply with respect to our army camps in 1917-1918. According to dietary studies made by the Bureau of Markets in Washington in 1917, thirty-nine different articles enter into the weekly food inventory for the average family. A study of 390 army messes,<sup>2</sup> however, indicated that the average number of articles used per mess per week was about fifty-five. For organizations on the march, when difficulties of preparation and transportation of food demanded a simpler menu, the number of articles used per mess for a three-day period was sixteen. A popular treatise on nutrition<sup>2</sup> reminds us that the human being exhibits two psychological tendencies in his diet—one, to stand by old favorites; the other, to demand variety from day to day. Hence the diet that suits best usually consists of staples along with variables. Variety was formerly acclaimed solely as a mode of escaping monotony of diet; today it is recognized as a factor of safety in avoiding the danger of a lack of some essential to nutritive well-being. The successful menu maker strives to recognize both the love and the possible need of variety, without catering to it alone.

<sup>1</sup> Marlin, J. R., and Heidelbrant, F. M.: Average Food Consumption at the Training Camps of the U. S. Army, *Am. J. Physiol.* **49**: 5-11 (Sept. 11, 1919).

<sup>2</sup> Rose, Mary Swartz: Feeding the Family, New York, the Macmillan Company, 1916, p. 205.

1. Jacobs, W. A., and Heidelberger, M.: Aromatic Arsenic Compounds, II. The Amides and Alkyl Amides of  $N$ -Arylglycine Arsenic Acids, *J. Am. Chem. Soc.* **11**: 1587 (Oct.) 1919.

## QUININ AND QUITENIN IN MALARIA

There still seems to be uncertainty among pharmacologists regarding the fate of quinin in the body. While one writer presents evidence that only one third to one fourth of quinin administered is slowly recovered in the excreta,<sup>1</sup> others assert that quinin usually begins to appear in the urine shortly after its administration, and that almost the entire amount may be excreted within two days.<sup>2</sup> Investigators at the Liverpool School of Tropical Medicine have noted the power of tissues removed from the body and of tissue extracts to destroy the alkaloid.<sup>3</sup> The active agent is thermolabile and exhibits the property of an enzyme. The liver, kidney, muscle, intestinal wall, and probably the pancreas have considerable power to destroy quinin postmortem, whereas little or no action has been observed with the blood, spleen, bone marrow and divers glands. It is an unsafe conclusion to assert on the basis of such findings that the body tissues also destroy quinin in vivo. However, certain facts bearing on the theory of quinin therapy in malaria have already developed from the Liverpool studies. One product of the action of liver tissue on quinin is now demonstrated to be quitenin, a long known oxidation derivative of quinin. This compound has been reported to appear in the urine after the use of quinin. To test the hypothesis that quitenin may represent the derivative of quinin directly responsible for the relief of malarial rigors, large doses were given to a suitable patient. The substance was entirely ineffective,<sup>4</sup> and seems to be broken up into inert compounds, since little if any could be recovered in the urine. The quitenin hypothesis may therefore be abandoned so long as no further indications of its rôle are forthcoming.

## ULTRAVIOLET RAYS AND VITAMINS

Although the effects of ultraviolet light on the organisms have as yet received all too little investigation, there is no doubt that these invisible light rays have more action on protoplasm than the visible light does. The familiar inflammation exhibited in sunburn (erythema solare) is an illustration of what ultraviolet light can bring about. This effect on the skin is not due to heat, but presumably to the products of some photochemical reaction set up in the arterioles. There is something almost subtle in the manifestations of the nonvisible rays. For example, diphtheria toxin is readily destroyed by them, although it is not so easy to render the antitoxin inert. Various enzymes have also been shown to become inert through the action of ultraviolet light. Recently the influence of this agent on certain types of products containing vitamins has been investigated by Zilva<sup>5</sup> at the Lister Institute for

Preventive Medicine in London. He found that butter exposed for eight hours to ultraviolet light undergoes a very noticeable change, the fat-soluble vitamin therein becoming inactivated. However, the antineuritic potency of yeast extracts and the antiscorbutic properties of lemon juice are not lost by such exposure. Zilva calls attention to the fact, noted by others, that the sterilization of milk by means of ultraviolet rays imparts to the milk a peculiar taste. He ascribes this to alterations in the butter fat brought about by the exposure. In view of the deterioration of the fat-soluble vitamin it seems likely that the action of ultraviolet light on milk may impair its nutritive value for infant feeding.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ALABAMA

**Home Provided for Mental Inferiors.**—The legislature of Alabama at its recent session passed a bill providing for the establishment of a home at Tuscaloosa, for mental inferiors. The campaign which resulted in this bill was led by Drs. Thomas H. Haines and William D. Partlow.

**Sanitary Laws Enacted by Legislature.**—In a bill introduced in the legislature by Representative Cobbs, the promotion of public health by leveling, ditching and draining the swamp lands of the state, was provided. This bill was made a law, September 25.—A bill providing for strict regulation of hotels, cafés, restaurants and eating places was introduced by Representative McLeon in the house and has been enacted into law by the senate.—The house of representatives has increased the appropriation for public health from \$25,000 a year to \$250,000 for four years.

## ARKANSAS

**Typhoid Survey.**—Dr. R. Eugene Dyer, Little Rock, epidemiologist, U. S. P. H. S., has been sent to assist the state health officer in making a typhoid survey and other investigations of epidemic diseases.

**Held by Health Board.**—At present thirteen women are held in quarantine at the Sebastian County Hospital, Fort Smith, on account of venereal disease, while twenty-five others are under private medical treatment and under parole.

**Personal.**—Dr. John R. Dale, Texarkana, was run down and seriously injured by an autotruck, September 25.—Dr. John Thames, recently health officer of Little Rock, has taken over the U. S. P. H. S. work in that locality.—E. H. White, for eight years principal of the North Little Rock High School, has accepted the professorship of microscopy in the medical department of the University of Arkansas, Little Rock.

**State Venereal Clinic.**—At a meeting held in Little Rock, September 26, plans were discussed for a state clinic for the treatment of venereal disease. It was proposed that the Women's Reformatory and the Girl's Industrial School should each give \$2,500, and that the city should also contribute a share. Dr. Charles W. Garrison, state health officer, Little Rock, said that the state would pay \$1.50 per day toward the board and maintenance of each patient. It is expected that a building will be erected without delay.

## CALIFORNIA

**Tuberculosis Conference.**—A joint meeting of the Los Angeles County Medical Association with the Southwestern Tuberculosis Conference was held at Long Beach, October 1 to 3.

**Lane Medical Lectures.**—The Lane medical lectures will be delivered by Dr. Alonzo E. Taylor, professor of physiologic chemistry in the University of Pennsylvania, and will

1. Greer, C. W.: *Handbook of Pharmacology*, New York, 1914, p. 229.

2. Hatcher, R. A., and Wilbert, M. J.: *The Pharmacology of Useful Drugs*, Chicago, American Medical Association, 1915, p. 78.

3. Lipkin, I. I.: On the Distribution and Destruction of Quinine in Animal Tissues, *Ann. Trop. M. & Parasitol.*, **12**: 149 (July 31) 1919.

4. Lipkin, I. I. (*Footnote 3*). Stephens, Yorke, Blacklock, Macfie and O'Farrell: Studies in the Treatment of Malaria, XXVIII, Quitenin Hydrochloride in Simple Tertian Malaria, *Ann. Trop. M. & Parasitol.*, **12**: 117 (July 31) 1919.

5. Zilva, S. S.: The Action of Ultraviolet Rays on the Accessory Food Factors, *Biochem. J.*, **13**: 164 (July) 1919.

he on the topic, "Feeding of the Nations at War." The lectures will take place at Lane Hall, San Francisco, on the evenings of December 8 to 12, inclusive, under the auspices of the Leland Stanford Junior University School of Medicine.

**Emergency Physicians Needed.**—The secretary and executive officer of the California State Board of Health has issued a circular letter stating that the board would appreciate receiving the names of any physicians who, in the event of the return of the epidemic of influenza, would be willing to serve in emergencies in various parts of the state, at a salary of \$200 a month, with \$4 per day for subsistence and traveling expenses.

**Ungraded Rooms in City Schools.**—A bulletin has been published by the division of psychology of the Los Angeles city school district, and devoted to ungraded rooms. Part 2 describes the handling of feebleminded children in special schools, and Part 3 describes a plan of operation from which good results are said to be obtained in the advancing of mental ability as well as the borderline and backward cases. Mr. A. H. Sutherland, chief of the division, 419 South Olive Street, Los Angeles, will be glad to send to interested individuals copies of this bulletin, so long as they are available.

### COLORADO

**Personal.**—Dr. Charles C. Reid, Denver, was elected first vice president at the meeting of the International Association of Lions Club, held in Chicago.—Dr. Rodney Wren, Trinidad, has been made chairman of the free clinic, which has recently been established in Trinidad.

**Denver County Physicians in Service.**—Out of a total membership of 378 during the war period, the Denver County Medical Society sent into the service ninety-six members, or 25.4 per cent. Of these, all but fifteen have returned, some of whom are on duty at U. S. General Hospital No. 21, Aurora. The only death in service was that of Lieut. Raymond E. Peblar, who died from pneumonia following influenza, October, 1918.

### CONNECTICUT

**Personal.**—Dr. David R. Lyman, New Haven, superintendent of the Gaylord Farm Tuberculosis Sanatorium, has started for France, where he will attend the International Tuberculosis Conference as a representative of the National Association for the Study and Prevention of Tuberculosis.

**Anniversary of Sanatorium.**—In observance of the fiftieth birthday anniversary of the Gaylord Farm Sanatorium, the New Haven County Medical Association held its 135th semiannual meeting at the institution, October 1. Among the important papers presented were the presidential address by Dr. David R. Lyman, New Haven, who is superintendent of the Gaylord Farm Sanatorium, and addresses by Thomas R. Darlington, on "Industrial Medicine," and Dr. Edward R. Baldwin, Saranac Lake, N. Y., on "The Differential Diagnosis of Lung Conditions Usually Confounded with Tuberculosis."

### DISTRICT OF COLUMBIA

**Building for Physicians.**—A modern office building is to be erected at Vermont and I. Streets, Washington, for the exclusive use of physicians. It will be known as the Ansherry Building, will be eleven stories in height, and will be thoroughly equipped with laboratories and other appliances necessary for the use of professional men.

**Personal.**—Dr. J. Breckinridge Bayne, who did such efficient work in the typhus epidemic in southern Roumania during the German occupation period of 1917-1918, and who was decorated by King Ferdinand, has again been decorated by being recipient of the Order of the Regina Maria, First Class. Dr. Bayne now has charge of three American Red Cross hospitals at Cojascu, Titu and Voineshti, Roumania.

### FLORIDA

**Christmas Seal Campaign.**—The executive committee of the Florida Anti-Tuberculosis Association, at a meeting held recently in Jacksonville, arranged plans for the nation-wide campaign to be inaugurated in December. The quota for Florida is \$50,000. The state had been divided into zones, with Miami, Tampa, Jacksonville and Pensacola as headquarters of the respective districts. Dr. Louis A. Bize, Tampa, is zone chairman.

**Work of State Health Board.**—Dr. Ralph N. Greene, Chattanooga, state health officer of Florida, has sent out

circular letters to physicians advising them of what has been accomplished by the board and inviting them to make free use of the machinery provided by the board for the benefit of the public health of the state. There are five diagnostic laboratories at Jacksonville, Tampa, Pensacola, Miami and Tallahassee, at which examinations are made, with the exception of serologic tests for syphilis and gonorrhea, which are made only at Jacksonville and Tampa. During 1918, 17,423 specimens were examined in the central laboratory, Jacksonville; 7,792 in the Tampa laboratory; 2,750 in the Pensacola laboratory, and 2,565 in the Miami laboratory. The report also describes the work of the orthopedic service, and of the sanitary engineering, vital statistics, and child welfare departments of the state board.

### ILLINOIS

**Building for Physicians.**—A building for the exclusive use of physicians is to be erected in Rockford by J. Frank Deuel. It will cost about \$15,000 and will be equipped with a medical library, drug and medical supply rooms, and garage accommodations.

**Sanatorium for Livingston County.**—At a recent meeting of the board of supervisors of Livingston County, a tax levy of \$60,000 was voted to be used for the erection of a tuberculosis sanatorium. There is also available for this purpose \$20,000 previously collected. A site has been purchased south of Pontiac, and work will start early next spring. The institution will accommodate thirty patients.

### Chicago

**Practical Nursing Class.**—The second class in practical and home nursing conducted by the Chicago Department of Health, which opened October 6, had an enrollment of 1,500 women.

**Personal.**—Dr. Rudolph J. E. Oden, who has recently returned from Cadillac, Mich., has been appointed attending surgeon to Augustana Hospital, and consulting surgeon to U. S. P. H. S. Hospital No. 2.—Dr. Roscoe C. Eaton has been discharged from the military service and has been appointed chief surgeon for Libby, McNeill and Libby.

**Northwestern University's Plans for Medical Education.**—Northwestern University has secured an option on 9 acres of land on the lake front at Chicago Avenue on which it is planned to erect within ten years buildings for its departments of medicine, dentistry, law and commerce, these buildings to cost approximately \$1,350,000. It is expected eventually that on the medical school alone \$2,500,000 will be expended. To carry out these plans the university has begun a campaign to raise \$25,000,000, half of which it is expected will be obtained by June, 1920.

**Faculty Changes.**—The Loyola University School of Medicine, Chicago, announces the following changes in its faculty: Dr. Louis D. Moorhead, Chicago, has been appointed acting dean; Dr. Sarned A. Matthews, Mobile, formerly professor and head of the department of physiology and pharmacology at the University of Alabama, has accepted a similar position at Loyola; Dr. Andrew C. Ivy of the University of Chicago has been appointed associate professor of physiology; Dr. Elmer S. Maxwell, formerly of Vanderbilt University, Nashville, Tenn., has been appointed assistant professor of bacteriology; Dr. Frank M. Phifer, Chicago, has been appointed professor and acting head of the department of genitourinary surgery, and Dr. Frank B. Lusk, Chicago, becomes supervisor of medical instruction in the dispensary.

### MARYLAND

**Corps of Physicians Organized for Influenza Emergency.**—At the request of the United States Public Health Service, a corps of physicians for service in the event of a return of the influenza epidemic is being organized by Health Commissioner C. Hampton Jones. The corps will comprise 100 men who will be paid by the federal government. No serious outbreak is expected, but the Public Health Service wants to be prepared for any emergency.

**Personal.** Col. Henry Page and the staff at U. S. Army General Hospital No. 2, Fort McHenry, entertained the base hospital units of the Johns Hopkins Hospital and the University of Maryland, October 8. Luncheon was served and an inspection of the hospital was made.—Dr. Erik Waller of Landskoping, Sweden, is in Baltimore studying the methods employed at the Johns Hopkins Hospital and other local institutions.—Dr. Adolf Meyer, director of the Henry

Phipps Psychiatric Clinic, Johns Hopkins Hospital, who was recently injured in New York when a wagon ran over and crushed his foot, is able to deliver his lectures to the medical students.

**Influx of Patients at Fort McHenry.**—More than 500 patients have been admitted at U. S. Army General Hospital No. 2, Fort McHenry, in the past five days and Colonel Page states that this entails the heaviest surgical work the hospital has yet had. The majority of the men came from Colonia, N. J., and Williamsbridge, N. Y., where general hospitals have been abandoned, and from the base hospital at Hoboken, where many serious cases were taken on their return from France. Sixty of the patients were carried in on litters. Many will have to undergo operations. Nearly all of them are "long-time" ones and will remain at the fort for months. Some of the patients have already been in hospitals for a year and a half.

**Quarantine to Fort McHenry.**—As a result of a change of arrangements, the new quarantine boat, the *Neptune*, is now docked at a pier at Fort McHenry, and the quarantine inspector's office has been moved from the old Quarantine Building at Hawkins Point, opposite Fort Carroll, to a room in the Administration Building at Fort McHenry. The old quarantine station will not be used except for patients. Dr. Thomas L. Richardson, Baltimore, acting assistant surgeon of the U. S. Public Health Service, is in charge of the quarantine work. He has been connected with the quarantine service thirteen years, since it was taken over from the civic authorities and conducted by the federal authorities. He reports that the health conditions aboard vessels entering the port are very good.

#### NEW JERSEY

**Physicians Form Association.**—About fifty physician in the Clinton Hill section of Newark recently organized the Newark Physicians' Association to abolish contract and lodge practice. Dr. Bernhardt H. Woolf was elected president of the association.

**Personal.**—Clarence W. Way, Major, M. C., U. S. Army, Sea Isle City, who has been on duty in France since March, 1917, and is at present chief of the medical service at U. S. Army Camp Hospital No. 21, Autiel, Paris, has been ordered to Warsaw, Poland, to make a study of medical and sanitary problems of the Polish republic, and expects to remain in Poland for about six months.—Dr. Daniel Russell Hodgdon, head of the Newark College of Technology, has been elected president of the Hahnemann Medical College and Hospital, Chicago.

#### NEW YORK

**Cornell University Staff Changes.**—The Cornell University Medical College opened its twenty-second session, September 29. The annual address to the students was delivered by Dr. Graham Lusk, professor of physiology. The college announces the following appointments to the medical faculty in New York City: Drs. E. F. DuBois, assistant professor of medicine; Oscar M. Schloss, professor of clinical medicine, department of pediatrics; Henry H. M. Lyle, assistant professor of surgery; Jeremiah S. Ferguson, assistant professor of clinical medicine, department of pediatrics; Nellis B. Foster, assistant professor of medicine and associate attending physician to New York Hospital; John C. A. Gerster, assistant professor of clinical surgery; Charles V. Morrill and Robert Chambers, assistant professors of anatomy.

#### New York City

**Plan to Enlarge Hospital.**—Plans have been drawn up for the enlargement of the Kosher Hospital, Brooklyn, by an addition to the present hospital building which will give the institution 150 beds.

**Harvey Society Lectures.**—The second lecture of the Harvey Society series will be delivered by Dr. H. H. Dale of the Lister Institute of Preventive Medicine, on "Shock," at the New York Academy of Medicine, October 23, at 8:30 p. m.

**Society of Medical Jurisprudence Meets.**—This organization held the first meeting of the season at the New York Academy of Medicine, October 13. The paper of the evening was on "Selective Service and the Physician" by Dr. Victor C. Pedersen.

**Hospital Installs Group Practice.**—The Long Island College Hospital has installed a system of group practice whereby patients, by the payment of an ordinary fee, and in many cases without paying any fee, may have the benefit of

consultation with experts in various specialties of medicine and surgery. Dean Otto Huffman announces that the members of the dispensary staff will meet daily as a diagnostic board to receive cases referred to them by any alumnus of the hospital. For the present this service will be extended only to the alumni of the hospital.

**Personal.**—Dr. George E. Brewer has sailed for France, at the request of the Surgeon-General, as a representative of the United States at the interallied congress of surgeons shortly to convene in Paris. He will return to New York about the middle of November.—Dr. and Mrs. Charles Kohly of Cuba are spending a month in New York.—Dr. Caroline S. Finley, director of Unit No. 1 of the Women's Overseas Hospitals, has returned to this country.—Dr. Marie Louise Lafort, director of Unit No. 3 of the Women's Overseas Hospitals, has returned to France to take charge of the American Memorial Hospital, which the American Fund for French Wounded is establishing in Rheims.

#### PENNSYLVANIA

**Railroads to Aid Safety Fight.**—Following conferences between the state public service commission and officers of the Pennsylvania and Reading railroads, announcement was made, October 9, that danger signs, to warn automobilists and others of unprotected railroad crossings, are to be furnished free of charge by both railroads, to municipalities, counties and townships throughout the state in which such unprotected crossings exist. Other railroads are expected to make similar agreements. These conferences followed a recent investigation conducted by the public service commission to determine the number of deaths and accidents at railroad crossings. There are 11,738 grade crossings in Pennsylvania of which 9,773 are unprotected and 68 per cent. of all persons killed at crossings are killed at these unprotected ones.

#### Philadelphia

**Hospital Drive.**—The million dollar campaign for the University of Pennsylvania Hospital totaled \$370,164, October 11.

**Medical Club Meeting.**—The Medical Club of Philadelphia will hold a reception in honor of the Hon. William C. Sproul, governor of the state of Pennsylvania, Friday evening, October 17, at the Bellevue-Stratford. Just prior to the reception the regular meeting for nominations will be held.

**Personal.**—Dr. Charles J. Hatfield, executive director of the Phipps Institute and head of the Southeastern Pennsylvania chapter of the American Red Cross, sailed, October 9, to participate in a conference in London, October 16, 17 and 18, to arrange means to combat the spread of tuberculosis in the war ravished regions of Europe.

**Aid for Hospital.**—Residents in the neighborhood of the Frederick Douglass Memorial Hospital for Colored People planned to abstain from food one day in order to contribute to the hospital's campaign fund, October 11. Under the leadership of fourteen physicians, volunteer workers went into every section of the city to receive contributions for the hospital.

**Tuberculosis Conference.**—The North Atlantic Tuberculosis Conference was held, October 9 and 10, in the Bellevue-Stratford, and was one of the five like gatherings held throughout the United States to arouse the nation to the serious menace of disease. Three hundred and fifty delegates from the states of Pennsylvania, New Jersey, New York, Delaware, Maryland, Virginia, West Virginia and the District of Columbia, attended. This conference was held under the auspices of the National Tuberculosis Association and the Philadelphia Tuberculosis Committee.

#### WISCONSIN

**Hospital Notes.**—Health Commissioner George C. Ruhland announces that the South View Hospital, Milwaukee, is now available to physicians for diagnostic work, particularly in connection with diphtheria cases.—A tuberculosis sanatorium is to be established jointly by the counties of Menominee and Delta, in Menominee. A clinic for tuberculous patients has already been instituted.

**Personal.**—Dr. Harry Cohn, for four years acting superintendent of the Mirdale Sanatorium, Wauwatosa, and assistant medical director, has been given leave of absence for six months to organize and direct the new Milwaukee County Dispensary.—Dr. George R. Keay, LaCrosse, has resumed practice after twenty months' army service, of which

nine months were spent in France.—Dr. Frederick C. Rinker, for more than six years a member of the staff of the medical clinic of the University of Wisconsin, Madison, and chief of medical instruction of the University Extension Division, has resigned to enter private practice in Norfolk, Va.

**State Society Meets.**—The seventy-third (victory) meeting of the State Medical Society of Wisconsin was held in Milwaukee, October 1 to 3, under the presidency of Dr. Dennis J. Hayes, Milwaukee. This meeting was in honor of the 788 medical men of the state who entered the service during the world war, to welcome them home, to gain from their experiences, and to help them solve their problems. The following officers were elected: president, Dr. Charles R. Bardeen, Madison; vice presidents, Drs. Wilson Cunningham, Plattville; Henry W. K. Abraham, Appleton, and Philip F. Rogers, Milwaukee; delegate to the American Medical Association, Dr. Charles H. Lemou, Milwaukee, and alternate, Dr. Joseph F. Smith, Wausau.

#### CANADA

**Personal.**—Dr. Alexander D. Blackader, professor of pharmacology and therapeutics in McGill University, Montreal, delivered the annual address to the medical students on Founder's Day, his subject being, "Our Medical Faculty and the Value of Continued Medical Research."—Dr. Robert J. Kee, Toronto, has been acting for some months as expert to the pension board, Ottawa, in diseases of the eye, ear, nose and throat.—Major Harold Wilson, formerly of Kingston and Port Arthur, has been appointed medical advisor to the Canadian Pension Board in London, England. He served overseas with the C. A. M. C. four years.

**New Sanatoriums for Tuberculosis.**—The Canadian Association for the Prevention of Tuberculosis met in Ottawa, October 9 and 10. Dr. George D. Porter, the secretary, in presenting his annual report stated that a number of new sanatoriums had been opened in Canada during the past official year of the association. Among them was the new Laval Hospital at St. Foy, Quebec, at a cost of \$200,000; the Rosary Institute for Diseases of the Chest, at Vancouver, B. C., a large provincial institution in Alberta; a new hospital for curable patients in Montreal, and new babies' wards in the preventorium in Toronto and Saskatchewan. Dr. Porter further reported that the department of agriculture of Canada had taken important steps to guard milk from contamination and that important advances had been made by the department of soldiers' civil reestablishment in connection with the University of Toronto Research Department for the carrying out of serologic tests in both military and civilian cases.

**Dominion Health Council Summoned.**—October 7, the Hon. Newton W. Rowell summoned the new Council of Public Health for the Dominion of Canada. That board has fifteen members, composed of the chairman and chief executive officer of each provincial department or board of health in Canada, together with two women connected with women's activities, and a representative each of agriculture, academic, military and labor interests. To this National Council on Public Health the Dominion government set apart \$180,000—\$10,000 to be used for the combating of the venereal diseases—and \$1,000 to be expended by the federal department of health along the same lines. The balance of the original grant will be proportionally assigned to the provinces, to which will be added by the provincial governments similar, or equivalent, amounts. The discussions of the council took the following lines: measures against influenza; conservation of child life; industrial hygiene; rural hygiene; habit-forming drugs. On the last of these the council forwarded a recommendation to the minister of health which it is hoped will reduce the habit of drug taking to no inconsiderable degree. The new department will gather and distribute literature outlining progress made in public health matters in each province.

#### GENERAL

**To Eradicate Malaria.**—The American Anti-Malarial Association held a convention at Florence, Ala., October 15, under the chairmanship of Hon. O. W. Underwood, United States Senator from Alabama, with the purpose of launching a campaign to eradicate malaria from the southern states.

**Missouri Valley Society Election.**—At the meeting of the Missouri Valley Medical Association, in Des Moines, Iowa, September 18 and 19, the following officers were elected: Dr. Charles Ryan, Des Moines, Iowa, president; Dr. Paul

Gardner, New Hampton, Iowa, first vice president; Dr. Floyd Spencer, St. Joseph, Mo., second vice president; Dr. O. C. Gebhart, St. Joseph, Mo., treasurer, and Dr. Charles Wood Fassett, Kansas City, Mo., secretary.

**Occupational Therapy Meeting.**—The third annual meeting of the National Society for the Promotion of Occupational Therapy was held in Chicago, September 8 to 11, and the following officers were elected: president, Mrs. Eleanor Clarke Slagle of the Henry Favill School of Occupations, Chicago; vice president, Dr. Herbert J. Hall, Marblehead, Mass.; secretary, Mr. Louis J. Haas, Bloomingdale Hospital, White Plains, N. Y., and treasurer, Miss Marion R. Tabor, New York.

**Meeting of the Association of Medical Milk Commissions.**—The American Association of Medical Milk Commissions will meet in conjunction with the American Public Health Association at New Orleans, October 27 to 30. The program includes: the president's address, Dr. A. F. Furrer, Cleveland; "Production of a Safe Milk for Infants," Dr. W. H. Price; "Inspected Milk," Dr. L. R. DeBuis, New Orleans; "Human and Bovine Tuberculosis," Prof. M. P. Ravenel, Columbia, Mo.; "Dry Sterilization of Dairy Utensils," Dr. H. Moak, Brooklyn; "Changing Standards in the Production of Certified Milk," Prof. F. W. Howe, Boston, and "Present Status of Municipal Milk Control in This Country," Mr. G. B. Taylor of the U. S. Department of Agriculture. Following the scientific session will be a meeting devoted to the business of the organization.

**Prize for Research on Carcinoma of the Cervix.**—At the opening meeting of the Chicago Pathological Society, October 13, the president, Dr. Emil Ries, in lieu of a presidential address offered the following prize:

In 1896 in the first radical operation for carcinoma of the cervix by Ries certain lymph-nodes were removed on examination of which gland-like structures hitherto undescribed were discovered by him. These findings have since been confirmed and pictured by other authors. Robert Meyer claims that these structures are due to irritation of the endothelium of the lymph sinuses by infectious material absorbed from the ulcerated carcinoma.

It is desired that this claim be further investigated and the following points are tentatively suggested for examination:

1. Do all infected carcinomas produce such gland-like formations in the regional lymph-nodes? (for instance: ulcerated carcinomas of stomach, rectum, lips, breast).
2. Are closed, noninfected carcinomas ever accompanied by similar formations? (for instance: closed carcinomas of breast).
3. Do infected lymph-nodes not associated with carcinoma, as for instance with primary sclerosis, soft chancre, infected wounds of the extremities, present similar structures?
4. Can the structures be produced experimentally?

For the most satisfactory solution of this problem a prize of \$100 has been deposited with and will be paid by the treasurer of the Chicago Pathological Society on the decision of the prize committee. Prof. L. Hektoen, R. Zeit and E. R. LeCount have consented to act as a committee. The competing essays must be in the hands of the secretary, Dr. George H. Weaver, 629 South Wood Street, Chicago, by Sept. 1, 1920, bearing some number for identification. A sealed envelope bearing the same number and containing the name and address of the essayist is to be inclosed. The winning essayist will be invited to present personally the result of his investigations at the first meeting of the Pathological Society in October, 1920. If no essay is offered in competing for this prize at the expiration of the above term, the amount shall be returned to the donor.

#### FOREIGN

**Centennial of Laennec's Auscultation.**—The town of Quimper in France celebrated recently the hundredth anniversary of the publication of Laennec's first work on auscultation, the "Traité de l'auscultation médiate," by placing a wreath of palms at the foot of his statue in the public square and commemorative tablets on the house where he was born and on his tomb.

**Guide to Medical Paris.**—The Paris Medical Faculty has recently published a practical guide to medical Paris and especially to its own courses, clinics and laboratories. The *Presses Médicales* is giving away copies of this pamphlet to its subscribers on demand. It is requested that those wishing copies address *Presses Médicales*, 120 boulevard Saint-Germain, Paris. Enclose 5 cents for postage.

**Memorial to Pontoppidan.**—A memorial tablet and bust in bas relief was recently unveiled at Copenhagen at the Kommunehospital in honor of Prof. Knud Pontoppidan, whose work as a teacher, clinician and hospital administrator was

extolled. He occupied the chair of forensic medicine at the University of Copenhagen for many years, and published numerous works on nervous and mental disease and treatment. He died in 1916.

**Deaths in the Profession Abroad.**—Dr. C. E. Socin, professor of pathologic anatomy since 1917 and director of the pathologic institute of the University of Lausanne, Switzerland, died from perforation of the stomach while on a mountain climbing trip, aged 32.—Dr. J. Pfister of Lucerne, Switzerland, a well known ophthalmologist, research worker and writer on his specialty and on general subjects, aged 61.—Dr. F. Fulci of the medical faculty of the University of Catania.

**Foundation of Italian Archives of Biologic Sciences.**—The *Riforma Medica* announces that a new medical review is soon to appear, to be entitled the *Archivio di Scienze Biologiche*. Prof. F. Bottazzi of Naples is to be the editor-in-chief, assisted by ten Italian professors, including Albertoni, Galeotti, Herlitzka and Sabbatani. The *Archivio* is to be published as material accumulates, in numbers of 100 or 150 pages, and will embrace in its scope animal and plant physiology, physiologic chemistry, physical chemistry applied to biology, and experimental pharmacology and pathology.

**International Conference of Neurologists.**—The Société de Neurologie de Paris has recently decided to inaugurate an international exchange of views on neurologic questions by inviting neurologists and psychiatrists from other countries to attend a special meeting to be held annually at Paris in July. It is planned to have two days of work with two sessions each day, and some one subject is to be appointed for discussion. The first meeting it is announced will be organized in July, 1921, and the subject appointed for discussion at that time is the clinical forms and the treatment of syphilis of the nervous system. Prof. J. A. Sicard has been appointed to open the discussion.

#### LATIN AMERICA

**Sanitary Funds in Chile.**—The congress of Chile has voted an appropriation of 300,000 pesos which the president can use to eradicate infectious diseases in any part of the country.

**Railroad Sanitation in Brazil.**—There has been established in Brazil a railroad sanitation service charged with caring for all matters connected with the health and welfare of railway employees. This service will include medical and surgical treatment of the employees, and preventive measures against the diseases that prevail in the zones crossed by the railroad.

**Railroad Sanitation in Chile.**—There has been established a railroad hospital at Santiago de Chile, which will be utilized to treat the victims of railroad accidents and also railroad employees taken sick while on duty.—There has also been established a sanitary service for railroads in the form of hospital cars for the transportation of sick people.

**Banquet Tendered Austregesilo.**—The *Brazil Medico* reproduces the addresses at the banquet recently tendered to Prof. Antonio Austregesilo at the Derby Club, Rio de Janeiro, by his friends and pupils. He has long been the incumbent of the chair of nervous diseases at the University of Rio, and is a director of the *Archivos Brasileiros de Medicina* and of the *Archivos de Neurologia*.

**Malaria in Cuba.**—In connection with the annual recurrence of malaria in the provinces of Camaguey and Oriente, Cuba, Dr. Juan Guiteras, the director of sanitation, has emphasized the need of additional funds in order to carry out antimalarial measures during the next winter and spring, as the appropriations previously available for this purpose have been exhausted. This year there were more cases of the disease, this being attributed to the immigrants from Jamaica who spread the disease in Cuba.

**Typhoid Fever in Lima, Peru.**—Dr. M. Pagador B. has just published some notes on the prevalence of typhoid fever in Lima. His study shows that the disease is most prevalent during the first four months of the year, and that the majority of cases, contrary to the experience elsewhere, occur between the ages of 1 to 5 years. The mortality showed an increase until the year 1901 when it began to show a slight decrease until this year, when it has again shown an alarming increase. The native Indians show the highest mortality rate, next in order the half breeds, and then the whites. The colored people seem to possess a relative immunity, but the yellow race shows a high mortality rate which has increased especially during the last few years.

## Government Services

### Personnel of the Medical Corps of the Army

For the week ending October 10 there were in the Medical Corps 4,428 officers, a decrease from the previous week of 409. The Medical Reserve Corps listed 3,589 officers. Since the beginning of the war there have been discharged 29,219 officers.

### General Ireland Discusses Army Reorganization

At a meeting of the House military committee, October 3, Surgeon-General M. W. Ireland explained his objections to the pending bill for Army reorganization. According to the Army and Navy Register, General Ireland said in regard to the general staff:

#### THE GENERAL STAFF

"Under the Overman act the general staff has departed from supervising and coordinating the different branches of the Army, and has become an administrative bureau to a considerable extent. The administration of the medical department has suffered very seriously on this account, particularly in the handling of supplies, finances and of its personnel.

"Under the present organization of the purchase, storage and traffic, all of our splendid organization has been destroyed and an organization substituted which is not built upon sound principles, is most difficult to operate, is dreadfully expensive in overhead personnel and is thoroughly inefficient. The interference with the medical department supply system began about March, 1918, and the records are filled with instances of delays caused by the interbureau procurement system. Striking instances can be given:

#### PURCHASE OF MEDICAL SUPPLIES

"1. Gauze is one of the articles most frequently used by the surgeon in his operations. In fact, surgical processes cannot be carried on without an ample supply of sterilized gauze. Under the interference of the interbureau procurement system an attempt was made to substitute for the gauze we required a type of gauze wholly unfitted for surgical use.

"2. Before the interbureau procurement system was started my office had made arrangements to purchase from a reliable firm 20,000,000 meters of gauze at 65 cents a pound. When this came to the attention of the new system, the procurement of this material was taken over by it. At once the price went up to 95 cents a pound, and the purchase was eventually made at approximately 75 cents a pound, plus any increase in operating expense—a loss to the government, due to this interference, of \$200,000.

"3. One of the crying needs in France was convalescent suits for patients in hospitals. Request for these suits was made from France in December, 1917. The Council of National Defense attempted to secure the material for these suits, but failed. Requisition for them (about 400,000 suits) was placed with the quartermaster department, under the interbureau procurement system, about May, 1918. Not a single suit was delivered before the armistice was signed.

"Let it be distinctly understood that the purchase, storage and traffic division did not take over the supplies of the medical department entirely until Nov. 15, 1918, several days after the fighting had ceased. In other words, the admirable record for furnishing the troops at home and abroad with medical supplies was due entirely to the supply system built up by the medical department at the beginning of the war. Since Nov. 15, 1918, the history of the handling of medical supplies has been a continuous one of failure and inefficiency. We have on file records of dozens of instances where great delay in filling requisitions has hampered the administration of our hospitals where the overseas sick have been treated. One of the glaring instances which came to the attention of the medical department within the last week was the failure to fill a requisition from General Hospital No. 21, Denver, dated July 1, for urgently needed mess equipment until September 27."

#### MEDICAL PERSONNEL INTERFERENCE

General Ireland further said:

"In the handling of personnel the medical department has suffered a great deal from the organization of the personnel division of the general staff. The assignment of the personnel of the medical department is one of the very important duties in the Surgeon-General's Office. In the medical department this can only be done by a medical officer. Yet the personnel branch of the general staff has taken upon itself to interfere with our work in many ways. On Aug.

14, 1918, a memorandum was issued at the direction of the general staff stopping all appointments of officers from civil life. This memorandum was issued without consulting the Surgeon-General's Office, and did not take into consideration the fact that the medical department obtained practically all of its officers from civil life, and not through training camps. Of course, this memorandum had to be modified for certain staff corps. Later regulations were issued, without consultation with the Surgeon-General, that all applications placed in Class 1 by the local draft board would be inducted into the service as enlisted men before being commissioned. The absurdity of such regulations was apparent to any one familiar with the problems of the medical department and the sources from which medical officers were obtained.

"When the order stopping all appointments was first issued it was published in the public press and caused a tremendous amount of uncertainty in the minds of medical men who had applied for service with the medical department. It gave an idea that a sufficient number of medical officers had been obtained to meet the expected needs. Medical men thereupon gave up the idea of entering the Army and resumed their civilian activities. It took a long time to explain to the medical profession of the country that the medical department needs were unsatisfied. These obstructions to the process of obtaining medical officers came at a time when the medical department was exerting all its energy to secure enough medical officers to meet the demands of the Army, and simply added another burden for the department to carry when the office was already strained to its utmost to accomplish the work in hand.

"In October, 1918, the personnel division of the general staff issued an order assuming entire responsibility for the appointment of officers for all branches of the military service. By these regulations all personal touch between the department requiring the applicant's services and the applicant himself was removed. Thereafter staff corps were to obtain their officers by requisition on the general staff, in the same manner as soap or harness oil is obtained from a depot.

#### DISCHARGE OF OFFICERS

"Upon the signing of the armistice orders governing the discharge of officers were issued, without consultation with the Surgeon-General's Office, and without any apparent comprehension or consideration of the problem confronting the medical department. Department and camp commanders were authorized to discharge officers, including medical officers. At this time practically all the sick and wounded resulting from active operations of the American Army overseas were still in France, and the medical department was confronted with the necessity of opening additional general hospitals in this country in anticipation of the return of these sick and wounded to the United States. The only source of supply of medical officers to run these hospitals was the officers and enlisted men of the medical department at camps in the United States rendered surplus by the signing of the armistice. This source of supply was jeopardized immediately by the issue of Circular 75. The Surgeon-General asked to have this order modified, so far as it related to medical officers, but this was refused by the general staff. The situation, however, was eased a good deal by the publication of a circular on December 7. But in spite of the fact that the general staff stated that 'the needs of the medical department, both past and future, are appreciated,' on March 24 a circular telegram was sent to all department and camp commanders directing them to make changes in assignment of officers without reference to higher authority, and stating that any Class 1 or 2 officers who could be spared may be discharged without securing the approval of chiefs of staff corps; and added that no officer in Class 1 or 2 would be thereafter available for reassignment when surplus. It took the medical department several days to obtain a modification of these instructions, and, in the mean time, a number of valuable officers of the medical department who were needed for the proper care of the sick and wounded were discharged without reference to the Surgeon-General.

"In the demobilization of medical officers the general staff has insisted that all medical officers for discharge shall be reported to Room 330, War Department, instead of the Surgeon-General. As these reports all had to come to the Surgeon-General for his recommendation, the resulting delay has cost the government thousands upon thousands of dollars, without any benefit to the service. The reading of the circular 'Operations and Plans of Personnel Branch, Operation Division, General Staff,' published over the signa-

ture of the chief of the personnel division, shows how extensively the general staff proposes to go into the actual control of the personnel of the different staff corps and departments, altogether outside of the recognized duties of the general staff to supervise and coordinate the different activities of the Army."

#### LACK OF REPRESENTATION ON STAFF

Questions were asked by Mr. Sanford as to the representation of the medical department on the general staff. While officers had been detailed to the staff it was not fair, remarked General Ireland, to assume that his department was actually "represented." A month ago Colonel Miller was assigned to duty with the general staff, and, on reporting there, was instructed to return to the Surgeon-General's Office, and was informed that he would be called upon whenever it was necessary to use his services. The result was that he had performed no duty with the general staff and was performing no duty in the Surgeon-General's Office.

General Ireland called attention to the effect of the bill on the admission of officers to the corps; it evidently repealed existing law that had been in satisfactory operation since 1834, and which had been a protection against favoritism. General Ireland was also desirous that the bill provide for medical corps personnel on a percentage basis, instead of by numerical strength. As to this and other defects in the bill, Mr. McKenzie took occasion to remark that "there was no danger of the pending bill being reported out of committee, and the Surgeon-General could be assured that Congress would take care of the medical department." It was also pointed out to the committee that the bill repealed the present excellent promotion system pertaining to the medical department. General Ireland being "strongly opposed to any process of selection." The method of elimination in his corps was eminently satisfactory, and it was essential to retain it. He was even in favor of extending this to grades senior to those now affected. General Ireland recommended that the period of service as first lieutenant be reduced from five to three years. This would make the service more acceptable to candidates, which it was now exceedingly difficult to obtain.

As for the reservists who had served in the war and who desired to enter the regular corps, General Ireland suggested that it be arranged so that they would receive credit for the service, as it was during the war, when first lieutenants were promoted after one year's service. This, under existing circumstances, would practically place these emergency officers in the grade of major. He would not increase in these cases the age limit of 40 years, but he would waive the minimum age limit of 32 years now applying to other candidates. Mr. Sanford referred to the American medical reservists who had served with the British forces, and who had not been promoted, giving the instance of a friend who had been through the worst of the battles in France, many times under fire, and, at the end of the war, was demobilized as a first lieutenant. This was on account of an order that prohibited the promotion of these officers, and, understanding that the chief of staff issued this order, Mr. Sanford did not hesitate to say that it was "the most cruel and stupid order he had ever heard of." General Ireland agreed as to the injustice with which these officers had been treated.

#### ELIMINATION AND PROMOTION

General Ireland suggested that the present law be changed so that it would be possible to get rid of an officer who was disabled through his own misconduct without being obliged to wait a year for his reexamination, as in the case of other officers disqualified by service. These officers, he said, should be separated from the service without any such delay. This could be accomplished by leaving the question of whether an officer should be retired or wholly retired to the discretion of the President. General Ireland also opposed the provision in the bill for second lieutenants in the dental corps. It was hardly to be expected that qualified dentists would be attracted to the service by this "handicap." He suggested the abolition of the grade of second lieutenant in the veterinary corps for the same reason.

Mr. McKenzie endeavored to obtain from General Ireland some general views on the merits of the pending bill, but that officer considered it was more of his affair to go fully into a discussion of the measure, preferring to confine himself to a presentation of the needs of the medical department. He felt, however, that there was little required in the way of amendment of the national defense act to meet the situation adequately. This would, for example, provide a "surgeon general" as the head of the medical department, instead of a "major general" at the head of the medical

corps only, as is provided in the War Department bill. General Ireland spoke earnestly of the difficulty in obtaining medical officers and of the desire of officers to resign. He also reminded the committee that if universal training were adopted it would be necessary to have fully a thousand doctors at the camps, for it must be remembered that the boys would be afflicted with the diseases of childhood, and there must be every action taken against sickness. He felt that for this purpose the members of the profession in civil life would offer their services as they had done so generously during the war without resort to conscription.

**MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY**

- CALIFORNIA**  
Las Angeles—Savrien, A. E.
- INDIANA**  
Pendleton—Smith, C. E.
- IOHA**  
Indianol—Davis, J. G.
- LOUISIANA**  
New Orleans Sims, H. V.
- MICHIGAN**  
Houghton—La Bine, A. C.
- MASSACHUSETTS**  
Boston—White, A. J.  
New Bedford—Atchison, C. M.
- MISSOURI**  
St. Louis—Luten, D.
- NEW YORK**  
Staten Island—Clark, F. C.
- PENNSYLVANIA**  
Philadelphia—Miller, H. C.  
Tohadi, J. H.

**HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY**

NOTE—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel:

- ALABAMA**  
Albertville—Dowdy, I. L. (L.)  
Birmingham—Rudolph, C. M. (C.)  
Blountsville—Finley, F. G. (L.)  
Hurtsboro—Hendrick, F. G. (L.)  
Tuscaloosa—Grove, L. W. (M.)  
Union Springs—Bowman, J. L. (L.)
- ARIZONA**  
Phoenix—Malone, F. F. (L.)  
Yuma—Ketcherside, H. D. (C.)
- ARKANSAS**  
Arkansas City—Day, E. F. (C.)  
Driggs—Landrum, F. W. (L.)  
Hot Springs—Strachan, H. M. (L.)  
Little Rock—Mohley, H. E. (L.)  
Rannels, S. C. (M.)  
Marshall—Bulter, I. S. (L.)  
Widener—Derrin, E. (L.)
- CALIFORNIA**  
Ceres—Cartwright, S. W. (C.)  
Coronado—Smart, (L. C.)  
Dorris—Vikinson, A. A. (C.)  
Glendale—Tee, A. W. (C.)  
Hercules—McManis, F. P. (L.)  
Lemon Cove—Fraser, M. W. (C.)  
Long Beach—Doddsworth, R. M. (M.)  
Los Angeles—Adams, C. B. (C.)  
Gough, A. S. (L.)  
Schnecker, T. S. (L.)  
Pasadena—Connor, E. M. (L.)  
Sacramento—Turner, E. M. (L.)  
San Diego—Perry, J. F. (M.)  
Smith, F. (M.)  
San Francisco—Abraham, H. (M.)  
Addis, T. G. (L.)  
Casey, T. J. (L.)  
Chico, A. C. (L.)  
Colton, C. F. (L.)  
Tillman, T. E. (C.)  
San Luis—Barry, G. L. (L.)  
Petersen, F. H. (L. C.)  
San Luis Obispo—Cox, R. M. (L.)  
Santa Barbara—Morris, C. I. (C.)  
San Ysidro—Brown, B. H. (C.)  
Starkville—McNeil, W. T. (L.)
- COLORADO**  
Boilder—Dodge, H. C. (L. C.)  
Garden Springs—Palmer, B. A. (M.)  
Del Norte—Meier, H. C. (C.)  
Denver—Herrin, J. C. (C.)  
Mead, W. A. (L.)  
Hoehle—Lewis, W. H. (L.)  
Segundo—Adams, O. F. (C.)  
Windsor—Wallace, J. F. (C.)
- CONNECTICUT**  
Bridgeport—Roberts, D. J. (M.)  
Greenwich—Bergin, T. J. (C.)
- CONNECTICUT**  
Hartford—Bunce, P. D. (C.)  
Daly, W. P. (C.)  
Tyler, H. A. (C.)  
Waterman, P. (Col.)  
Meriden—Schizien, P. W. (L.)  
New Haven—Bacon, L. W. (M.)  
Murphy, J. A. (L. C.)  
Sheehan, W. L. (C.)  
Torrington—Oelschlegel, H. C.  
Waterbury—Webber, E. R. (C.)
- DELAWARE**  
Wilmington—McEntee, B. J. (C.)
- DISTRICT OF COLUMBIA**  
Washington—Anderson, C. I. G. (L. C.)  
Chapman, R. M. (M.)  
Davis, R. H. (L.)  
Green, E. S. (L.)  
Karpelus, S. R. (C.)  
Kerby, J. P. (C.)  
Reith, C. E. (M.)  
Wilson, P. (M.)
- FLORIDA**  
Clearwater—Dickerson, L. B. (L.)  
Fort Ogden—Martin, I. E. (L.)  
Live Oak—Whitfield, J. M. (C.)  
Panama City—Whitfield, J. M. (C.)  
Passaigille—Gautier, C. V. (C.)  
Sanford—Neal, T. A. (C.)  
Sorrento—Cinard, S. E. (C.)  
Tampa—Cameron, F. A. (M.)
- GEORGIA**  
Alto—McClure, R. E. (C.)  
Ashburn—Turner, W. J. (C.)  
Atlanta—Davison, T. C. (M.)  
Denton, J. F. (M.)  
Jackson, W. A. (M.)  
McRae, F. W., Jr. (M.)  
Quillen, A. F. (C.)  
Towhee, C. B. (L.)  
Augusta—Traylor, G. A. (L. C.)  
Broxton—Findley, C. W. (L.)  
Brunswick—Wilson, T. B. (L.)  
Cochran—Williams, W. C., Jr. (L.)  
Cornelia—Garrison, D. H. (L.)  
East Lake—Jackson, W. A. (M.)  
Lavonia—Carruth, A. W. (C.)  
Macon—Johnson, G. L. (C.)  
Powelton—Hendron, O. E. (C.)  
Zebulon—Sullivan, C. H. (L.)
- IDAHO**  
Bruneau—Barlett, J. C. (M.)  
Malad City—Brothers, W. W. (C.)  
Nounan—Lindsay, W. L. (L.)  
Pocatello—Young, J. R. (L.)  
Spirit Lake—Friedle, E. S. (L.)  
St. Maries—Kenechaw, R. S. (M.)
- ILLINOIS**  
Alton—Hayes, L. H. (L.)  
Cinadwick—Balkus, A. A. (L.)  
Charleston—Calkins, W. C. (C.)  
Chicago—Calkins, W. C. (C.)  
Henderson, J. E. (C.)  
Chicago—Albrecht, C. A. (C.)  
Asher, H. C. (C.)  
Barnett, E. J. (L.)  
Brand, G. D. (L.)  
Brucker, E. A. (C.)  
Buchbinder, J. R. (L.)  
Burke, A. W. (C.)  
Butler, W. J. (L.)  
Carpenter, R. W. (C.)  
Chesrow, E. J. (L.)  
Chiason, J. P. (L.)  
Corper, H. J. (M.)  
Davis, G. G. (L. C.)  
Degan, J. T. (C.)  
Del Beccaro, E. V. (C.)  
Elliott, W. T. (L.)  
Emons, H. C. (L.)  
Ferguson, R. R. (M.)  
Fowler, E. B. (C.)  
Griffin, P. J. (C.)  
Gundersen, W. O. (L.)  
Hansen, T. L. (L.)  
Hogan, L. G. (L.)  
Jamieson, R. R. (L.)  
Janssen, V. (L. C.)  
Kirkpatrick, R. R. (C.)  
Lampe, H. G. (C.)  
Marrini, W. C. (C.)  
McDermott, J. J. (L.)  
Mecham, W. C. (M.)  
Monaco, D. F. (L.)  
Montgomery, A. H. (M.)  
Morrow, N. C. (C.)  
Morton, E. G. (M.)  
Nortell, J. L. (C.)  
O'Connor, A. L. (L.)  
Ogden, C. H. (M.)  
Ostroskey, G. L. (L.)  
Petersen, R. W. (C.)  
Pickett, W. J. (C.)  
Rodaway, R. T. (C.)  
Rosenthal, M. (L.)  
Ruyavitz, J. L. (M.)  
Sachtelven, W. L. (L.)  
Schwartz, F. F. (C.)  
Stein, S. (L.)  
Troy, E. E. (C.)  
Wagner, G. W. (C.)  
Weigen, A. J. (L.)  
Wiencke, C. H. (L.)  
Wilson, J. W. (L.)  
Winhold, W. P. (C.)  
Wyckoff, H. J. (C.)  
Clinton—May, E. R. (C.)  
Danville—Hale, M. L. (C.)  
Deerfield—G. (C.)  
Deerfield—Davis, C. J. (C.)  
Edwardsville—Wharff, H. E. (C.)  
Elgin—Flint, C. W. (L.)  
Knight, H. T. (C.)  
Evans—Horan, P. P. (C.)  
McClure, W. B. (L.)  
Forrest—Duckett, W. F. (C.)  
Glencoe—Patton, F. P. (M.)  
Herrin—Murray, F. C. (M.)  
Highland Park—O'Neil, J. P. (L.)  
Ullman, H. J. (M.)  
Hillsboro—Lindluer, A. W. (C.)  
Honeoye—Wharton, J. F. (C.)  
Joliet—Gurezyk, H. H. (L.)  
Kaneville—Chridge, R. A. (L.)  
Moline—Arp, A. H. (C.)  
Sargent, E. (C.)  
Morton—Goody, H. M. (L.)  
Murphysboro—Ellis, E. K. (C.)  
Oak Forrest—Turner, J. W. (M.)  
Palatine—Ernst, H. C. W. (L.)  
Poria—Nyström, E. F. (L.)  
Plain—Lerd, A. E. (M.)  
Princeton—Flint, O. J. (L.)  
Quincy—Mercer, R. M. (L.)  
Robinson—Lowe, A. L. (M.)  
Rockford—Rogers, H. R. (L.)  
Rock Island—Miller, R. B. (C.)  
Shannon—Sandrock, G. P. (L.)  
South Wilmington—Levin, E. L.)  
Springfield—Stalder, G. W. (L.)  
Stuart, C. B. (C.)  
Sterling—Brodrick, F. W. (L. C.)  
Waukegan—Barker, F. M. (L. C.)  
West Salem—Fitzke, H. C. (L.)  
Wharton—Welden, E. A. (L.)  
Wilmette—McC, L. E. (C.)  
Winfield—Anderson, J. L. (L.)
- INDIANA**  
Brazil—Dilley, F. C. (C.)  
Clinton—Evans, R. C. (L.)  
Corydon—Sonnie, I. H. (L.)  
Delphi—Clauer, A. C. (L.)  
Fort Wayne—Threlk, J. W. (L.)  
Harmony—Palm, W. C. (L.)  
Indianapolis—Campbell, C. C. (M.)  
Cook, C. J. (C.)
- INDIANAPOLIS**—Day, J. T. (C.)  
Maxwell, L. H. (C.)  
Teters, M. (C.)  
La Fontaine—Wallace, R. L. (M.)  
Lynnville—Rullman, B. L. (C.)  
Muncie—Burch, F. L. (C.)  
Robinson, M. (C.)  
South Bend—Hosbary, C. S. (C.)  
Veederburg—Smal, G. W. (L.)  
Warren—Smith, L. W. (L.)  
Wyatt—Kuhli, L. A. (C.)
- IOIA**  
Belle Plaine—Snitky, C. J. (M.)  
Charter Oak—Huber, S. A. (C.)  
Corydon—Sollenbarger, G. H. (C.)  
Tresco—Daly, S. A. (C.)  
Cylinder—Woodbridge, J. W. (M.)  
Davenport—Blything, J. D. (L.)  
Braunlich, G. (L.)  
Des Moines—Lynn, E. V. (L.)  
Dubuque—A. P. (C.)  
Dubuque—Gratiot, H. B. (C.)  
Hampton—Johnston, H. H. (L.)  
Iowa City—Diven, W. L. (L.)  
Love, F. A. (C.)  
Leon—Mitchell, C. H. (C.)  
Logan—Hansen, H. L. (C.)  
Maquoket—Bowman, S. H. (L.)  
New Providence—Elliott, G. S. (L.)  
New Sharon—Hartwell, S. W. (C.)  
Perry—Wilkinson, H. B. (C.)  
Pocahontas—Parker, G. C. (C.)  
Silvey—Nelson, A. E. (C.)  
Sioux City—Park, E. R. (C.)  
Roost, F. H. (L. C.)  
Walcott—McIntyre, J. A. (C.)  
Webster City—Galloway, M. B. (C.)
- KANSAS**  
Arma—Orr, W. E. (C.)  
Radda, E. D. (C.)  
Centralia—Rouse, J. G. (C.)  
Dodge City—Melencamp, N. E. (C.)  
Englewood—Pierce, L. J. (L.)  
Hutchinson—Seehorn, N. A. (M.)  
Kansas City—Hombach, F. J. (L.)  
Leavenworth—Taylor, F. B. (C.)  
McLouth—Schnaeffer, F. (M.)  
Ottawa—Eye, B. F. (L.)  
Shawnee—Thurston, G. W. (L.)  
Stafford—Webb, J. A. H. (M.)  
Sturgeon—Truheart, M. (C.)  
Topeka—Allen, C. C. (C.)  
Greider, W. H. (L.)  
Hammel, S. A. (L.)  
Wamego—Finney, G. A. (L.)  
Wellington—Cobean, H. L. (C.)  
Van Deventer, R. W. (L.)  
Wichita—Agnew, W. (L.)  
Hussey, E. E. (L.)
- KENTUCKY**  
Covington—Nestley, E. J. (L.)  
Cox's Creek—Overall, J. B. (L.)  
Glasgow—Wells, G. M. (L.)  
Graham—Harrison, J. H. (C.)  
Grants Lick—Hodge, O. P. (C.)  
Hodgenville—Solomon, A. L. (C.)  
Hopkinsville—Moore, T. D. (L.)  
Hutchinson—Wilmott, A. C. (M.)  
Irvington—Morehead, L. B. (M.)  
Kirkvton—Peters, T. A. (L.)  
La Grange—Goldsbrough, R. M. (C.)  
Louisville—Bussey, F. H. (L.)  
Dorsev, T. W. (L.)  
Knoxville—W. (L.)  
Wilfong, C. T. (L.)  
Mill Springs—Parrino, O. H. P. (C.)  
Turners Station—Hartman, J. C. (L.)
- LOUISIANA**  
Baton Rouge—Whitaker, E. V. (C.)  
Longville—Miller, E. L. (L.)  
Monroe—Cole, H. C. (L. C.)  
New Orleans—Ferran J. B. (L.)  
Jones, H. B. (M.)  
Jones, W. O. (C.)  
Stell, J. S. (L.)  
Shreveport—Dickson, G. B. (C.)  
Munday, C. P. (C.)
- MAINE**  
Augusta—Poutin, J. E. (L.)  
Bangor—Adams, L. C. (C.)  
Garliner—Libby, A. B. (C.)  
Lawrence Falls—Hayden, L. B. (C.)  
National Soldiers Home—Williams, D. L. (C.)  
Portland—Webber, M. A. (C.)  
Sanford—Weutworth, D. W. (C.)

MARYLAND

Baltimore—Brush, N. H. (C.)  
Crook—C. S. (L.)  
Dodge, B. H. (D.)  
Eidson, J. P. (C.)  
Gross, H. (M.)  
Hayward, E. H. (C.)  
King, J. T. Jr. (L.)  
Lezin, M. B. (C.)  
Linbuehm, G. M. (L. C.)  
Roberts, F. E. (C.)  
Smith, B. D. (C.)  
Wester, A. G. (L.)  
Berlin—Tyndall, I. C. (C.)  
Chevy Chase—Conrad, T. K. (C.)  
Denton—Fisher, P. R. (M.)  
Hagerstown—Smith, J. W. H., Jr. (M.)

MASSACHUSETTS

Arlington—Pratt, E. (C.)  
Boston—Gaines, G. J. R. (M.)  
Fellows, A. W. (L.)  
Grabfield, G. P. (C.)  
Leland, H. L. (L.)  
Lucas, J. D. (L.)  
Lurie, M. H. (L.)  
MacLeod, H. F. (C.)  
MacPherson, D. J. (C.)  
Shaw, J. H. (L.)  
Southern, R. F. (M.)  
Cambridge—Simonds, F. A. (C.)  
Tomb, E. H. (L.)  
Wilmington, P. (M.)  
Dedham—Worthington, A. M. (C.)  
Fall River—Hadfield, J. P. (C.)  
Hathorne—Chronquist, A. P. (M.)  
Holyoke—Clarke, P. H. (L.)  
Hudson—Tierney, T. F. (C.)  
Lanesboro—Barnes, L. D. (C.)  
Lowell—Chagnon, T. D. (L.)  
Lynn—Kane, W. Y. (L.)  
Lyons—W. F. (C.)  
Mitchell, F. W. A. (L.)  
Scholey, W. S. (C.)  
Barnard—Persons, C. C. (L.)  
Melrose—Sims, F. R. (C.)  
Methuen—Atkinson, F. C. (L.)  
Norris, R. C. (C.)  
New Bedford—McCormick, W. A. (C.)  
Monierie, W. A. (L.)  
Newton—Viets, H. R. (L.)  
Palmer—Ashmore, B. L. (L.)  
Somerville—Cunha, M. F. (L.)  
Willsie—A. (L.)  
Sharry, C. F. (L.)  
Springfield—Graso, A. (L.)  
Westboro—Gould, J. A. (C.)  
Whitman—Spedding, M. H. (L.)  
Worcester—Folan, F. L. (L.)  
Lurie, I. (C.)

MICHIGAN

Ann Arbor—Malejan, H. H. M. (L. C.)  
Battle Creek—Gallagher, R. V. (C.)  
Bay—Pearl, G. W. (C.)  
Cassopolis—Dunning, F. C. (C.)  
Coldwater—Griffith, W. A. (C.)  
Detroit—Carstens, H. R. (L. C.)  
Carter, J. M. (C.)  
Christensen, C. A. (C.)  
Crane, L. T. (L.)  
Gehrke, A. E. (L.)  
Host, I. N. (C.)  
Lyster, E. W. (L.)  
McClure, W. R. (C.)  
Smith, T. H. (C.)  
Storey, C. L. (C.)  
Yellou, J. (L.)  
Dollar Bay—Pearce, J. A. R. (C.)  
Goodrich—Burt, F. J. (L.)  
Grand Ledge—Fillinger, W. B. (C.)  
Grand Rapids—Foshee, J. C. (C.)  
Gwinn—Eisele, D. C. (L.)  
Howard City—Miller, N. W. (C.)  
Kalamazoo—Leland, R. G. (M.)  
Lak (Olesee)—Morse, F. L. (C.)  
Lansing—Kane, T. M. (L.)  
Shaw, M. (C.)  
Mount Clemens—Nortin, W. H. (M.)  
Rapid River—Conover, J. L. (C.)  
Rogers City—Arsoot, W. W. (M.)  
Saginaw—Richter, E. P. W. (M.)

MINNESOTA

Alexan—Irja—Keene, L. M. (L.)  
Aurora—McGuire, C. J. (L.)  
Anoka—Nelson, E. (L.)  
Clear Lake—Tyrk, H. B. (L.)  
Elbow Lake—Haugen, A. T. (L.)  
Fairmont—Spencer, G. W. (C.)  
Hastings—Wall, R. H. (M.)  
Hibbing—Lee, T. A., Jr. (L.)  
Jankato—Lloyd, H. J. (C.)

Minneapolis—Clark, G. M. (C.)  
Dodge, R. E. (C.)  
Josewich, A. (C.)  
Wolfgram, P. H. (L.)  
New Ulm—Seifert, O. J. (M.)  
Oslo—Amundson, A. E. (C.)  
Owatonna—Grazette, R. M. (C.)  
Robechar—Evans, R. T. (C.)  
Hundling, H. W. (C.)  
O'Hearn, J. P. (C.)  
St. Paul—Delphi, K. D. (L.)  
Klein, H. N. (L.)  
McCarthy, G. E. (L.)  
Meyerding, E. A. (M.)  
Michael, J. A. (C.)  
McMalley, W. P. (C.)  
Schoch, R. B. (C.)  
Welsh, M. C. (C.)  
Tracy—Workman, W. G. (M.)

MISSISSIPPI

Columbus—Richards, W. E. (M.)  
Grenada—Browne, P. Z. (C.)  
Lumbert—Forman, D. (C.)  
Toumon—R. C. (L.)  
Webb—Harris, W. R. (C.)

MISSOURI

Amoret—Corn, J. A. (C.)  
Ashland—Sugger, C. C. (C.)  
Berger—Wagner, W. H. (L.)  
Wattenberg, J. E. (C.)  
Doniphan—Proctor, C. A. (C.)  
Fayette—Smith, M. N. (C.)  
Hannibal—Keeble, C. D. (L.)  
Hillsboro—Elders, G. W. (L.)  
Hoykins—Maxwell, H. S. (C.)  
Independence—Braun, H. E. (L.)  
Kansas City—Annadown, P. V. (C.)  
Bellevue, G. E. (C.)  
Capell, C. S. (C.)  
Denne, C. (M.)  
Earnings, C. F. (M.)  
Francisco, C. B. (L. C.)  
Lilly, T. E. (L.)  
Lusk, H. H. (C.)  
Nutz, J. F. (C.)  
Ousley, J. W. (C.)  
Small, W. L. (M.)  
Smith, G. W. (L.)  
Woolley, P. V. (M.)  
Louistana—Lewellen, C. P. (C.)  
Marshall—Scratchfield, G. E. (M.)  
Marston—McRaven, C. (C.)  
Moberly—Madrox, J. L. (L.)  
Olesea—Hayden, P. B. (L.)  
Perryville—Vessells, F. M. (M.)  
Ravanna—Loutzenhiser, J. L. (L.)  
Springfield—Stone, M. C. (M.)  
St. Joseph—Buteler, G. M. (L.)  
St. Louis—Bock, L. H. (C.)  
Bunch, J. R. (C.)  
Byrne, R. (M.)  
Campbell, G. S. (L.)  
Chattle, W. M. (M.)  
Davis, W. D. (C.)  
Gallagher, E. E. (C.)  
Gibbs, F. (C.)  
Graham, E. A. (M.)  
Hobson, A. D. (C.)  
Kleinschmidt, C. C. (L.)  
Luton, L. S. (C.)  
MacDonald, J. W. (C.)  
Meyer, C. B. (L.)  
Muench, L. O. (C.)  
Peden, J. C. (L.)  
Scott, E. F. (M.)  
Shumaker, C. H. (L.)  
Wobus, R. E. (C.)  
Zeinert, G. B. (L.)  
Sullivan—Schmidt, O. N. (C.)  
Vandalia—Bland, W. W. (C.)  
Waverly—Johnson, E. L. (L.)

MONTANA

Glendive—Hathaway, R. E. (M.)  
Great Falls—Patterson, A. B. (C.)  
Livingston—Johnson, C. A. (L.)  
Roundup—Alexander, J. N. (M.)  
Warm Springs—Carther, R. H. (C.)

NEBRASKA

Arlington—Hawes, G. F. (C.)  
Crete—Steykal, F. J. (L.)  
David City—Palmer, C. F. (C.)  
Fairfield—Hertz, G. H. (M.)  
Farnam—Reeves, A. E. (C.)  
Hartington—Thies, E. M. (L.)  
Holdrege—Whitehead, E. I. (C.)  
Ingleside—Pitcock, H. J. (C.)  
Plymouth—Richter, F. E. (M.)  
Kearney—Hibberd, D. L. (C.)  
Lincoln—Rider, E. E. (C.)  
Rowe, E. W. (C.)  
Springfield—Gardner, G. W. (C.)  
Murray—Gilmore, G. H. (C.)  
Omaha—Davis, J. C., Jr. (C.)  
Lanpher, V. A. (C.)

Omaha—Person, R. C. (C.)  
Hunt, C. J. (L.)  
Osmond—Whitehead, E. H. (M.)  
Pierce—Dinsmore, W. S. (L.)  
Table Rock—Harman, L. D. (C.)

NEW HAMPSHIRE

East Jaffrey—Hatch, L. B. (L.)  
Franklin—Smith, W. E. (L.)  
Leconia—Brown, L. R. (L.)  
Manchester—Perkins, F. H. (L. C.)

NEW JERSEY

Allendale—Kodman, R. W. (M.)  
Benton—Summers, W. J. (C.)  
Camden—Phillips, T. W. (L.)  
Cedar Grove—Englander, C. (L.)  
Elizabeth—Shangle, M. A. (L.)  
Greystone—Srygley, E. F. (L.)  
Hoboken—Rea, J. G. (L. C.)  
Jersey City—Macdonald, J. J. (C.)  
Milford, N. J. (C.)  
Newark—Blumberg, L. S. (L.)  
Jedel, M. (C.)  
Streeb, N. E. (C.)  
Orange—Harvey, T. W., Jr. (C.)  
Plainfield—Crawell, F. W. (M.)  
Tritsworth, S. R. (C.)  
Ramsey—Gillett, H. E. (C.)  
Summit—Reiter, W. A. (L.)  
Union Hill—Curtis, G. P. (L.)  
Woodstown—Thomas, C. W. (C.)

NEW MEXICO

Albuquerque—Kaufmann, H. B. (M.)  
Denning—Smith, L. V. (C.)

NEW YORK

Albany—Allen, W. D. (M.)  
Douglas, M. (M.)  
Keens, W. G. (C.)  
Beacon—Haigh, J. F. (C.)  
Bronxville—Heddens, V. O. (L.)  
Brooklyn—Braun G. A., Jr. (L.)  
Carmel, B. E. (L.)  
Daugherty, J. E. (L. C.)  
DeVries, J. C. (C.)  
Fiekinger, W. G. (L.)  
Foote, M. N. (C.)  
Hauff, J. J. (L.)  
Hunt, H. F. (C.)  
Mangiaracina, A. (L.)  
McKenna, D. E. (L.)  
Palmer, S. D. (C.)  
Perman, S. (C.)  
Rubin, H. R. (C.)  
Shields, J. A. (C.)  
Shookloff, C. (L.)  
Smoak, H., Jr. (L.)  
Sorkin, J. J. (L.)  
Steinbuehler, W. F. C. (L.)  
Strahl, M. I. (C.)  
Strickler, J. C. (C.)  
Strunwasser, S. (L.)  
Verilli, J. D. (C.)  
Weinberg, N. (L.)  
Weiss, S. (L.)  
Buffalo—Hendley, M. G. (C.)  
Bukowski, B. M. (C.)  
Geisler, G. J. (C.)  
Humenstein, B. F. (L.)  
Bill, W. D. (L.)  
MacNaughton, W. F. (L.)  
McCarty, W. L. (L.)  
Powick, T. H. (C.)  
Clayton—Ross, W. J. (L.)  
Coopers—Cooke, J. B. (M.)  
Corfu—Phillips, E. J. (C.)  
Dansville—Dorr, J. C. (C.)  
Flushing—MacLeod, J. M. (C.)  
Grand Island—Johnson, D. (L.)  
Harrison—Wylie, L. A. (L.)  
Hornell—Burch, M. G. (L.)  
Imatica—O'Neill, G., Jr. (C.)  
Johnson Creek—Mudge, M. F. (C.)  
Little Valley—Hillsman, M. L. (L.)  
Newark—Almer, J. R. (L.)  
Aepfel, I. (L.)  
Bakwin, H. (L.)  
Benjamin, E. I. (C.)  
Blake, T. G. (C.)  
Blom, D. M. (C.)  
Bluestone, E. M. (L.)  
Bulkeley, K. (M.)  
Buntin, W. J. (C.)  
Cary, L. (C.)  
Clemenger, F. J. (L. C.)  
Costanzo, R. F. (C.)  
Eastman, F. W. (C.)  
Egall, R. V. (C.)  
Egan, J. J. (L.)  
Feinberg, M. M. (L.)  
Ferguson, A. B. (L.)  
Gardner, J. D. (M.)  
Goffman, M. D. (L.)  
Gottlieb, W. (L.)  
Herring, A. C. (L.)

New York—Bewitt, R. H. (C.)  
Hunt, C. J. (L.)  
Jacobs, A. W. (C.)  
Kaufman, J. (L.)  
Leibovitz, A. (L.)  
Lynch, H. J. (L.)  
Mamelok, L. (L.)  
McIver, M. A. (L.)  
Mileti, A. (C.)  
Minsk, L. D. (L.)  
O'Connor, W. J. (L.)  
O'Donnell, E. E. (L.)  
Oliver, J. R. (M.)  
Padden, C. de S. (C.)  
Pignatelli, R. J. (L.)  
Reid, J. J. (L.)  
Schable, F. G. (M.)  
Schultz-de-Frun, H. C. (M.)  
Schwartz, A. A. (L.)  
Scranton, W. A. (C.)  
Shea, R. J. (L.)  
Sokol, L. J. (C.)  
Stewart, A. A. (M.)  
Stiffler, W. F. (C.)  
Thompson, W. B. (L.)  
Tracey, W. W. (L.)  
Tropauer, D. (L.)  
Vanover, B. W. J. (C.)  
West, R. (L.)  
Young, J. J. (L.)  
Owego—Rubert, K. F. (M.)  
Yates—Frosha, R. (L.)  
Poughkeepsie—Brewster, D. T., Jr. (L.)  
Chinksals, G. S. (C.)  
Pulsak—Kitter, F. (C.)  
Roelster—Dus, J. C. (C.)  
Haskell, C. K. (L. C.)  
Swan, J. M. (L. C.)  
Rye—Simes, E. (C.)  
Schorensky—Roth, C. (C.)  
Walker, C. W. (M.)  
Sherburne—Benedict, A. K. (C.)  
South Nyack—Einhid, K. A. (C.)  
Staten Island—Sprague, J. T. (C.)  
Sylvan Beach—McGrath, W. J. (L.)  
Syracuse—Finigan, I. J. (L.)  
Troy—Harvie, J. (L.)  
Wolsh, W. I. (L.)  
Warwick—Aren, W. B. (L.)  
Perry, S. W. (M.)  
Woodhaven—Lynch, G. A. (L.)  
Worcester—Genuyn, T. T. (C.)  
Yonkers—Mott, A. G. (C.)  
Ramsay, D. (L.)

NORTH CAROLINA

Asheville—Hlips, A. G. T. (L.)  
Charlotte—Hunter, B. R. (L. C.)  
Leinbach, R. F. (M.)  
Fayetteville—Vann, J. R., Jr. (C.)  
Franklinton—Hahn, R. T. (L.)  
Greensboro—Johnson, L. (L.)  
Greensboro—Boyd, H. H. (L.)  
High Point—Stautan, T. M. (C.)  
Raleigh—Carroll, K. A. (C.)  
Salisbury—Brawley, M. H. (L.)  
St. Pauls—Lancaster, R. M. (L.)  
Statesville—Easley, P. S. (L.)  
Wilmington—Room, G. H. (L.)  
Thames, J. (C.)

NORTH DAKOTA

Fargo—Bayard, W. D. (L.)  
Fortin, H. J. (L.)  
Langdon—Kirkham, J. H. (C.)

OHIO

Akron—Luce, R. V. (C.)  
Akron—L. D. Hine, J. (C.)  
Fehl—Kennly, C. C. (L.)  
Bluffton—Stamer, J. S. (L.)  
Bremen—Driver, J. R. (C.)  
Buxton—Baker, A. (L.)  
Cincinnati—Brimmett, J. S. (M.)  
Gressler, R. J. (L.)  
Starks, J. T. (L.)  
Cleveland—Barnhart, L. S. (C.)  
Irak, J. (L.)  
Lynch, P. F. (C.)  
MacDonald, D. M. (L.)  
Marple, T. S. (C.)  
O'Malley, G. (M.)  
Taylor, H. L. (M.)  
Columbus—Boncher, H. E. (M.)  
Bridgman, F. G. (L.)  
Hoffman, E. H. (L.)  
Moran, W. H. (C.)  
Dayton—Hubert, J. R. (L.)  
Edison—Jackson, C. S. (L.)  
Fremont—Krause, A. (L.)  
Highland—Muller, J. L. (L.)  
Lentonia—Harman H. E. (M.)  
Lima—Hewson, O. E. (C.)  
Lynchburg—Warkentin, D. (C.)  
Mason—Henderson, R. W. (M.)  
Marysville—Gibb, W. M. (C.)  
Millsport—Alkison, F. P. (L.)

Merrill—Bohm, A. F. (C.)  
Orrville—Bizzard, D. M. (L.)  
Pavler—Bausinger, H. R. (L.)  
Richardson—Jolley, R. (M.)  
Thriville—Clemens, F. R. (L.)  
Woooster—Graven, T. A. (L.)  
Youngstown—Goldcamp, F. C. (C.)

## OKLAHOMA

Alva—Oklahoma, O. E. (L.)  
Cherokee—Huston, H. E. (L.)  
Cockshill—Ardie, H. C. (M.)  
Eind—Bunker, L. L. (M.)  
Henryetta—Briggs, H. A. (C.)  
Keweenaw—Johnson, G. A. (C.)  
Miami—McNaughton, O. P. (L.)  
Ochelata—Gunter, J. T. (L.)  
Oklahoma City—Davis, E. F. (C.)  
Stigler—Mitchell, S. E. (C.)  
Tulsa—Lareau, H. G. (C.)  
Waynoka—Gregg, O. R. (L.)

## OREGON

Corvallis—Anderson, H. J. (L.)  
Hardman—Quint, G. G. (C.)  
Hermiston—Wainscott, C. O. (C.)  
Portland—Downs, C. A. (C.)  
Fenton, R. A. (C.)  
Marion, E. V. (M.)  
Peaver, C. M. (C.)  
Stewart, W. E. (M.)

## PENNSYLVANIA

Albion—Umburn, L. (M.)  
Ardmore—Potter, E. S. (L.)  
Barnesboro—Healey, B. C. (L.)  
Bellefonte—Reed, M. W. (C.)  
Brookwayville—Aikman, D. M. (L.)  
Bryn Mawr—Eveland, F. B. (L.)  
Connellsville—Kidd, A. R. (M.)  
Cressona—Santee, G. O. (L.)  
Crowsville—Moore, C. A. (L.)  
Curtisville—Henphill, D. E. (C.)  
Du Bois—Patterson, F. G. (L.)  
Elkins Park—Cole, C. J., Jr. (C.)  
Ellsworth—Kamper, S. A. (C.)  
Fountain Springs—Fisher, A. W. (L.)  
Freeland—Gable, J. C. (L.)  
Indiana—Buterbaugh, H. B. (C.)  
Johnstown—Schramm, F. M. B. (C.)  
Kingston—Wolfe, E. I. (L.)  
Lancaster—Cohn, A. C. (C.)  
Lattimore—Oliver, B. (C.)  
Lawrenceville—Presper, E. (C.)  
Meadeville—Hyskell, W. E. (L.)  
New Bethlehem—Keller, W. C. (C.)

New Kensington—Smith, F. E. (C.)  
North East—Scibetta, S. L. (L.)  
Pittsdelphia—Moxander, J. (L.)  
Alston, R. A. (L.)  
Aspel, J. (C.)  
Astley, G. A. (M.)  
Coll, C. A. (C.)  
Connersford, J. E. (L.)  
Deveraux, R. T. (M.)  
Dorsett, E. M. (C.)  
Englerth, L. D. (C.)  
Fries, V. J. P. (L.)  
Hartley, A. (M.)  
Ingham, S. D. (C.)  
Mackler, L. (L.)  
Morgan, M. B., Jr. (L.)  
Pearl, J. (C.)  
Russell, C. N. (M.)  
Seitz, J. S. (L.)  
Thomas, W. H. (M.)  
Tucker, H. (M.)  
Phoenixville—Gotsals, J. E. (C.)  
Pittsboro—Lichtenfels, R. C. (L.)  
Pittsburgh—Clark, W. A. (C.)  
Edwards, J. F. (L.)  
Frederick, R. S. (L.)  
Hallert, H. E. (C.)  
Hawkins, J. A. (L.)  
Lindsay, J. A. (M.)  
Moore, C. (L.)  
Nisbaum, E. C. (L.)  
Oblon, L. L. (C.)  
Price, H. T. (M.)  
Schmid, W. W. (L.)  
Pittston—Hirsch, A. (C.)  
Reading—Snyder, T. M. (C.)  
Sayre—Haines, C. N. (C.)  
Lans, L. J. (L.)  
Shingle House—Richards, R. W. (L.)  
Smetpart—Chadwick, E. V. (C.)  
Ostrander, W. A. (C.)  
South Fork—Snyder, E. (C.)  
Tamanac—Bailey, H. W. (C.)  
Timblin—Alison, H. W. (L.)  
Tioga—Hopkes, I. W. (C.)  
Watsonville—Baustler, E. (L.)  
Westland—Shidler, W. J. (C.)  
Wilkes-Barre—Haustroner, A. L. (C.)

Wilkesburg—Cubison, C. I. (C.)  
Whitcraft, J. H. (C.)  
Williamsport—Wright, L. W. (L.)

## RHODE ISLAND

Pawtucket—Falcon, A. J. B. (C.)  
Wheaton, J. L. (M.)  
Providence—Bradshaw, A. B. (C.)  
Harpor, D. S. (C.)  
Palmer, H. G. (C.)  
Westerly—Rusni, J. E. (C.)

## SOUTH CAROLINA

Charleston—Wagner, H. P. (L.)  
Columbia—Schayer, I. (M.)  
Sceesee—Bolin, G. T. (M.)  
York—McDowell, J. D. (M.)

## SOUTH DAKOTA

Britton—Sullivan, D. W. (C.)  
Emson—Derigler, L. B. (C.)  
Hot Springs—Mattison, J. A. (L.)  
Huron—Wood, T. J. (M.)  
Sioux Falls—Mullen, R. W. (M.)

## TENNESSEE

Gleason—Tatum, J. J. (C.)  
Knoxville—Gibson, J. J. (L.)  
Massey, V. E. (C.)  
Memphis—Clary, W. F. (M.)  
Rucks, W. L. (C.)  
Swink, W. T. (M.)  
Milan—Harper, T. M. (C.)  
Morristown—Milligan, L. H. (C.)  
Nashville—Dabney, A. S. (M.)  
Rieger, H. J. (L.)  
Sioux, W. B. (L.)  
Portland—Oliver, J. M. (C.)

## TEXAS

Coriscana—Horn, F. W. (C.)  
Dallas—Carroll, W. B. (M.)  
Fort Worth—O'Reilly, J. J. (L.)  
Gainesville—Gleeson, E. L. (M.)  
Groesbeck—Leweck, P. E. (L.)  
Garland—Brown, C. S. (M.)  
Houston—Wier, W. M. (C.)  
Luling—Benbow, E. A. (L.)  
Mar—Cook, E. L. (C.)  
Mexia—Brown, M. M. (C.)  
Milouthan—Browne, W. C. (L.)  
Port Arthur—Winter, H. A. (C.)  
Shenleyville—Garland, T. M. (L.)  
Temple—Sherwood, M. W. (C.)

## UTAH

Price—Cloward, R. E. (C.)  
Salt Lake City—Benedit, C. M. (C.)  
Thorpe, J. M. (L.)

## VERMONT

Alburgh—Martin, S. H. (M.)  
Bathboro—White, B. E. (L.)  
Burlington—Twitchell, E. G. (C.)  
Fairfield—Tatton, J. R. (C.)  
Hardwick—Taylor, H. F. (L.)  
Lyndonville—Sheehan, F. J. (C.)  
Montpelier—Dewey, J. E. (C.)  
Shelburne—Mitchell, W. H. (C.)  
St. Albans—Melville, E. J. (C.)  
Wallingford—Cooty, S. A. (L.)  
Warren—Warren, A. B. (L.)  
Williamstown—Cross, A. A. (L.)  
Woodstock—Jackson, H. C. (C.)

## VIRGINIA

Arlington—Ransom, C. A. (L.)  
Draper—Haper, E. C. (C.)  
Leahurst—Noland, S. T. (C.)  
Lynchburg—Adkerson, W. C. (L.)  
Port Royal—Holloway, J. M. (C.)  
Purcellville—Hurst, V. B. (C.)  
Richmond—Blankingship, O. F. (C.)  
Crawford, B. L. (M.)  
Rio Vista—Carroll, P. M. (L.)

## WASHINGTON

Centralia—Bell, H. Y. (C.)  
Newport—Rosenthal, S. E. (C.)  
North Yakoma—Cawver, W. H. (L.)  
Seattle—Spaulding, L. (L.)  
Wood, N. P. (M.)  
South Bend—Anderson, F. W. (M.)  
Spokane—Morse, W. H. (M.)  
Tacoma—Arter, P. I. (M.)  
Tekoa—Gizer, C. B. (C.)

## WEST VIRGINIA

Cameron—Grim, W. E. (C.)  
Charleston—Petty, L. A. (C.)  
Phillips, S. H. (C.)  
Clarksburg—Hood, R. G. (C.)

Craigsville—Callaghan, A. F. (L.)  
Hanford—Ford, J. C. (L.)  
Keyser—Ford, W. E. (C.)  
Mullens—Steele, H. W. (C.)  
Wheeling—Ryan, C. J. (L.)  
Truscel, C. M. (L.)

## WISCONSIN

Boscobel—Ruka, E. A. (L.)  
Florence—Lyons Campbell, A. F. (C.)  
La Crosse—Grissom, C. B. (C.)  
Marshall—Devine, C. B. (C.)

Milwaukee—Darling, F. E. (M.)  
Hansen, J. W. (L.)  
Muscola—James, A. W. (C.)  
New Richmond—Davin, C. C. (L.)  
Prairie Farm—Buell, H. A. (C.)  
Sauk City—Johnson, A. T. (L.)  
Superior—Kochell, C. B. (C.)  
Westby—Christensen, J. W. (C.)

## HYFOMING

Caspar—Geis, N. C. (L.)  
Moorecroft—Gaul, E. T. (C.)

## Foreign Correspondence

## BELGIAN LETTER

LIFE, Sept. 17, 1919.

## Medical Progress During the Period of the German Occupation

The evacuation of Belgian territory by the Germans has afforded the physicians who remained in the country during the occupation a welcome opportunity of publishing the results of their experience. On reading the publication of their records, it would seem that new diseases or at least new phases of old diseases have arisen and have been added to certain chapters of medicine. What we who took part in the war outside of Belgium know of the medical aspects of the war has nothing in common with what our colleagues had the misfortune to witness during the course of five long years. The bad quantitative and qualitative food conditions, together with the privations of every kind imaginable, have, it would seem, created very peculiar pathologic conditions, which, in turn, are reflected in all branches of medicine.

## The Psychophysical Condition of Belgian Women During the War

M. Keiffer in the *Scalpel* contributes an article on the psychophysical condition of Belgian women during the war. The untold privations and the unheard of difficulties of human existence beginning with 1915, produced among the population of Belgium, many affections due to faulty nutrition, such as marked loss of weight, cervical adenitis and rachitic symptoms, which in many cases terminated fatally. Tuberculosis caused great ravages, especially among girls from 14 to 20 years of age. One phenomenon observed very frequently among married women at an age long before the menopause normally sets in was amenorrhea. This affection increased from 1915 on, and diminished in frequency and in tenacity along toward the time of the signing of the armistice. In certain women this condition lasted from two months to a year or more. It affected young unmarried women and also married women, and the question as to whether their fiancés or husbands, as the case might be, were present in the neighborhood or were absent seems to have played little part in the matter. This interruption of function in the ovarian gland cannot, then, be attributed to the absence of the men. Whether we regard this phenomenon as a state of torpor or as a momentary dormant state, it remains true that it was always possible with the organo-therapeutic means at command to restore the physiologic rhythmic function of the gland. In endeavoring to discover the causes for this phenomenon one cannot put forward loss of weight, for, under other circumstances, this has proved rather favorable to menstruation; nor can we postulate chlorosis, nor mental depression, nor lack of exercise, nor lack of pleasurable excitement—social gatherings and participation in sports so necessary to the young. The etiology can be explained by an examination of the food-supply curve and more particularly by an inspection of the relative nutritive value of the materials entering into the flour and the bread used at various periods during the fifty-two months of war. The curve representing the fat content of the foods used could likewise be utilized in the research. Indeed, from the time when an improvement in the food conditions was brought about, the number of cases of amenorrhea decreased in an almost parallel manner. We are concerned, then, with a deficiency disease, although unable to specify just what elements were lacking entirely or existed in insufficient or in superabundant quantities in the food consumed; just what circumstances the presence or absence of which is necessary for the functional activity of the ovarian gland to proceed in its normal course. Keiffer calls to mind the great mental suffering that the Belgian women had to endure during the five years of the German occupation. He pays homage

to their ardent and tenacious patriotism which made it possible for them to withstand "with serenity the Machiavellian inventions of the Germans calculated to break down their resistance and annihilate their hopes."

#### Edema Among the Deported

At a meeting of the Académie de médecine de Belgique, M. Vandervelde and M. Cantineau introduced a suggestive communication on the deportation of Flemish civilians in 1916. Two hundred patients treated by them in the Saint Pierre Hospital at Brussels gave them the opportunity of making interesting observations from a medical point of view. Most of those deported suffered from a marked edema of the lower limbs, which was frequently associated with grave phlegmons. The general condition was brought about by lack of food and by the deplorable hygienic conditions under which they were compelled to live. The cardiovascular apparatus was attacked, and a profound anemia was added to their weakness, while the slightest effort occasioned an intense dyspnea. It would seem that this syndrome must be attributed to general intoxication due to renal insufficiency. With the clinical picture outlined above, oliguria was also constantly associated. The authors of the paper endeavored to make a special study of the urinary changes among the deported, for they all showed more or less serious symptoms manifested at times by oliguria and at times by genuine Bright's disease.

The therapeutic measures employed were exclusively of a dietetic nature. All that was needed by these poor, oppressed people, who had received no medical attention whatever, was rest and sufficient food, in order to soon be rid of all the symptoms mentioned.

Rest and proper food were all that was needed to do away with the blocking of the kidney and to cause the diuretic curve to mount suddenly, while, at the same time, the edema of the lower limbs disappeared. That is to say, it was not a question of a definite nosologic entity, and the cause of the condition lay entirely in the bad treatment and cruelty they had suffered at the hands of the Germans.

This indifference, on the part of the invaders, to health was, furthermore, quite the regular thing. Those deported were forced to do hard labor and were recruited without any medical examination. A military commission, without the aid of any medical authorities, had enrolled by force all the inhabitants of a given region whether they were afflicted with serious diseases or not. Definite examples of these cruel and inexcusable abuses are given. Forty-two per cent. of those deported were found to be suffering from tuberculosis in some form.

#### The Physical Development of Children

The investigations carried on by M. Demoor, professor in the Brussels School of Medicine, with reference to the height and weight of the public school children of Brussels during the war, led to conclusions analogous to the foregoing. In spite of all the societies for the protection of children, in spite of all the efforts to preserve their health, the growth of all the pupils has been retarded. Demoor found that (1) the average weight of children (boys and girls classed together) of all ages has diminished. At the end of four years the observed deficit is greater than the value of the normal development of two thirds of a year. The average height of children of all ages has decreased to the extent of one third of the usual annual development; (2) the average total decrease from 1914 to 1918 in the age-group comprising the ages from 7 to 14 is approximately equal—in both boys and girls—to the development of one year for weight, and to the development of one-half year for the boys and one-seventh year for the girls as regards height.

The truth of these observations was particularly evident among the population of the poorer quarters. This retarded physical development of children, which affects especially the children from 10 to 14 years old, may have a bad influence even on their future development. These children are at present much inferior to what they should be. Will this period of privation cause them to have a lessened resistance for the future? Will this physical impairment that they have suffered continue to exert a baneful influence on their future development? The author of the communication bases his conclusions on the curves of morbidity and mortality at different ages of childhood as plotted by Key in Sweden and by Porter in America. He believes that a relation exists between the age, the weight and the height, on the one hand, and the resistance to disease and death, on the other hand. The differences that he himself has observed thus far do not, however, justify him in forming a positive

and exact opinion, he thinks, with reference to the resistance of the human organism to disease as shown by Belgian children. Nevertheless, in addition to these statements in regard to height and weight, the fact that in children affected by the period of occupation there was an increased number of cases of cervical adenitis, chronic affections of the nasopharynx, rachitic symptoms and pernicious anemia would indicate that the mortality was increased. It must be admitted that in the case of a great number of children the war produced organic affections more or less lasting and serious, although it is true that no definite statements can be made as yet in regard to the possibility of complete recuperation.

#### Cutaneous Affections

The manifold privations, the difficulties of human existence and the neglect of all hygienic rules of living had the same repercussive effect on cutaneous affections. In the *Paris médical*, Dr. Bayet gives the results of his personal experience on the subject. Three classes of affections were observed: (1) affections dependent on some disease of the nervous system; (2) affections that have their origin in insufficient or in unwholesome food, and (3) affections that are directly attributable to uncleanness.

Among the affections associated with some disease of the nervous system he observed especially cases of lichenoid and of eczematous neurodermatitis, prurigo and alopecia areata. These affections were often resistant to treatment and subject to frequent recurrence. The author noted a pemphigus as the result of an emotional shock, and another time a generalized scleroderma.

The affections due to malnutrition were especially numerous among people of moderate means. The increase and the aggravation of tuberculosis afforded the opportunity of observing a greater number of cases of lupus tuberculosus, often associated with swelling of the lymph nodes. This special aspect of the affection and its frequency gave rise to a new term among the people, namely, "collier de la guerre" (war necklace).

Hard edemas, edemas of inanition so-called, generalized furunculosis and anthrax became much more common, not only among the poorer classes but also among the well-to-do.

A form of alopecia resembling that which very commonly results from infectious diseases was very prevalent, even among people in good circumstances, with negative family histories.

Affections due to uncleanness were particularly numerous, the two principal reasons for which were the almost absolute lack of soap and the high price of coal. The latter factor was very important. Linen and underclothing being no longer boiled when laundered made possible the transmission on a grand scale of all kinds of contagious skin diseases: scabies, trichophytosis, etc. This hit not only the poorer classes but also the rich, for stopping at even first-class hotels was associated with a veritable danger from the standpoint of contagion.

The aforementioned studies on diseases observed during the German occupation of Belgium are the first to be published since the evacuation of the territory by the Germans. No doubt others will follow and will shed more light on these special pathologic conditions which one is tempted to call the "pathology of misery." A Holland journal recently called attention to the peculiar circumstance of the increase of cerebral hemorrhage and softening of the brain during the period of rationing that the Netherlands was obliged to submit to toward the end of the war. All this would seem to suggest that there may be some connection between deficiency diseases, among which beriberi may be mentioned, and certain aspects of war edemas.

## Marriages

GEORGE YELLOTT MASSENBURG, Macon, Ga., to Miss Dorothy Shedd, of Columbus, O., in New York City, September 10.

JOHN HENRY COSTELLO, to Miss Frances Alice N. Hagerty, both of Dorchester, Boston, September 28.

JAMES HARRY FEYTER, Chicago, to Miss Gertrude Chase Colwell, of Rutherford, N. J., September 22.

HOWARD LYONS, Winchester, Ky., to Miss Dixie Belle Helm, of Morgantown, Ky., October 2.

ARTHER CLYDE TAYLOR, to Miss Adele G. Williams, both of Wilmette, Ill., September 30.

## Deaths

**Robert Montgomery Thornburgh** \* Colonel, M. C., U. S. Army; Dartmouth Medical School, Hanover, N. H., 1897; aged 47; commander of Letterman General Hospital, Presidio of San Francisco; was killed, October 9, in a collision between automobiles. Colonel Thornburgh entered the military service as a Contract Surgeon in 1900, and was commissioned First Lieutenant and Assistant Surgeon U. S. Army a year later; was made Captain five years later, Major in 1910, Lieutenant Colonel, Medical Corps, and Colonel, M. C., National Army, in 1917. He was chief of the surgical service in Letterman General Hospital, Presidio of San Francisco, from 1910 to 1913; chief of the surgical service and commanding officer of the Department Hospital, Manila, P. I., from 1914 to 1916, and on his return to the United States was made camp surgeon of Camp Pike, Ark., prior to his reassignment to duty at the Presidio of San Francisco.

**George Dallas Hersey**, Charleston, S. C., formerly of Providence, R. I.; New York University, New York City, 1874; aged 72; a Fellow of the American Academy of Medicine, secretary of the Rhode Island Medical Society from 1880 to 1885; librarian since 1879 to 1912, and president in 1899 and 1900; editor of the *Providence Medical Journal* from 1899 to 1912; and editor of the *Annual Transactions of the Rhode Island Medical Society* for thirty-one years; from 1888 to 1908, visiting surgeon to the Rhode Island Hospital, and consulting surgeon to the institution thereafter; died at Somerville, N. C., September 28, from cerebral hemorrhage.

**David Bernard Van Slyck**, Pasadena, Calif.; University of Buffalo, N. Y., 1852; aged 90; surgeon of the 101st New York Volunteer Infantry, and of the Twenty-Second New York Cavalry, surgeon in chief of the Second Brigade, Third Division Cavalry Corps; medical inspector and medical director of the Army of Shenandoah, during the Civil War, thereafter a practitioner of Burlington, N. J., and Brookline, Mass., until 1885 when he moved to California; for several years president of the Pasadena Medical Society and once president of the Southern California Medical Society; died at his home, September 30.

**William A. DeLong**, Brooklyn, N. Y.; New York University, New York City, 1863; aged 79; a member of the Medical Society of the State of New York; a veteran of the Civil War, in which he served as assistant surgeon of the Seventy-Seventh Regiment, New York State Volunteers, from 1863 to 1865; inspector of the Brooklyn Board of Health from 1869 to 1876; and surgeon to the Brooklyn Fire Department for twenty-five years; died at his home, October 3.

**Oscar Orlando Meredith**, Breckenridge, Mo.; American Medical College, St. Louis, 1903; aged 39; a specialist in pediatrics; a member of the Missouri State Medical Association; who served during the war as Lieutenant, M. R. C., U. S. Army, and was honorably discharged, December 27, 1918; was crushed by the engine of the airplane, of which he was a passenger, when it fell at Cameron, Mo., September 27.

**Emanuel S. Gans**, Philadelphia; Jefferson Medical College, 1886; University of Pennsylvania, Philadelphia, 1894; aged 63; a member of the Medical Society of the State of Pennsylvania; for many years lecturer in the Medico-Chirurgical College of Philadelphia, dermatologist to the Medico-Chirurgical, Philadelphia General, and Mt. Sinai hospitals, Philadelphia; died at his home, September 30, from pneumonia.

**James Jackson Shuler** \* Raton, N. M.; University of Virginia, Charlottesville, 1879; New York University, New York City, 1880; aged 61; for many years chief surgeon for the Santa Fe System at Raton; died in the Atchison, Topeka and Santa Fe Railway Hospital, Topeka, Kan., September 28, after an operation for appendicitis.

**Grace M. Clarke** \* Detroit; University of Michigan, Ann Arbor, 1902; aged 41; president of the Detroit Free Dispensary for Women and Children; a member of the Women's Hospital and Infants' Home and a member of the Faculty of the Detroit College of Medicine; died at her home, September 28, from pneumonia.

**William Sunderland Mott**, Salem, Ore.; Eclectic Medical Institute, Cincinnati, 1885; aged 64; at one time president and later secretary of the Oregon State Board of Medical Examiners; died at his home, October 3, from heart disease.

**Marshall F. Price**, Los Angeles, Calif.; Northwestern University, Medical School, Chicago, 1875; aged 85; surgeon of the First Pennsylvania Light Artillery during the Civil War, with the rank of major; first president of the Southern California Medical Society; died at his home, September 25.

**James Bernard Dinnan**, Meriden, Conn.; Yale University, New Haven, 1904; aged 38; a member of the Connecticut State Medical Society; president of the Meriden Medical Society in 1914-15; superintendent of the State Tuberculosis Sanatorium, Meriden; died October 3, from typhoid fever.

**John Alexander Hearst** \* Philadelphia; University of Pennsylvania, Philadelphia, 1893; aged 48; for several years a member of the staff of the Polyclinic Hospital; a specialist on diseases of the ear, nose and throat; died at his home, in Germantown, October 4, from heart disease.

**William Gaynor States** \* New York City; New York University, New York City, 1881; aged 58; adjunct professor of rectal surgery in the New York Polyclinic Medical School for more than twenty years; a Fellow of the New York Academy of Medicine; died at his home, October 6.

**George Washington Parker**, Philadelphia; Hahnemann Medical College, Philadelphia, 1870; aged 80; a veteran of the Civil War, and for one term surgeon of the Department of Pennsylvania, G. A. R.; died at his home, October 4, from cerebral hemorrhage.

**George M. Bower**, Lenexa, Kan.; Bellevue Hospital Medical College, 1862; aged 82; a practitioner until 1906, when he organized the State Bank of Hillsdale, Kan., of which he became president; also state senator in 1872-73, died at his home, recently.

**Evan Pickerell**, Benson Mines, N. Y.; University of Pennsylvania, Philadelphia, 1890; died in the City Hospital, Watertown, N. Y., October 3, from fracture of the skull caused by the overturning of his automobile near Watertown.

**Robert I. Fletcher**, Arma, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1857; aged 87; surgeon of U. S. Volunteers throughout the Civil War; died at the home of his son in Arma, September 26, from cerebral hemorrhage.

**Leshar K. Francis**, Royertown, Pa.; University of Pennsylvania, Philadelphia, 1871; aged 73; for four years a druggist of Philadelphia; died at the home of his son in Pottstown, Pa., September 22, from cerebral hemorrhage.

**George Arneke Kretsinger**, Oakland, Calif.; University of California, San Francisco, 1915; aged 31; a member of the Medical Society of the State of California; died at his home, September 8, from pneumonia following influenza.

**Snyder John Henry Louthar** \* Somerset, Pa.; American Medical College, St. Louis, 1893; aged 51; who was honorably discharged as Captain, M. C., U. S. Army, January 8, 1919; died at his home, September 24.

**George Orf**, Indiana Harbor, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1905; aged 44; a member of the Indiana State Medical Association; died at his home, July 12, from cerebral hemorrhage.

**Peter George Woods**, Versailles, Mo.; Washington University, 1867; aged 75; a member of the Missouri State Medical Society; died in Kansas City, Mo., September 11, from valvular heart disease.

**Green Leslie Robertson**, Leander, Texas; University of Louisville, Ky., 1890; aged 53; a member of the State Medical Association of Texas; died in the City Hospital, Austin, Texas, September 22.

**Louis Drechsler** \* St. Louis; Washington University, St. Louis, 1896; aged 53; a specialist in diseases of the ear and throat; died at his home, June 23, from malignant disease of the face.

**Washington Foster**, Amherst, Ohio; Michigan College of Medicine and Surgery, Detroit, 1892; aged 66; for many years health officer of Amherst; died at his home, September 27.

**George M. Tate**, Botkins, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 81; died at the home of his son in Botkins, September 27, from carcinoma of the stomach.

**Charles Belt**, Batavia, Ohio; Medical College of Ohio, Cincinnati, 1878; aged 62; died at his home, September 17, from acute nephritis.

**William W. Peek**, Louvale, Ga.; Louisville (Ky.) Medical College, 1873; aged 67; died at his home, September 17, from heart disease.

**William T. Blythe**, Glazen, Ind. (license, Indiana, 1897); aged 69; died at his home, July 4, from arteriosclerosis.

\* Indicates "Fellow" of the American Medical Association.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### THE WILLIAM A. WEBSTER CO. AND THE DIRECT PHARMACEUTICAL CO.

The following letter from a Detroit physician was received a few days ago.

To the Editor.—I have just received a letter from the Direct Pharmaceutical Co. of St. Louis, Mo., quoting prices on drugs which are not more than one half what the leading manufacturers are quoting on the same drugs. I have received previous literature from this company but have not done business with them. I would be unwilling to prescribe their drugs unless I were satisfied that they are what is claimed for them. I would be glad to receive any information regarding this firm that may be available.

THE JOURNAL has also received some letters from physicians regarding the William A. Webster Co. of Memphis, Tenn., relative to a letter the concern was sending physicians in the form of a testimonial (reproduced in miniature on this page) and alleged to be from Dr. F. W. P. Butler of Columbia, S. C. Typical letters on the Webster advertising follow:

To the Editor.—Is there not some way through which the dignity of the medical profession can be protected from the circulation of such adiotic drivel as the enclosures display?

To the Editor.—I am sending you an example of the sort of "evidence" which some so-called ethical pharmaceutical houses expect physicians to take for scientific proof. It is pathetic that there are some in our profession who "fall for" such trash. I trust you will continue your campaign for honest and intelligent medicine.

The "evidence" to which one of the correspondents refers and which another characterizes as "adiotic drivel" is reproduced on this page in miniature. It is a testimonial for William A. Webster Company's "Ferritonic-Woods."

Our readers may wonder why we are discussing in one article the William A. Webster Company of Memphis, Tenn., and the Direct Pharmaceutical Co. of St. Louis. The reason is that the Direct Pharmaceutical Co. of St. Louis is apparently merely a sales agency for the William A. Webster Company of Memphis. It appears that orders sent in to the Direct Pharmaceutical Co. go to Memphis to be filled.

The following information regarding some of the products that have in the past been put out by the William A. Webster Company should be of interest to the profession. In government bulletins issued by the Department of Agriculture in October, 1913, there were reported some cases of adulteration and misbranding on the part of the William A. Webster Co. of Memphis, Tenn. A "Pure Concentrated Extract of Lemon" shipped by this concern was found by the federal chemists to be colored with a coal-tar dye "whereby its inferiority was concealed," and while purporting to be a

concentrated lemon extract, "in fact, it was not a concentrated lemon extract." Some "Pure Concentrated Extract of Banana" was found to have mixed with it an imitation banana flavor and an artificial color so as to "injuriously affect its quality and strength" and so that "its inferiority was concealed." "Pure Concentrated Extract of Pineapple" was found to have had mixed with it "an imitation extract of pineapple artificially colored." "Pure Concentrated Extract of Strawberry" had been mixed with "an imitation strawberry extract artificially colored." The same bulletins described the case of the government against a shipment of "Syrup Iron Iodide" made by the Webster concern in which the amount of iron iodide was less than half that claimed on the label. In each of the cases just described, the company pleaded guilty and was fined.

In a similar bulletin issued August, 1914, there were recorded several more cases of adulteration and misbranding charged against the William A. Webster Company. Some "Wine Coca Leaves" was held adulterated in that the amount of alcohol present was wrongly declared on the label; it was held misbranded in that while it contained cocaine, the label failed to bear any statement regarding the quantity or proportion of this drug. Tablets of "Acetanilid and Sodium Bromid Compound" were found deficient in strength. "Anti-Vomit Tablets," "Aspirin Tablets," "Bismuth and Calomel Tablets," "Quinin Laxative Tablets," "Salol Tablets," "Sodium Salicylate Tablets," "Neuralgic Tablets," "Diarrhea Calomel Pills" and "Morphin Sulphate Hypodermic Tablets" were also misbranded in that the amount of certain ingredients found in them failed to tally with the amount declared on the label. In all of these cases also the William A. Webster Company pleaded guilty and was fined.

In a government bulletin issued in June, 1917, the same company was charged with adulterating and misbranding a quantity of Aspirin tablets which, instead of containing 5 grains as labeled, contained only a fraction over 1 grain. In this case, too, the company pleaded guilty and was fined. The table that follows summarizes some of the cases just referred to:

F W P BUTLER M D  
COLUMBIA S C

Sept 19th, 1919.

The Wm. A. Webster Company,  
Memphis, Tenn.

Gentlemen!

It is useless to treat malaria unless the system is fertilized or put in a receptive condition for the effect of the antidote for malaria so prevalent in this country. The human system is a good deal like land to be cultivated. If the land is not put in a proper condition the seed will not germinate effectively.

In your product you have an ingredient to agitate the proper flow of bile, and cause the liver, the great sugar and disinfectant mill of the human system to functionate normally. Therefore, giving quinine from any other condition is like pouring water on a duck's back.

I have begun the use of your Ferritonic-Foods! and only wish it was in my power to make every doctor in North and South Carolina do likewise.

Yours truly,  
*F. W. P. Butler*

Reproduction (reduced) of a testimonial letter sent to physicians by William A. Webster Company of Memphis, Tenn. Those who operate this concern also have a sales agency in St. Louis, Mo., known as the Direct Pharmaceutical Co.

	Amount Claimed	Amount Found
"Syrup Iron Iodid, U. S. P."		
Ferrons Iodid	10%	4.6%
"Acetanilid and Sodium Bromid Tablets"		
Acetanilid	3.50 gr.	2.94 gr.
"Aspirin Tablets"		
Aspirin	5.00 gr.	1.76 gr.
Bismuth subnitrate	2.00 gr.	1.78 gr.
Cerium Oxalate	0.0333 gr.	0.063 gr.
Ocean Hydroxid	5.00 gr.	3.82 gr.
"Bismuth and Calomel Comp. Tablets"		
Bismuth subnitrate	0.1 gr.	0.32 gr.
Calomel	0.1 gr.	0.2 gr.
"Quinin Laxative Tablets"		
Acetanilid	5.00 gr.	1.6 gr.
Salol Tablets	5.00 gr.	2.05 gr.
"Sodium Salicylate Tablets"		
Sodium Salicylate	5.00 gr.	3.88 gr.
"Neuralgic Pills"		
Morphin sulphate	0.03 gr.	0.015 gr.
"Diarrhea Calomel Pills"		
Morphin sulphate	0.001 gr.	0.001 gr.
"Morphin Sulphate Hypodermic Tablets"		
Morphin sulphate	0.1 gr.	0.1 gr.
"Aspirin Tablets"	5.00 gr.	1.1 gr.

## ANASARCIN ADVERTISING

To the Editor.—As an old Fellow of the A. M. A. I beg to present the following facts to you, and to ask if anything can be done by you to expose the methods of these people: A concern calling itself "The Anasarcin Chem. Co." of Winchester, Tenn., has caused to be sent to physicians a chart on the subject of "Diagnostics of Renal Diseases." This chart contains eighteen plates, which were all taken without knowledge or permission of either myself or my publishers, Wm. Wood & Co., from the third edition of my book on "Urinary Analysis and Diagnosis." The plates are partly composite plates, but mostly portions of plates, exactly reproduced from my book. I at once caused my publishers to write to the Anasarcin Company and a few days ago received a letter from a Dr. H. Elliott Bates of 118 East Twenty-Fifth Street, New York, whose letter-head says, "Medical Advertising." In this letter the writer says that it was he who suggested the sending of such a chart, and admits that all the plates were taken from my book. In this letter he offers to have a letter sent to every physician of the country "in which it is explicitly stated that the cuts on the chart were taken from your book, and that complete information regarding the matters treated on the chart can be found in your book." In other words he offers to advertise my book free of cost to me, so that I should take no further steps in the matter. I consider this entire matter an outrage, and thought it best to write to you for advice, since my publishers seem to think that in spite of the violation of the copyright nothing can be done.

Besides the cuts, some of the text on the chart is bodily taken from my book, while some of the other text, not taken from my book, but apparently compiled from different articles, is in part entirely wrong, so much so that I must be ashamed of its being associated with any of my own work.

By giving this letter your early consideration, and advising me what you think it best for me to do, you would greatly oblige

LOUIS HEITZMAN, M.D., New York.

[COMMENT.—Readers of THE JOURNAL are, of course, familiar with the articles<sup>1</sup> that have been published on "Anasarcin," the "dropsy cure!" Knowing the standard of ethics that the Anasarcin concern adopts in the exploitation of its ridiculous squill mixture, our readers will not be surprised at the standard of commercial ethics which would justify the appropriation of copyrighted scientific material for nostrum advertising purposes. The statement of Dr. Heitzman's publishers that "in spite of a violation of copyright nothing can be done" is, of course, incorrect. Something can be done by those who hold the copyright.—Ed.]

1. THE JOURNAL, Jan. 26, 1906; May 4 and 11, 1907, and Dec. 8, 1917.

**The Cattail: A New Food.**—Among the many products which the Indians have taught us to use are such common and now indispensable foods as corn and potatoes. There are, however, many products which the Indians used and relished that have received little or no attention from the white man. The common cattail (*Typha*) is one of these products. The vast areas of cattail have been little utilized. Here is a plant with prolific growth, rich in starch and other products of food value, growing in situations now regarded as waste lands. The rhizome is the part used. Cattail flour is not much different in composition from other flours and could probably well be used. The practicability of obtaining the flour from the field is a question which deserves further attention and experimentation. Likewise, the question of cultivation would require careful investigation. The fact, however, remains that there are thousands of acres of cattails containing considerably over 2 tons of flour per acre which at present finds no use. It is not so difficult to get the flour in small quantities. Half an hour at digging and "peeling" has yielded three or four cupfuls of flour. The digging is not so different from digging potatoes and the peeling is about equally facile. This flour has been used in this investigation in several ways, first as part substitute for cornstarch in puddings.—P. W. Claassen, *Scientific Monthly* 9:179 (August) 1919.

## Correspondence

## NEED OF FURTHER RESEARCH ON THE TRANSMISSIBILITY OF MEASLES AND VARICELLA

To the Editor.—I have just read the abstract in THE JOURNAL (Oct. 4, 1919, p. 1086) of Sellards' article on "The Insusceptibility of Man to Inoculation with Blood from Measles Patients" (*Bull. Johns Hopkins Hosp.* 30:257 [Sept.] 1919).

It is remarkable that Sellards was unable to produce this highly infectious disease by means of the blood or the nasal secretion of infected individuals. Not long ago, however, I had a similar experience with varicella (*Am. J. Dis. Child.* 16:34 [July] 1918). Thus we are confronted with two diseases—the two most infectious of the endemic diseases in this part of the world—which we are unable to transmit artificially from man to man. The result was most surprising in regard to chickenpox, and if the same rule holds good for measles it would seem as if a basic principle must be involved. Evidently in our experiments we do not, as we believe, pursue nature's mode of transmission; either we fail to carry over the virus, or the path of infection is quite different from what it is commonly thought to be.

I am writing this note because this question has been in my mind for some time and has been stirred up again by this recent work on measles. It appears to be a phenomenon that might well be called to the attention of readers of THE JOURNAL; perhaps an experimental study of the question might be undertaken by those who have the opportunity and are not engaged in other fields of work.

ALFRED F. HESS, M.D., New York.

## "FORMULAS FOR USE IN STANDARDIZING AUTOGENOUS VACCINES"

To the Editor.—In THE JOURNAL, October 4, under Clinical Notes, Suggestions and New Instruments, Sergeant Leo R. Tehon presented formulas for use in the standardization of bacterial vaccines. While serving as laboratory director of Evacuation Hospital No. 10, A. E. F., I had frequent requests for autogenous vaccines. At first we used Wright's method unmodified; but finding it rather cumbersome, we decided to try to modify it in some way that would make it more simple and take less time. After several trials we adopted the following method; it is very simple and can be done in a very short time: First, we used the blood of a soldier who gave a count of 6,000,000. We made a small puncture in the finger or ear, as in a cell count, and drew up the blood to point 0.5 in a white cell diluting pipet. Then a standard sodium citrate solution was drawn up in the pipet to point 1. This was drawn up in the bulb of the pipet, and the bacterial suspension was drawn up quickly to point 1, and this and the citrate blood were mixed as in an ordinary cell count. We had in this a blood with 3,000,000 red cells, and if we found two bacteria for each blood cell we had 6,000,000 per cubic millimeter, or 600,000,000 per cubic centimeter. We always worked with concentrated bacterial suspensions, as it was a very simple matter to dilute to any desired concentration of a lower count. The whole operation takes no more time than a simple blood count, and no other equipment except the sodium citrate solution.

J. S. WILSON, M.D., Lake Village, Ark.

## REPORTS ON LOCAL ANESTHETICS IN LARYNGOLOGY

To the Editor.—At the suggestion of the Council on Pharmacy and Chemistry of the American Medical Association at its last meeting, the Section on Laryngology, Otology and Rhinology appointed a special committee to study and report on the "Special advantages and disadvantages of the various local anesthetics in nose and throat work."

The committee is very desirous of learning from members of the profession of any toxic effects, not necessarily fatal,

occurring in their practice, and will be greatly pleased to receive communications regarding any ill effects noted by them following the use of any local anesthetics.

All such communications will be regarded as strictly confidential, and may be sent to the chairman of the committee.

EMIL MAYER, M.D., Chairman,  
40 E. 41st St., New York.  
ROSS HALL SKILLERN, M.D., Philadelphia.  
ROBERT SONNENSCHIN, M.D., Chicago.

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

#### THE DETERMINATION OF LEAD IN THE URINE

To the Editor.—Please furnish me with details of tests for detection of lead in urine, referred to in the article of Dr. Louis I. Harris, THE JOURNAL, Sept. 20, 1919, p. 880. Kindly omit my name in answering.  
A. A. P.

ANSWER.—Dr. Harris does not give the method used by him for the determination of lead. In qualitative work the following method is commonly employed:

A liter (quart) of urine, acidified with acetic acid, is evaporated to dryness and the residue fused in a crucible with a little potassium nitrate until the melt becomes white. The crucible is cooled, hot dilute hydrochloric acid added, the extract filtered, the filtrate treated with ammonia to alkaline reaction, and ammonium sulphid added. The precipitate, which contains the lead as sulphid, is washed three times by decantation with hot water; then water acidified with hydrochloric acid is added and the whole allowed to stand over night. The mixture is filtered through a small filter and the residue washed. A few drops of nitric acid are then added, drop by drop, to dissolve the lead sulphid on the filter. This filtrate is collected in a watch-glass, evaporated to dryness, and the final test made by adding a drop of water and a small crystal of potassium iodid. A yellow precipitate denotes lead.

If quantitative results are wanted, the filter containing the lead sulphid, as obtained above, is digested on the water bath with dilute nitric acid containing a little hydrochloric acid, the mixture filtered and the filter washed with a large excess of hot water. The filtrate and washings are evaporated to a small volume, a few cubic centimeters of dilute sulphuric acid are added, the solution is evaporated on the hot plate until white fumes appear, 25 cc. of 50 per cent. alcohol are added, the mixture is allowed to stand twenty-four hours, and the precipitated lead sulphate is collected in a weighed Gooch crucible, dried and weighed.

Electrolytic methods for the determination of the lead are known also, and these are to be preferred if the amount is small. They are usually carried out in the solution obtained from the solution of the lead sulphid in nitric acid, the lead being deposited as lead peroxid and weighed as such, after drying at 180 C.

#### THE PRESCRIBING OF PAREGORIC

To the Editor.—Please inform me if it is necessary for a physician who prescribes paregoric in a mixture to keep that prescription on file and keep a narcotic record as prescribed in the Harrison law for narcotics.

A. I. LAWRENCE, M.D., Cabinet, Mich.

ANSWER.—Paregoric is exempt under the provisions of the Harrison law. The U. S. circuit court in the case of the *United States v. Oliver* held that paregoric is exempt only when legitimately used as a medicine, and that prescribing or dispensing it to satisfy the cravings of a drug addict is a violation of the law. It is, therefore, wise for physicians to prescribe paregoric only in cases in which they will be able to justify its use if called on to do so. A physician is not required to keep a record of such prescriptions, but the druggist filling them must do so.

## Medical Education, Registration and Hospital Service

### COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley Sec. Elective Board, Dr. Claude E. Laws, 803 1/2 Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 20-23. Sec. Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.

CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Elective Board, Dr. James E. Hair, 730 State St., Bridgeport.

FLORIDA: Tampa, Dec. 1-2. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.

ILLINOIS: Chicago, Dec. 1-3. Mr. F. C. Dolds, Supt. of Registration, Springfield.

KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.

LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.

MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart. Texas.

#### Rhode Island July Examination

Dr. Byron O. Richards, secretary of the Rhode Island State Board of Health, reports the written and practical examination held at Providence, July 10-11, 1919. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland	.....	(1917)	85.0
Tufts College Medical School	.....	(1917)	82.0
University and Bellevue Hospital Med. Coll.	.....	(1918)	93.6
College of Physicians and Surgeons, Memphis	.....	(1911)	84.7

#### Arizona July Examination

Dr. Allen H. Williams, secretary of the Arizona State Board of Medical Examiners, reports the oral and written examination held at Phoenix, July 1-2, 1919. The examination covered 10 subjects, and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	.....	(1864)	77.5
National Medical University, Chicago	.....	(1908)	79.1
Northwestern Medical College	.....	(1894)	83.0
Memphis Hospital Medical College	.....	(1894)	79.2
Trinity Hospital College	.....	(1886)	84.5

College	FAILED	Year Grad.	Per Cent.
Southwestern Homeo. Med. College and Hospital	.....	(1903)	45

#### North Dakota July Examination

Dr. George M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 1-4, 1919. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 4 passed and 2 failed. Eight candidates were licensed by reciprocity. One candidate, a graduate of Jefferson Medical College in 1917, was licensed on presentation of a certificate from the National Board of Medical Examiners. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	.....	(1916)	76
Northwestern University	.....	(1918)	79

College	Year	Reciprocity
University of Tennessee	(1917)	73.2
Marquette University	(1919)	84
FAILED		
Kentucky School of Medicine	(1906)	65
University of Louisville	(1905)	67.5
LICENSED THROUGH RECIPROcity		
College	Year	Reciprocity
Northwestern University	(1912)	Illinois
St. Louis Medical College	(1913)	Illinois
South University of Iowa College of Medicine	(1905)	Iowa
Indiana Medical College	(1913)	Kansas
Harvard University	(1912)	Illinois
Univ. of Mich. Homeopathic Medical School	(1913)	Michigan
Hamline University	(1907)	Minnesota
University of Minnesota Medical School	(1914)	Minnesota

**South Dakota July Examination**

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the written and practical examination held at Deadwood, July 8-10, 1919. The examination covered 13 subjects and included 105 questions. An average of 75 per cent. was required to pass. Seventeen candidates were examined, all of whom passed. The following colleges were represented:

College	Year	Per Cent.
George Washington University	(1911)	87.6
Chicago College of Medicine and Surgery	(1918)	81.8
College of Phys. and Surgs., Chicago	(1896) 87.6, (1897) 82.3	87.1
Northwestern University	(1908) 79, (1918)	87.1
Royal Medical College	(1902) 86.1, 87.3, (1919)	86.6, 89.6,
Saginaw Valley Medical College	(1902)	86.1
Washington University	(1903)	84.1
Chicago Medical College	(1908)	83.5
University of Pennsylvania	(1909)	85.4
Catanooaga Medical College	(1898)	88.4
Trinity Medical College	(1904)	82.8

**West Virginia July Examination**

Dr. S. L. Jepson, health commissioner of the West Virginia Public Health Council, reports the oral, written and practical examination held at Huntington, July 8-10, 1919. The examination covered 9 subjects, and included 90 questions. An average of 80 per cent. was required to pass. Of the 38 candidates examined, 29, including 2 osteopaths, passed, and 9, including 3 nongraduates, failed. Two candidates were granted osteopathic reciprocity certificates. The following colleges were represented:

College	Year	Per Cent.
George Washington University	(1910)	91.7
Loyola University, Chicago	(1919)	80.1, 90.4
University of Illinois	(1915)	85.7
Johns Hopkins University	(1919)	85.3
University of Maryland	(1917) 83.7, (1919)	83.6, 87.4
Harvard University	(1918) 88, (1919)	82.5
University of Michigan Home. Medical School	(1901)	87.4
Columbia University	(1918)	87.4
University of Cincinnati	(1919)	85.7
Jefferson Medical College	(1916) 85.2, (1918) 86, (1919)	85.1, 88.6
Temple University	(1918)	83.3
Meharry Medical College (1915)	80.1, (1919) 80.7, 81, 82.1, 83.5, 88.3	88.3
Medical College of Virginia	(1918) 87.4, 91.7	

College	Year	Per Cent.
University of Louisville	(1910)	45.1
Eclectic Medical College	(1918)	76.6
Meharry Medical College	(1916) 65.6, (1918) 77, (1919)	76.8
Memphis Hospital Medical College	(1912)	73.6

Dr. Jepson also reports that twenty-nine candidates were licensed by reciprocity since November, 1918. The following colleges were represented:

College	Year	Reciprocity
George Washington University	(1910), (1912)	Dist. Colum.
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Atlanta Medical College	(1914)	Georgia
Chicago Coll. of Med. and Surg.	(1914)	Illinois, (1917) Nebraska
College of Physicians and Surgeons, Keokuk	(1897)	Iowa
University of Louisville	(1892), (1911)	Kentucky
Atlantic Medical College	(1908)	Virginia
Palmire Medical College	(1896)	Virginia
Johns Hopkins University	(1917)	Maryland
National University of Arts and Sciences	(1915)	Missouri
University Medical College of Kansas City	(1904)	Missouri
Leonard Medical School	(1906)	Virginia
American Eclectic Medical College	(1894)	Kentucky
Eclectic Medical Institute	(1902)	Ohio
Medical College of Ohio	(1897), (1907)	Ohio
Western Reserve University	(1917)	Ohio
M.-d., Coll. of the State of So. Carolina	(1906), (1917)	S. Carolina
Vanderbilt University	(1893)	Colorado
Medical College of Virginia	(1910), (1913), (1916)	Virginia
University College of Medicine, Richmond	(1909)	Virginia
University of Virginia	(1907), 2	Virginia

**Book Notices**

**MEMBERS OF THE MALMED.** The Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Nerves, Bones, and Joints. By Arthur Keith, M.D., F.R.C.S., LL.D. Cloth. Price, \$6.50. Pp. 335. New York: Oxford University Press, 1919

In presenting the growth of orthopedic surgery as a specialty, with a view to defining its present status, the author has used an interesting method, tracing the growth of the specialty through significant achievements by certain personalities. Each chapter concerns the life and work of some great physician who initiated an advance. Beginning with the orthopedic principles of John Hunter, chapters are devoted to Hilton, Thomas, Duhamel, Sayre and many others, including in each chapter pictures and biographic notes of the orthopedic surgeons whose work is discussed. The method is thus defined:

I have sought to guide the reader to the hospital wards, the physiological laboratories, the dissecting rooms, and private workrooms in which the great advances of orthopedic surgery were made, and to introduce to them the "Members of the Maimed" as they were in the heyday of life. In only this way, I conceive, can Medical History be written profitably.

The unique method of presentation, the beautiful literary style, and the authoritative character of the book make it one of significance not only to the orthopedic surgeon, but to all who are interested in the advance of medical science.

**PULMONARY TUBERCULOSIS.** By Maurice Fishberg, M.D., Clinical Professor of Medicine, New York University and Bellevue Hospital Medical College. Second Edition. Cloth. Price, \$6.50. Pp. 744, with 125 illustrations. Philadelphia: Lea & Febiger, 1919.

The great responsibility in treating tuberculosis, the author believes, rests on the general practitioner: that many cases are not hopeless, even though advanced, that institutional treatment is not the only effective method, and that careful home treatment is productive of practically the same improvement and ultimate results as institutional treatment. In discussing the clinical aspects, Fishberg emphasizes the constitutional symptoms. He gives attention both to bacteriology and to serology, as well as to the roentgen ray as aids to diagnosis; but the main reliance is placed on physical findings.

The treatment which he recommends is based on his own practice, and since it is in this particular phase of the subject that most men are interested, it may be well to recapitulate some of the views advanced. He lays considerable stress on air, food and psychic influences. A chapter is devoted to the open air treatment, in which, with diagrams and numerous illustrations, the author shows how this may be applied in the home. Climate is given a chapter, and another is devoted to institutional treatment. Under medicinal treatment it is pointed out that there is no specific for this disease, nor do we have any agent that will enhance the resistance of the tissues against the ravages of the tubercle bacilli. We do, however, have a distinct use for drugs in controlling symptomatology. The patient has no confidence in a physician who has no remedy for his ailment. As the author states, "If his medical adviser will not prescribe for him, he will seek remedies from another who is more obliging in this respect, or from an advertising quack." As has been pointed out several times, this is more particularly true of the intelligent patient than of the ignorant, for the latter distrusts his own knowledge and is more likely to place great reliance on the command of the physician.

The author discusses, under separate headings, the use of creosote, ichthyol, arsenic, iodine, mercury, the phosphites and cod liver oil. In a chapter on specific treatment he reviews the evidence thus far available on the use of tuberculin, pointing out its uses and dangers. The former he believes to be rather slight, stating that:

Tuberculin treatment is only efficacious in intelligent patients who are under the impression that they have mastered the theoretical aspects of infection and immunity and of specific therapy from reading popular books and articles on tuberculosis. In fact, in my experience, untreated patients hardly ever improve under tuberculin treatment because they cannot understand the benefit of fever, malaise, pain in the joints,

rausea, debility, etc. On the other hand, intelligent patients look forward to the reaction as an indication that the tuberculin is "working in their system" and they often improve, provided infinitesimally small doses have been given.

Finally, he says, "The general practitioner should not use tuberculin at all. He can obtain the same results by the judicious use of drugs without incurring any risk."

The book is well illustrated, and an exceedingly practical work. It contains some material with which the scientist who has devoted all of his attention to tuberculosis may disagree; but, on the whole, the advice may be considered practical and reliable.

## Social Medicine, Medical Economics and Miscellany

### THE PHYSICIANS' STRIKE

The suggestion of a physicians' strike has usually been a facetious one. There are times, however, when even the ever patient physician becomes irritated. The *Medical Press*, London, contains the following comment relative to a recent labor agitation in Yorkshire:

Correspondence in the local journals shows that the outpatient staff of the General Infirmary at Leeds are refusing treatment to the miners on strike. When two miners attended at the outpatient department, the medical officer on duty informed them that he was on strike too. Subsequently he offered to prescribe for them, but this offer they refused, on the grounds that they had been insulted. The miners, of course, have stated their grievances in the local press, and the correspondence has grown, partly in sympathy with the miners' complaints, partly alleging that retaliation must be expected in view of the hardships the miners have brought upon the public. Meanwhile the aggrieved miners, having asked for an inquiry into the conduct of the medical staff, the secretary of the infirmary has intimated that the committee will concede the request. The incident in question is an exceptional one, and we may believe without precedent. But the miners have only themselves to blame for its occurrence. Their unlicensed attitude in regard to their work having called forth general public indignation, accompanied by hardships from which they themselves are free, it is natural that resentment against them should take an active form, just to remind them that the game they play can also be played by others. A medical man with no coal in his house because the miners have refused to work, can hardly be expected to regard with any degree of effusive complacency, miners on strike who gratuitously seek his aid at a hospital. Medical men are not exclusively humane; they are also human like other people.

### PATHOMETRY OF THE INFLUENZA EPIDEMIC

At the last annual meeting of the American Public Health Association, a committee on the statistical investigation of influenza was appointed. A meeting of the subcommittee on pathometry was held at Columbia University, September 19. This committee includes a number of authorities on statistics, and hygienists representing various universities, the government services, and some insurance companies.

The committee first took up the question as to whether any mathematical function can rationally express the epidemic process. This question was answered in the negative, since it is clear that the epidemic process is by no means as simple as the controlled procedures of the physical and chemical laboratories. As it is impossible to stipulate which of the many factors in the epidemic process are supremely important, there is no definite basis from which to begin in order to produce an analytic expression for the "law" of an epidemic which will be valuable.

The second question discussed was: "Shall the pandemic explosion of 1918 be studied in relation to the course of acute respiratory disease since the preceding world-wide extension of the disease known as 'influenza'?" This resolved itself into a discussion as to whether the pandemic of 1918-1919 was to be considered as an isolated explosive

phenomenon, or as a part of a chain of events leading back thirty years or more. Dependent on the answer to this question by epidemiologists and clinicians, the committee may take up the charting of respiratory disease for the thirty-year period since 1889.

In considering the causal relationships in influenza, the subcommittee wishes to caution all research students in the use of statistical devices ordinarily employed to assist in arriving at conclusions of a causal relation between one phenomenon and another. It is pointed out that in any phenomenon of infectious disease, there are three physical elements: (1) the invading organism or group of organisms; (2) the host or population receiving the attack, and (3) the external environment of both invader and host. These factors may be subdivided as follows:

1. The Invader:
  - (a) The size of the dose of infection.
  - (b) The frequency with which the dose or doses are brought in contact with the host.
  - (c) Tendency of the invader to specific localization.
  - (d) Infectivity of the organism or organisms (power to produce sickness).
  - (e) Virulence (power to produce death).
  - (f) Activity of invader in the presence of existing bacterial flora.
2. The Host:
  - (a) Opportunity for receiving dose of infective material; Density of population; transport systems; public assembly; other channels of communication between the infected and the uninfected.
  - (b) Natural and acquired immunity to invasion and multiplication of organism or organisms, and to poisons produced by the invader.
  - (c) Resistance factors:
    - Nutrition; general physical condition; fatigue status; hygiene of environment; existence of definite bodily and mental states (injuries, effects of other diseases, intoxications, etc.); personal habits; medical and nursing care of those infected.

### 3. External Environment:

Temperature and humidity, separately and when acting together, and changes in these, may be expected to have some influence on infectious disease and especially on respiratory and influenza disease. By the ordinary methods of graphically associating weather and influenza-pneumonia data no very clear idea can be formed of the relation between these two elements. Students of this phase of the causal relation problem are urged to employ proper methods of measuring the combined effects of temperature and humidity, and of variations in them. It is possible also that only accumulations of excess or deficiency of temperature and humidity from an "optimum" or "norm" will show correlation with influenza. Some of the points to bear in mind in these correlation studies of weather and influenza data are, it seems to the subcommittee:

- (a) Explosiveness or "epidemicity" of the epidemic.
- (b) Time distribution.
- (c) Aggregate of epidemic damage regardless of explosiveness or time distribution.
- (d) Infectivity of the organism at various stages of the epidemic wave.
- (e) Virulence of the organism at various stages of the epidemic wave.

As to the effect of weather conditions on the case fatality of the disease, the committee recommended that, wherever possible, mention be made on case records of prevailing weather conditions, and that such case records be studied in relation to the various weather elements and variations in them.

**Care of the Eyes.** Glasses ordered for astigmatism or any compound refractive error require particularly accurate adjustment, and should be mounted preferably in spectacle frames. Children under 16 years of age should always wear these frames.—W. M. Carhart, *Pub. Health*, Michigan, September, 1919.

## Medicolegal

### Not Liable for Malpractice of Substitute Physician

(*Moore v. Lee (Texas)*, 211 S. W. R. 214)

The Supreme Court of Texas reverses a judgment of the court of civil appeals, which reversed one of the district court that was in favor of the defendant, and affirms the judgment of the district court, in this suit brought by plaintiff Lee to recover damages for an alleged breach of contract by defendant Moore to attend and treat the wife of the plaintiff during and after childbirth, and for alleged malpractice on the wife, during her confinement, by another physician for whose acts and negligence it was charged that the defendant was liable. The supreme court says that the plaintiff and the defendant had entered into an agreement whereby the wife of the former was to have the services of the latter, as a physician, for an agreed fee, during the approaching confinement of the wife. The defendant visited and examined her between 1 and 2 o'clock one morning, and promised to return when needed. Before 9 o'clock, the plaintiff notified him it was time to come to Mrs. Lee, when the defendant replied that, because of important business, he would be unable to come, but would send another physician, to which the plaintiff responded with a request to send him in a hurry. The defendant then telephoned to a physician whose general reputation as a physician was good, saying that he had a case to which he wanted to send him, that it was a partnership case, of which he expected to take care, and requested him to go out and look after the plaintiff's wife, and to notify him if he needed help or anything went wrong, whereupon he would either come himself or send assistance. The substitute physician reached the plaintiff's home at about 10 o'clock and attended to the delivery of the child, and there was evidence to raise the issue of injury to Mrs. Lee through his acts or negligence. However, the plaintiff expressed no dissatisfaction to him, at the time the child was delivered, and paid him on his second or third visit the full fee, which he testified he had agreed to pay the defendant, and paid nothing to the defendant. A jury trial resulted in a verdict and judgment for the defendant, which was reversed by the court of civil appeals, and Section B of the Commission of Appeals recommended that the judgment of the court of civil appeals be affirmed; but it is reversed by the supreme court, and the judgment for the defendant affirmed, as stated above.

It was immaterial to the matter of the defendant's liability for the substitute physician's negligence or lack of skill, under the issues joined, whether the defendant represented him to be his partner at the time he proposed sending him, no pleading was filed by the plaintiff alleging that he was held out as the defendant's partner, nor seeking to hold the defendant liable as a partner with the substitute physician, nor seeking any damages for any misrepresentation of his status as a partner. So the question was simply, What was the defendant's duty, under the law, when the plaintiff asked him to dispatch speedily another physician to treat Mrs. Lee? In the opinion of the supreme court, this question admitted of no answer save that the duty of the defendant was to exercise ordinary care in the selection of the physician to be sent. The opinion in *Texas Central Railroad Co. v. Zumwalt*, 103 Texas 607, 132 S. W. 113, declared that when a railroad company furnished an employee with a physician, the railroad company would not be held liable for the physician's negligence, unless, in treating the employee, he was the agent of the railroad company. No more could the defendant physician be held liable for the other physician's negligence or lack of skill, in the absence of facts to establish that such other physician was acting as his agent while he was treating the plaintiff's wife. From the very nature of the employment, the physician who takes the place of another must, while he alone is treating the patient, exercise his own judgment and his own skill; and he is truly an independent contractor. In the light of the long-established custom among the physicians in that community for one unable to treat all his patients to send another physician to those he was not able to attend, the defendant's state-

ments should be construed to mean that he expected to resume charge of the case when his other engagements would permit, and expected the physician sent to be compensated for the services he would render, while he himself would be compensated for the services he would render.

### Sufficient Evidence That Child Was Born Alive

(*Taylor v. Catwood et al. (Mo.)*, 211 S. W. R. 47)

The Supreme Court of Missouri, Division 1, says that the question at issue in this case was whether or not the child of the wife of the plaintiff was born dead or alive. If it was born dead, then the mother's heirs inherited certain real estate; but, if the child was born alive, then the plaintiff inherited the real estate from the child. The physician to whose maternity hospital Mrs. Taylor was taken in a very low condition, six or seven days prior to the full expected period of her pregnancy, after she had the day before been seized with uræmic convulsions, finding that her nervous condition was such as to prevent an examination without an anesthetic, made arrangements for an instrumental delivery; but Mrs. Taylor died after she had taken only a few inhalations of the ether. The physician then undertook, with all possible speed, to deliver the child, without an operation, and was successful, the child being delivered in two or three minutes. He testified that he used the methods which are known for respiration, blowing in the face, sprinkling cold water, and slapping the baby, and it breathed a few times or gurgled loud enough so that the other physicians could hear it, and the heart beat for a minute or two. That was one evidence of life. This was done while the cord was attached, in the hopes that a little circulation might start in the body; that if the mother was alive it would get a little supply of blood from her. The cord was left attached a minute or two; but, as no further evidence of life was observed, the cord was cut, and a nurse was told to take the baby upstairs where there was a plentiful supply of hot water and go through the other modes of respiration. All the physicians and nurses present at the time of the confinement testified that they either saw or heard unmistakable evidences of life in the child after the death of the mother, except that one physician said he heard a sound from the child, but did not know what caused it. The court thinks not only that a prima facie case was made by the plaintiff, but also that it was supported by substantial evidence. An attempt was made to impeach the physicians first mentioned by introducing in evidence a certified copy of the certificate of the death of the child, made by him shortly after the death occurred, to the central bureau of vital statistics, in which he stated that the cause of death was "premature birth—stillborn." In explanation, he said that he did not know very much about the death certificate, that the death certificates and birth reports were made in such a way that the physician did not give them much attention; that the death certificates were made out at the undertaker's, and once in a while, with these little fellows, they called up and asked if they could sign it; he did not remember about this one, but thought he signed it; that his office girl made out the birth reports, and errors might creep into them very easily. The trial court evidently took into consideration the testimony given as to the birth and death of the child, the certificate of death, and the explanation given, as well as all the other facts and circumstances in evidence, and on the whole decided in favor of the contention of the plaintiff that the child was born alive. Nor was much probative force to be attached to the fact that the brain, heart, lungs, kidneys, etc., of the child were not examined at the time of death. In fact, had it been done under the circumstances shown to have existed in this case, it would, to say the least, have called forth unfavorable comment. Besides, in the absence of the existence of some special reason therefor, the physicians, in such a case, would never have thought of examining those organs, which would have required the holding of a necropsy for the purpose of showing whether the child was born dead or alive. In fact, had they undertaken such a thing, under the circumstances, they certainly would have encountered a sharp rebuff at the hands of all its relations.

## Society Proceedings

### COMING MEETINGS

American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.  
American Child Hygiene Association, Asheville, N. C., Nov. 11-13.  
American Public Health Assn., New Orleans, Oct. 27-30.  
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.  
Clinical Congress, Am. Coll. of Surgeons, New York City, Oct. 20-25.  
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.  
Southern Medical Association, Asheville, N. C., Nov. 12-13.  
Southern Minnesota Medical Assn., Mankato, Dec. 1-2.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Dec. 15-16.

### INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held in Indianapolis, Sept. 26-27, 1919

#### INFLUENZA SYMPOSIUM

##### Influenza in Children

DR. NETTIE B. POWELL, Marion: In uncomplicated influenza in infants and children, the tendency is toward a leukopenia rather than a leukocytosis, although there is a slight leukocytosis in cases of complicating pneumonia, and in general the prognosis is better in the latter cases. There is nothing sufficiently constant in the differential count to be of aid either in diagnosis or in prognosis. The general condition of these patients needs first attention. They are anemic and flabby, as though suffering from anhydremia; hence special attention must be given to the quality of the food and the quantity of water ingested.

##### Clinical Manifestations and Sequels in Influenza

DR. CHARLES P. EMERSON, Indianapolis: It behooves us to maintain the general health of those who come under our observation by recommending that they avoid assemblages of people, eat good food, and get plenty of sleep and lots of fresh air. Now is the time to attack the tonsils, look out for the nasal sinuses, drain the infected gallbladder and treat the chronic prostatitis.

##### Correlation of Bacteriologic and Pathologic Findings in Influenza

DR. E. N. KIME, Indianapolis: The influenza lesions are widespread and severe, but the lung lesions, while most spectacular, form a relatively small part of the entire picture. The morbid anatomy and bacteriologic findings vary with the stage of the disease, and depend largely on the nature of the endemic flora. Early diffuse toxic or hemorrhagic lesions are manifest in the skin, mucous membranes of the respiratory tract, serous membranes of the chest and head, and the parenchymatous tissues of the entire body.

#### DISCUSSION

DR. F. B. WYNN, Indianapolis: I want to emphasize especially the importance of preparing patients who had the severe type of influenza for the possibilities which may arise during the coming winter. Counsel them to look out for bad tonsils or any other infection, for that is a weak spot.

DR. VIRGIL H. MOON, Indianapolis: The failure of the lung to return to normal is one of the salient pathologic features in this so-called influenza. This was demonstrated at the necropsy. In the case of persons who had lived through an acute attack and afterward died from some foreign cause, the lungs did not return to their normal condition. We found areas which macroscopically and microscopically showed the same characteristics as those of persons who died during the acute attack.

DR. CHARLES H. GOOD, Huntington: The etiology is still unknown; but with rest in bed, not too much fresh air, and a building-up treatment, the prognosis in my experience is good.

DR. CARROLL C. COTTON, Elwood: I wish to emphasize that encephalitis occurs frequently. It generally occurs in children who had pleuritis. The pleural cavity should be drained early by incision.

DR. G. W. McCASKEY, Fort Wayne: Fresh air is the most important factor.

DR. GEORGE W. SPOHN, Elkhart: I do not know anything that is better than vaccine as a protective measure, if it is given properly. Study the vaccines; study the method of giving them; use a vaccine from a reliable house, and a large majority of cases of ear and throat trouble will subside.

DR. CHARLES E. REED, Culver: Our greatest effort should be prevention, not treatment. We should discourage public assemblies and urge people to keep themselves in good general health and avoid exposure. The elimination of diseased tonsils is also important. We used the Rosenow vaccine; I believe it was a large factor in preventing pneumonia and other complications, and possibly it modified the influenzal process, although it did not prevent the disease itself.

DR. A. C. KIMBERLIN, Indianapolis: In nearly all these cases on physical examination of the lungs you found two things: First, there is found rather frequently, if listened for carefully, a degree of moisture plainly recognizable and scattered throughout the pulmonary tissue. And there would also be a very marked diminution of the vascular volume. Percussion in most of these cases was of no value, but the diminished vascular volume was important.

#### CHILD WELFARE SYMPOSIUM

##### Relation of Ophthalmology to Child Hygiene

DR. JOHN RAY NEWCOMB, Indianapolis: The rôle of the ophthalmologist, the family physician, the family and the school is one and the same. Early and thorough examination of the eyes should be made by a competent ophthalmologist, and obedience to directions he may give in regard to the hygiene of the eyes and the use of corrective or remedial measures is essential. Nothing is more important to the child than normal visual function, and this means the best professional advice obtainable. The statement that a child's general health may be affected seriously, and even endangered by errors of refraction, may be questioned by some; but a study of case reports will convince one of the intimate relationship of ophthalmology to the general physical welfare of children.

##### Child Hygiene and the Doctor

DR. ADA E. SCHWETZER, Indianapolis: That valuable work in child hygiene has already been done in Indiana is shown by a fairly regular lowering of our infant mortality rate for the last ten years, the lowest point (80 deaths under 1 year in each 1,000 deaths) being reached in 1915. The highest mortality was 144, in 1909. For 1916, 1917 and 1918 the rates are 85.5, 83 and 88, respectively, the increase in 1918 being largely due to the influenza epidemic together with the increased cost of living.

##### Relation of Otolaryngology to Child Hygiene

DR. DANIEL W. LAYMAN, Indianapolis: The past decade has shown the laryngologist active in tonsillar surgery, because the internist and pediatrician, backed by the scientific work of the pathologist and bacteriologist, have advocated the removal of tonsils which are troublesome. Today, the progressive laryngologist does not wait until the tonsils have caused a diseased condition, because he knows diseased tissue is a menace to health, rendering the child much more susceptible to respiratory and gastro-intestinal disturbances of all kinds, as well as to the infectious diseases. Reports from contagious disease hospitals over the country show that in from 80 to 100 per cent of contagious disease cases diseased tonsils are present, and that they are nearly always present in the cases that develop complications.

#### DISCUSSION

DR. O. C. BREITENBACH, Columbus: Two important factors in bettering the condition of the children of the United States are: first, our standardized methods of grading children, and, second, school inspection. School inspection must be more than mere inspection; it must include a follow-up system that will carry the life-saving principles of modern medicine into the homes.

Dr. W. A. HOLLIS, Hartford City: Not all that is written about child hygiene is written by physicians, and not all that is read on the subject is read by physicians; nor is all the good advice on the management and rearing of children to be obtained from physicians. I am frequently surprised at the amount of information intelligent women and mothers have collected, and I am always glad to learn from them.

Mr. J. L. MILLER (Office of Food and Drug Commissioner), Indianapolis: In regard to labeling poison alkalis, I do not believe that we have done our duty to our children until we have secured legislation that will secure the proper control of the distribution of these poisons, and I believe the physicians are the best people to bring about a sentiment in favor of enacting the proper law.

Dr. GEORGE W. SPOHN, Elkhart: I do not believe in the universal removal of tonsils. So many mistakes are made that we should be extremely careful in our differential diagnosis. Tonsils should be removed only when it is really necessary.

Dr. CHARLES STOLTZ, South Bend: One great trouble lies in our school inspection. This should consist of more than looking into a child's throat and finding out if it has myopia. School inspection should ascertain the conditions in the child's home, and the attitude of the community toward industrial problems.

Dr. H. O. PANTZER, Indianapolis: More care must be taken with medical records. In 99 per cent. of records only the most perfunctory reference is made to this subject, simply saying, "Has had ordinary diseases of childhood." We must do better in this respect in the future.

(To be continued)

## AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

*Third Second Annual Meeting, held at Cincinnati, Sept. 15-17, 1919*

The President, DR. JOHN F. ERDMANN, New York,  
in the Chair

### SYMPOSIUM ON VENEREAL DISEASE

#### Work of the Detention Home for Women in the Management of Venereal Disease

Dr. PALMER FINDLEY, Omaha: In June, 1918, at Fort Omaha, measures were taken to protect the soldiers from venereal disease. After the detention home was established, that infected girls and women could be treated properly, the percentage of venereal disease among the soldiers was greatly reduced.

#### Pioneering in Venereal Disease Control

Dr. A. J. McLAUGHLIN, Sioux City, Iowa: Educational methods, such as authentic literature and lectures, are useful in bringing about a demand in different communities for suppression of these diseases; but the carriers are not reached by this form of control. Law enforcement is the only method through which they can be reached; and if the law enforcement is strict enough, venereal disease can be eradicated.

#### Value of Detention as a Reconstruction Measure

Dr. C. C. PIERCE, Washington, D. C.: The war has given us volumes of data proving conclusively that the prostitute or sex-offender requires individual, correctional care to overcome the handicaps of mental inferiority, physical defects, educational neglect, and hereditary and environmental influences. The detention home has a definite place in the reconstruction program, but it must be a detention home only in the sense that individuals are detained until such time as they can be returned to society equipped to take their places as respectable and respected citizens. Merely to use a detention home for the cure and treatment of venereal diseases is to promote a vicious cycle. Unless the detained individual is given a vocational training whereby a decent economic status can be maintained, the detention home contributes to delinquency rather than corrects it.

The war-time detention house was designed primarily to meet an emergency, to protect the fighting men from venereal infections. The peace-time detention house for such an institution must be carried over with the peace-time program; it must be designed to protect the working forces—posterity—from venereal infections. The peace-time detention home must provide correctional facilities as well as medical facilities.

#### Detention and Treatment of Infected Women as a Measure of Control of Venereal Diseases in Extracantonment Zone

Dr. W. F. DRAPER, Richmond, Va.: The detention hospitals were a potent factor in controlling the spread of venereal diseases in extracantonment zones: (1) by making it possible to remove a large number of infected immoral women from the community and holding them absolutely apart from the general population for a number of months; (2) by making the chances of isolation for a considerable period of time so great as to discourage immoral women from operating in these areas; (3) by giving a practical demonstration to the community of the high prevalence of venereal diseases among immoral women, and the time and effort necessary in the treatment of these diseases, and (4) by actually removing foci of infection by medical treatment. The actual treatment of the women is believed to have been of far less importance in controlling venereal diseases in the extracantonment zones than the other factors mentioned. A period of treatment lasting only a few months is of doubtful efficacy, and serves only to embitter the patient without in any way detracting from her intention of again resorting to prostitution immediately on her release from the hospital. It is believed that the period of detention and treatment should be extended for a period lasting from one to four years, thus allowing time for more definite results as to treatment, and affording an opportunity for rehabilitation. In cases in which the mentality is so low as to preclude the possibility of a life other than one of prostitution, it would be an economy and a humanitarian act to commit such individuals to institutional care for life. The cost of the detention hospital is the most serious obstacle in the path of its development. Few communities are willing, if, indeed, they are able, to maintain such an institution. It is freely admitted, therefore, that federal aid in the establishment and maintenance of detention hospitals for women will be necessary for a considerable time to come.

### SYMPOSIUM ON ADMINISTRATION OF ANESTHESIA IN OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

#### Safety Factors in the Team-Work of Operator and Anesthetist

Dr. JOHN J. BUETTNER, Syracuse, N. Y.: The duty of the anesthetist is not merely to administer the anesthetic agent, but also to help prepare the patient for the operation. When possible, the anesthetist should begin his work when the surgeon has decided that an operation is needed. It is advisable to have the patient in the hospital at least forty-eight hours before the operation. A full physical examination of the patient is advisable. A thorough examination of the urine should be made, and, when possible, a functional test. The examination for acetone is too often neglected. It should be made a routine practice. A full blood examination, including the clotting time of the blood, is another safeguard. It is especially in genito-urinary surgery that this preoperative care and preparation of the patient is valuable. Patients who formerly were doomed to die are now made fit subjects for surgery that affords not only relief, but oftentimes cures.

#### Some Adjuncts Which Promote Efficiency in the Use of Local Anesthesia

Dr. ROBERT EMMET FARR, Minneapolis: Elements which have influenced me in the adoption of local anesthesia are the facts that liberal amounts of procain can be used if safeguarded properly; the development of an improved armamentarium; the development of a morale on the part of my assistants and the hospital attachés which, together with the gradual education of my clientele, greatly influenced the

mental attitude of prospective patients, and an improvement in the method of handling the tissues. My experience leads me to believe that postoperative ileus and gas pains are, in the absence of infection, directly proportionate to the amount of trauma employed during the operation. Nausea, thirst, vomiting and pain are largely eliminated. When operations are performed on children under local anesthesia, restraint is necessary while the anesthetic is being introduced. My experience has been that the restraint necessary is probably less than one-tenth that required during the administration of a general anesthetic.

#### Surgical Barrage

DRS. CHARLES W. MOOTS and ELMER I. MCKESSON, Toledo, Ohio: A surgical barrage may be defined as the process of surrounding the surgical patient with all the skill and refinement known to specialists in the various departments of medicine and surgery during the preoperative, operative and postoperative periods. Surrounded with such a barrage, the patient may reasonably anticipate the lowest possible mortality rate, with the shortest and least uncomfortable morbidity period. The question of the advisability of nurses administering anesthetics has recently been brought up. While many nurses may be taught to administer the safer agents in uncomplicated cases in a manner highly satisfactory to the operator, yet the principle is fundamentally wrong. The administration of a general anesthetic is the giving of the most powerful and dangerous drug at the most perilous time of the patient's life. During any major operation the anesthetist may be called on to make one or several new diagnoses and prognoses, and this certainly constitutes the practice of medicine and demands unusual skill. The war has corroborated our previous observations that when nitrous oxid-oxygen was available in skilled hands, this form of narcosis is one of the best shock prophylactics. It is not remarkable that nitrous oxid-oxygen should be safer in shock and in preventing shock than other anesthetics when one recalls the fact that muscles cannot be paralyzed with it.

#### Postoperative Analgesia

DR. BERTHA VAN HOESSEN, Chicago: Postoperative analgesia means a painless convalescence for surgical patients. The factors in postoperative analgesia technic may be thus enumerated in the order of their importance: scopolamin-morphin anesthesia; large enemata (from 4 to 5 quarts) given in one-half hour following operation and retained; frequent minute doses of scopolamin-morphin at regular intervals after operation and continued for the first twenty-four or thirty-six hours; the use of sharp instruments during the operation, avoiding blunt dissection; sponging gently and infrequently; a comfortable posture for the patient, with an effort to secure relaxation or support as may be required for the traumatized part of the body.

#### Care of Bowels During Puerperal Period

DR. ROSS MCPHERSON, New York: Nine hundred women were given routine catharsis, and 911 were not. Among the 900 who had catharsis, eighty-four at some time during their convalescence developed a temperature of 100.4 F. Among the 911 to whom no catharsis was administered, fifty-three developed the same degree of temperature. While I am far from believing that there is never any necessity for administering a cathartic in the puerperium, I wish to emphasize the danger and uselessness of routine drugging, and assigning certain effects to conditions which have not been shown to be the cause of the symptoms exhibited.

#### Method of Placing Sutures in Immediate Repair of Perineum

DR. WILLIAM D. PORTER, Cincinnati: In simple longitudinal tears the usual method is to place the sutures transversely. I place the sutures longitudinally. The torn surfaces being well separated, the needle is carried through the mucous membrane half an inch to the left of the apex of the torn surface; then carried longitudinally under the torn surface, keeping half an inch to the left of the gutter of the tear, the needle is brought out through the skin half an inch to the left of the deepest point in the skin tear. The needle is next

removed and placed on the other end of the suture, which is then carried down in a similar manner half an inch to the right of the gutter. The next stitch is placed parallel to the first, and half an inch to the outside. In a complete tear, the first stitch is carried through the skin near the mucocutaneous junction in such a manner as to transfix the end of the torn and retracted sphincter muscle; then under the torn surface parallel with, and near to, the edge of the torn rectal mucous membrane up to the apex of the tear in the septum, and transversely through the septum and down on the other side until the other end of the torn circular muscle is transfixed, and the needle brought out to correspond to the point of entrance. Succeeding sutures are placed parallel to the first.

(To be continued)

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

#### American Journal of Diseases of Children, Chicago

October, 1919, 18, No. 4

- \*Caloric Requirements of Normal Infants and Children from Birth to Puberty. F. B. Talbot, Boston.—p. 229.
- \*Influenzal Croup. H. L. Lynch, New York.—p. 238.
- Health Study of a Boy's School. E. M. Smith, Boston.—p. 248.
- \*Certain Nutritional Disorders of Children Associated with a Putrefactive Intestinal Flora. L. Porter, G. B. Morris and K. F. Meyer, San Francisco.—p. 254.
- Study of the Stools in Children's Institutions showing the Incidence of Intestinal Parasitic Infections. L. R. DeBoys, New Orleans, and H. L. Dwyer, Kansas City, Mo.—p. 269.

**Caloric Requirements of Normal Infants and Children.**—In a series of studies made at the Nutrition Laboratory of the Carnegie Institution of Washington, D. C., on the energy metabolism of normal infants and children from birth to puberty, 108 boys and seventy girls, were investigated. The majority of the younger subjects were normal breast fed infants. These were studied at the Boston Directory for Wet Nurses. The older subjects were selected from the New England Home for Little Wanderers, all possible efforts being directed toward individuals who represented normality. The findings are presented in a series of six charts.

**Influenzal Croup.**—Seven cases of influenzal croup are reported in detail by Lynch. Apparently, there are four distinct types of respiratory involvement according to the location of the lesion: (a) laryngeal; (b) tracheobronchial; (c) bronchopulmonary or asthmatic, and (d) pneumonic.

**Nutritional Disorders and Intestinal Flora.**—From their observations the authors have been able to show (1) that children whose diet is well balanced and whose nutrition is normal have an intestinal flora consisting of fermentative and putrefactive types without preponderance of either; (2) that children fed on large quantities of cow's milk have a more complex flora made up of various types, most of which are facultative putrefactors; (3) that in children who suffer from certain of the types of alimentary intoxication with malnutrition, the intestinal flora departs in a uniform manner from the normal, and that this departure is always characterized by the establishment of bacterial type predominantly putrefactive; (4) that the return of these children to normal health is coincident with a regression of the intestinal flora toward predominantly fermentative types and a later swing to balance between the two types; (5) that such changes in the intestinal flora can be brought about in the intestine of the human infant by withdrawing animal protein and persistently feeding large amounts of lactose (from 2 to 4 ounces daily), and other carbohydrates, that the period which may be necessary to produce this variation is from ten to forty days. While feeding acidophilus cultures has in a few cases aided a more rapid establishment of aciduric flora in the baby's intestine, this influence was not very great; (6) that the progressive cessation of the symptoms of intoxication and a return of toxic patient to

nutritional health coincides with the recognizable dominance of a fermentative flora; (7) that lactose and dextrins are the carbohydrates most effective in encouraging the rapid establishment of a fermentative flora in the intestine of infants and children. Following these investigations a system of treatment was devised and in nine cases during the last two years there has been but one fatality. The patient who died came late in the course of the intoxication. The plan calls for lavage of the stomach with a 2 per cent. sodium bicarbonate solution, and the washing out of the bowel with from 2 to 6 quarts of a 5 per cent. solution of the same salt, two to three times a day. All food is withdrawn, except that the patient is given large quantities of an iced, 7 per cent. solution of lactose with 2 per cent. of the sodium bicarbonate solution by mouth, and this is continued in spite of the vomiting. The patients suffer less if they are supplied with large quantities of fluid, and the vomiting ceases more promptly especially if the ingested fluid is kept cold. The intravenous injection of isotonic solution of glucose has been made a routine, even in those cases in which some sugar appears in the urine. If the respiratory signs of acidosis become alarming, Fischer's solution is injected into a vein in a quantity appropriate to the age and weight of the patient. The improvement in each case began at a time when it was possible to show that the intestinal flora had altered in type from putrefactive to fermentative.

### American Journal of Ophthalmology, Chicago

September, 1919, 2, No. 9

- Bliss Staining of Cornea. C. Maehy, London.—p. 633.  
 Roentgen Ray Treatment of Retinal Glioma. K. Kusama, Tokyo.—p. 636.  
 Ocular Complications of Dengue Fever. H. Barkan, San Francisco.—p. 659.  
 Operation Relegating Enucleation of Eye to Its Proper Position. T. J. Doherty, New Orleans.—p. 653.  
 Test for Judgement of Distance. H. J. Howard, Peking, China.—p. 656.  
 Relation of Ocular Muscles and Sclera in Etiology of Myopia. S. Ochi, Kyushu, Japan.—p. 675.  
 Tubercle of Conjunctiva. J. A. Patterson, Colorado Springs.—p. 679.  
 Subconjunctival Graft of Fascia Lata. J. Whitaker, Indianapolis, Ind.—p. 681.  
 Hereditary Cataract in Calves. C. P. Small, Chicago.—p. 681.

### American Journal of Roentgenology, New York City

September, 1919, 6, No. 9

- Bone and Joint Lesions of Yaws; Roentgen-Ray Findings in Twenty Cases. H. G. Maul, U. S. Army.—p. 423.  
 Pathology of Lumbosacral Region Associated with Congenital Malformation of Transverse Processes of Fifth Lumbar Vertebra. A. J. Richard, New York.—p. 434.  
 Value of Radium in Curing Disease, in Prolonging Life, and in Alleviating Distressing Symptoms. W. H. R. Atkins, Toronto.—p. 439.  
 Legal Rights of Roentgenologist as a Witness. J. Friedmann, New York.—p. 445.  
 Psychographic Measurements of Roentgen-Ray Dose. L. P. Larkin, Illinois, N. Y.—p. 448.  
 Case of Tuberculosis of Intestines with Defect at Cecum. P. M. Lund, New York.—p. 453.  
 Method of Fluoroscopic Examination with Army Bed-side Unit. F. F. Berrill, Nantes, France.—p. 454.  
 Safety Pin in Lung Five Years. A. F. Tyler, Omaha.—p. 458.  
 Acute Infectious Arthritis Following Pneumonia. P. M. Lund, New York.—p. 457.  
 Physical Method for Testing Efficiency of Intestine-Sterilizing Screen. R. T. Merriam, Washington, D. C.—p. 458.  
 Roentgen Ray Study of Viscerospores. P. L. Ansell, Oakland, Calif.—p. 459.  
 Studies of Roentgen Rays on Certain Bacteria. M. W. Perry, Philadelphia.—p. 464.

### Archives of Neurology and Psychiatry, Chicago

October, 1919, 2, No. 4

- Treatment of Neurosyphilis Judged by Arsenic Penetration of Meninges; Method of Treating Neurosyphilis. H. G. Mehlertens and C. G. MacArthur, San Francisco.—p. 369.  
 Locomotor Disturbances in Disease of Cerebellum. I. L. Meyers, Chicago.—p. 376.  
 Action of Certain Drugs on Brain Circulation in Man. T. Raphael, West New Brighton, N. Y., and J. M. Stanton, St. Louis.—p. 299.  
 Study of Invalid Reaction. E. L. Richards, Baltimore.—p. 393.  
 Syphilis Lymphaticus. Its Occurrence and Significance in War Neuroses. T. K. Davis, New York.—p. 414.  
 Study of Hysteria, Based Mainly on Clinical Material Observed in U. S. Army Hospital for War Neuroses at Plattsburg Barracks, N. Y. A. J. Rosanoff, Kings Park, N. Y.—p. 419.

**Therapeutic Meningeal Irritation in Neurosyphilis.**—Experiments were undertaken by Mehlertens and MacArthur to find out if the normal penetration of arsenic into the spinal fluid could be increased by an irritation of the meninges such as must occur in all of the intradural treatments. They found that irritation of the meninges by intradural injection of the patient's own serum caused a cellular reaction ranging from 100 to 2,300 cells per cubic millimeter of spinal fluid. Simple intravenous injection of 0.6 gm. arsphenamin resulted in a positive test for arsenic in the spinal fluid in 43 per cent. of the cases examined. Complete drainage of the spinal fluid did not increase the number of arsenic penetrations. Intravenous injection of arsphenamin, six hours after meningeal irritation, gave 92 per cent. penetrations, and compared with the controls gave three times as strong an average concentration of arsenic.

**Locomotor Disturbances in Disease of Cerebellum.**—Meyers describes the apparatus he used for studying the movements of the upper and lower limbs and details the findings in a number of cases studied. In a previous publication he advanced the theory that the essential function of the cerebellum is to inhibit, to regulate the activity of the motor cortex and of the tonus centers, probably located in the medulla. This theory seems to be supported by the graphic records here reported.

**Action of Certain Drugs on Brain Circulation in Man.**—On the basis of plethysmographic observation on the brain circulation in man under normal, in vivo, condition Raphael and Stanton claim that amyl nitrite causes a marked dilation of the brain vessels; epinephrin induces a primary constriction of these vessels, which is followed by a marked dilation; caffeine produces no demonstrable change in the dosage employed, and pituitary extract is followed by a dilation of the brain vessels, accompanied by a distinct "leukoreaction."

**Invalid Reaction.**—Richards gives a summary of sixty cases and reports six of these cases in detail to illustrate some of the psychobiologic twists for which invalidism may be a substitute. The author urges that a more careful and searching examination be made in these cases, in which only psychopathic treatment will lead to favorable results.

### Boston Medical and Surgical Journal

Oct. 2, 1919, 151, No. 14

- \*Energy Content of Extra Foods. C. G. Benedict, and F. G. Benedict, Boston.—p. 415.  
 \*Diabetes Mellitus. S. H. Blodgett, Boston.—p. 422.  
 \*Medical Supervision of Framingham Schools. W. B. Howes, Framingham.—p. 427.  
 Bedside Roentgenography with a New Portable Roentgen Ray Apparatus. The Army Bedside Roentgen Ray Unit Adapted As a Portable Apparatus For Civilian Practice. W. K. Coffin, Boston.—p. 431.

**Energy Content of Extra Foods.**—This paper deals with a group of materials very frequently eaten as extras, as incidental light meals, as ingredients of lunches, at picnics, spreads and on automobile tours, such as olives and olive products, sardines, nuts, potato chips, doughnuts, confectionery (such as caramels, nougats, chocolate almonds, peppermints, etc.). In view of their extensive consumption by children, the Benedicts have also determined and report here the caloric content of a large number of candies popularly sold under the name of "peppy goods," that is, sold in portions costing one cent each. They likewise include partial reports on cream cheeses, popcorn and crackers, including pretzels, and, finally, they report the average helpings of granulated sugar as measured by seventeen members of the laboratory staff, as well as weights and sizes of various lump sugars. The calories of olives range from 1.147 to 1.553 per gram. The caloric values per gram of the so-called ripe olives, range about 2.4 calories per gram, due to the extra fat. A can of imported sardines will yield not far from 500 calories, and a can of American sardines will yield from 221 to 533 calories. The high fat content of nuts accounts for their high caloric value, which runs in all cases not far from 7 calories per gram. Owing to the fat content of potato chips, their caloric value is, on the average, 5.9 calories per gram. The caloric value per gram of doughnuts varies with

the fat content, ranging from 4.4 to 5.1 calories, averaging not far from 200 calories per doughnut. The caloric value of crackers and pretzels per gram is not far from the caloric value of starch, i. e., 4.2 calories. The caloric value of caramels is somewhat over 4 calories per gram. The caloric value of chocolate coated candies for the most part runs above 4 calories per gram. Not far from 50 to 60 calories are commonly secured in penny candies for one cent. Popcorn candy has a caloric value of 4030 calories per gram; Philadelphia cream cheese, 3,654 calories per gram; Neufchâtel cheese, 2,056 calories per gram. The average teaspoonful of sugar furnishes from 29 to 35 calories.

**Medical Supervision of Framingham Schools.**—Of the 2,449 children examined in the Framingham schools, 408 were found to be anemic; 1,113 had enlarged cervical lymph nodes; 1,167 had hypertrophied tonsils of varying degrees; 29% had defective nasal breathing due to nasal obstruction from hypertrophied turbinates, adenoids or injury to the nose; 133 children had eyes testing <sup>20/40</sup> or worse; 146 had heart murmurs; 39 had functional irregularities of rhythm; 11 cases of pulmonary tuberculosis were found; 64 other children had a history and abnormal physical signs in the chest which suggested possible tubercle; 172 had bronchitis and 6 cases of pleurisy were diagnosed. Of the skin diseases, impetigo contagiosa held first place with 29 cases, with pustular dermatitis, eczema, acne, scabies, ringworm, ichthyosis, following in the order named. One case of ichthyosis congenita, a rare skin affection, was diagnosed. One thousand six hundred and eighty-one children had teeth needing urgent attention.

### Florida Medical Association Journal, St. Augustine and Jacksonville

September, 1919, 6, No. 3

Stricture of Ureter, Report of Two Cases. J. K. Simpson, Jacksonville.—p. 55.

\*Anorexia Nervosa Complicated by Vomiting and Pain: a New Point in Diagnosis and a New Method of Treatment. M. H. Smith, Jacksonville, Fla.—p. 58.

Use and Abuse of Biologics. B. L. Arms, Jacksonville.—p. 60.

Röntgen Diagnosis in Its Broader Application. L. W. Cunningham, Jacksonville.—p. 62.

Atypical Syphiloderms. J. L. Kirby-Smith, Jacksonville.—p. 63.

**Study of Gastric Mucus in Diagnosis of Anorexia Nervosa.**—The point in diagnosis referred to by Smith is that the microscopic study of the mucus taken from the stomach of these patients usually shows many incorporated epithelial cells if the condition is purely a nervous affection, whereas their absence suggests an organic state. In the treatment of this condition it is Smith's plan to select a well ventilated, quiet room—up stairs, if possible—leading out on an open porch; remove unnecessary wall decorations, drapery, flowers, etc.; give the stomach twenty-four hours rest from all kinds of food and medication; directing the nurse to administer one tablespoonful of very hot distilled water to the patient every hour during the day or until pain and nausea seem to be diminished; require all food kept out of sight and caution the nurse not to even use the words "pain," "food," "medicine," "nausea" or "vomiting" at any time in the presence of the patient. To safeguard against toxic symptoms and to insure the patient of a fair night's rest and sleep Smith gives first a colonic irrigation of warm distilled water and then administers from 30 to 40 grains of sodium bromid in 16 ounces of distilled water or else he introduces a rectal suppository containing from 15 to 20 drops of deodorized tincture of opium using precautions not to have a habit formed. Early the following morning the patient is made to swallow the weighted end of a modified duodenal tube, requiring him to spend some time on the right side after the tube has reached the pylorus. In about thirty or forty minutes the tube will be 1 or 2 feet in the jejunum. Smith's modification of the original duodenal tube is its great increase in length, and the end of the tube has long, fenestrated openings in it to prevent choking as the food escapes. The fact that the end of this tube is 2 or 3 feet below the stomach Smith has found to be of great value in preventing the tube from being forced back into the stomach and also the food from

regurgitating should reversed peristalsis occur. Another great advantage in depositing this nourishment considerably down in the small bowel is that the stomach is given prolonged and continued rest, the presence of the tube usually not giving any sensation whatever. If the patient tolerates the tube well, it is left in place all day; on the other hand, if it annoys the patient it is removed for about four hours during the middle of the day. The extent to which artificial digestion is resorted to before introducing the various foods depends entirely on the result of analysis of the gastric contents. If all enzymes are absent, as they usually are in neurotic cases, the liquid nourishment, such as purées, animal broth, toasted or untoasted cereal gruels, is subjected to thirty minutes' digestion on a hot water bath, or other device, at about 37 C., using diluted hydrochloric acid, malt extract and pepsin. If these feedings are given about every two or three hours regularly, the patient soon regains sufficient strength to have this process discontinued and begin gastric feeding by mouth, at which time normal hunger and appetite return.

### Journal of Infectious Diseases, Chicago

October, 1919, 25, No. 4

\*Selective Inhibitory Action of Methylene Blue and Other Common Dyes on Growth of Meningococci. C. A. L. Binger, A. E. F.—p. 277.

\*Dissemination and Destruction of Typhoid Bacilli Injected Intravenously into Normal and Immune Rabbits. R. L. Stone, Berkeley.—p. 284.

\*Experimental Streptococcal Tonsillitis; Apparent Inefficiency of Streptococcal Vaccine as Prophylactic. D. G. Richey, Washington, D. C.—p. 299.

Two Instructive Outbreaks of Typhoid. G. F. Ruediger, Reno, Nev.—p. 306.

\*Effect of Feeding Yeast on Antibody Production. E. P. Wolf and J. H. Lewis, Chicago.—p. 311.

\*Biologic Classification of Hemolytic Streptococci. L. C. Havens, Baltimore, Md.—p. 315.

An Epidemic of Water Borne Dysentery. G. E. Stookey, U. S. Army.—p. 331.

Protection Against Action of Ultraviolet Light Afforded to Aloxan and Sensitizer by Certain Substances. F. M. Hill and C. L. A. Schmidt, Berkeley.—p. 335.

Cause of Abortion in Mares (B. Abortus Equi). C. Murray, Ames, Iowa.—p. 341.

**Antimeningococcal Action of Certain Dyes.**—A study by Binger of the action of safranin on suspensions of meningococci showed inhibition of their growth at dilutions between 1:1,000 and 1:10,000. This led to an investigation of the behavior of certain other common dyes both on meningococci and other pathogenic organisms, and a comparison of their inhibitory action with that of a few of the common anti-septics. Of the dyes studied, guttan violet, crystal violet, brilliant green, bismarck brown, safranin, methylene blue were found to inhibit the growth of meningococci. Basic fuchsin, vital red, fluorescein and eosin had no inhibitory action. The study of the comparative action of methylene blue on various types of meningococci and other pathogenic organisms showed that the growth of meningococci was inhibited at dilutions which failed to inhibit the growth of the other organisms with one exception. The inhibitory action of methylene blue on the meningococcus and the gonococcus, biologically related organisms, was the same. No fixed point of dilution has been established at which methylene blue inhibits the growth of different suspensions of meningococci. This varies with the number of viable organisms present in the suspensions. For a given suspension, however, the inhibitory point is constant. A study of the comparative action of methylene blue, formaldehyd, mercuric chlorid and phenol showed mercuric chlorid to exert the most powerful action, phenol the least, while methylene blue and formaldehyd exerted an equal influence intermediate between the other two. The presence of native protein of inflammatory cerebrospinal fluid did not interfere with the inhibitory action of methylene blue on the meningococci. The hope of finding a chemical therapeutic agent for the meningococcal group of infections is what prompted Binger to make this study. He suggests that methylene blue may possibly fit the requirements. It inhibits the growth of meningococci at fairly high dilutions. It is relatively non-toxic, it is readily diffusible through the choroid plexus and to have a special affinity for nerve tissue.

**Destruction of Typhoid Bacilli in Rabbits.**—The observations made by Stone suggest the mechanism of bacteriolysis in the body of the immune animal, namely: Typhoid bacilli disappear more quickly from the organs of immune animals than from normal animals. Macerated organs taken from immune animals, cut sections, or their extracts are not bactericidal even on the addition of fresh immune serum. Typhoid immune serum is nonbactericidal for typhoid bacilli in vitro. Fresh normal serum is highly bactericidal for typhoid bacilli in vitro. Fresh immune serum in vivo, has apparently a high bactericidal power. Fresh normal serum in vivo has no protective power. This would seem to indicate that the destruction of typhoid bacilli in the immune animal is due either to some interaction between the tissue cells and plasma in vivo, or to some other factor which has thus far been overlooked.

**Experimental Streptococci Tonsillitis.**—During investigations of 155 human volunteers to study the epidemiology of influenza, sixteen different individuals developed tonsillitis apparently due to hemolytic streptococci. All cases of tonsillitis occurred in men receiving crude nasopharyngeal washings and bronchial secretions from early, acute, typical, uncomplicated influenza patients—with exception of six cases in which the common donor had acute tonsillitis; no cases of tonsillitis occurred in those into whose nares were instilled filtered nasopharyngeal washings and bronchial secretions from influenza donors. The causative organisms of the tonsillitis were very similar to the hemolytic streptococci isolated from the nasopharyngeal washings and bronchial secretions of the donors of the respective groups. Three of the cases of tonsillitis developed in persons who had received, one month previously, a vaccine containing, in addition to other organisms, three presumably adequate doses of hemolytic streptococci.

**Effect of Feeding Yeast on Antibody Production.**—According to Wolf and Lewis the feeding of yeast has no stimulating effect on the production of antibodies to sheep blood in rabbits. The production of antibodies was even less than in controls. There is no evidence of any effect of yeast on the gastro-intestinal tract of rabbits.

**Biologic Classification of Streptococci.**—By means of agglutination tests Havens establishes three distinct groups of the hemolytic streptococci, constituting 93 per cent. of a series of 292 strains. The first group is much the largest (47 per cent.), the second group contains 19 per cent., and the third group, 27 per cent. The remaining twenty-two strains, or 7 per cent. of the series, evidently constitute a heterogeneous group, possessing different biologic characteristics. Diagnostic serums can be produced for each group. A protective serum for mice against each of these three groups has been demonstrated. Each serum is specific for its own group, furnishing no protection against other groups.

### Laryngoscope, St. Louis

September, 1919, 29, No. 9

Present Status of Teaching of Deaf. M. A. Goldstein, St. Louis.—p. 503.

Bone Conduction of Sound in Cetacea and Its Relation to Increased Bone Conduction in Human Beings. J. D. Kernan, Jr., New York.—p. 510.

Laws of the Hearing Centers and Application of These Laws. J. F. Callahan, Brockton, Mass.—p. 522.

Annual Study Based on Cases Seen in Otolaryngologic Service, U. S. Army General Hospital No. 14, Fort Oglethorpe, Ga. T. J. Harris, New York.—p. 540.

Tight Strictures of Esophagus in Children, Due to Lye Burns. G. F. Kelper, Lafayette, Ind.—p. 548.

Two Cases of Fracture of Skull: With Secondary Mastoiditis, Meningitis, and in One Case, Brain Abscess. J. M. Smith, New York.—p. 552.

Interesting Symptoms in Connection with Cure of Brain Abscess, Operation and Recovery. J. W. Bowers, New York.—p. 558.

### Medical Record, New York

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Urea-therapy in Certain Diseases and Conditions of Childhood. E. B. McCready, Pittsburgh.—p. 529.

Present Aspects of Endocrinology. A. W. Leschber, Detroit.—p. 532.

Medical Treatment of Gout. G. Ryan, Des Moines.—p. 534.

Cervative Versus Symptomatic Treatment of Exophthalmic Gout. C. E. de M. Sajous, Philadelphia.—p. 536.

Medical Social Service in Rehabilitation. W. H. Sheldon, New York.—p. 541.

Furunculosis of External Auditory Canal. H. B. Blackwell, New York.—p. 543.

National Organization of Rehabilitation of Disabled in Italy. V. Putti, Bologna, Italy.—p. 544.

### Military Surgeon, Washington, D. C.

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Abstract of Report Professor Kubner Made in the Reichgesundheitsrat, Dec. 20, 1917.—p. 237. To be Continued.

Medical Work in British Armies in France. G. C. Shattuck, Boston.—p. 248.

A Base Hospital Postgraduate Course. C. F. Tenney, U. S. Army.—p. 257.

Orthopedic Service in British General Hospitals. R. B. Osmond, Boston.—p. 262.

Report of Intensive Antityphoid Campaign in Southwestern Germany; Analysis of Data on Seventy One Typhoid Carriers Under Observation by Laboratory at Trier, Germany. P. A. Schule, U. S. Army.—p. 268.

War Dermatology in France and Preventive Measures Taken. F. C. Knowles, U. S. Army.—p. 283.

Methods of Handling Venereal Disease at Camp Dix, N. J. C. H. D. Shivers, U. S. Army.—p. 293.

Case of Cerebellar Abscess Following Shell Wound of Skull and Showing No Symptoms for Period of Five Months. F. T. Hill, U. S. Army.—p. 305.

One Phase of the Mosquito Work Connected with Army Camps in 1918. C. S. Ludlow, Washington, D. C.—p. 313.

Detection of Carriers and Missed Cases of Diphtheria in Embarkation and Debarcation of Troops. E. H. Schorer and A. S. Ruddock, Hoboken, N. J.—p. 319.

Hospital Train Service in the A. E. F. E. M. Colic, Jr., U. S. Army.—p. 328.

### Missouri State Medical Association Journal, St. Louis

October, 1919, 16, No. 10

Fibroid Tumors; Suggestion for Their Control. H. E. Pearse, Kansas City, Mo.—p. 323.

\*Conditions Other Than Syphilis Giving Positive Wassermann. M. O. Biggs, Fulton, Mo.—p. 326.

Interruption of Pregnancy at Term. W. H. Vogt, St. Louis.—p. 329.

\*Extraordinary Factors in Angina Pectoris. P. T. Bohan, Kansas City, Mo.—p. 334.

Medical Problems in Future. J. C. Morfit, St. Louis.—p. 337.

Toxicemia. O. B. Hall, Warrensburg, Mo.—p. 340.

Two Cases of Alleged Duke's Disease with a Vesicular Eruption. J. T. Tyree, Joplin, Mo.—p. 342.

\*Oak Pollen Anaphylaxis; Report of Case. H. L. Kerr, Crane, Mo.—p. 343.

**Positive Wassermann Reaction in Hyperthyroidism.**—Biggs calls attention to the large percentage of hyperthyroid cases in State Hospital No. 1, Fulton, Mo., giving a positive Wassermann in which it was impossible either from clinical history, physical examination or inquiry into the family records, to establish any syphilitic infection or taint. The patients were insane, with two exceptions, and their cases had been diagnosed under the head of "thyrotoxic psychosis." Those individuals all became unmanageable to a greater or less degree at their respective homes, necessitating their confinement in an institution for the insane. The psychosis of each, in the main, was characterized by wild delusions, irritability which sometimes developed into acute excitement, slow speech and deliberate mentation, absence of suicidal or homicidal tendencies, lassitude and indifference to surroundings and apparent feeble-mindedness in some. There was in these cases a total lack of the symptoms which are manifested in a psychosis which results from syphilis infection, either acquired or inherited. The physical signs were such as one would find in the average case of this type. In most of the cases an exophthalmic state was found to exist with marked tachycardia and other symptoms which accompany conditions of this kind. In some of the cases the enlargement of the thyroid was more lateral and varied in size to a great extent. The changes in the skin, teeth, blood, and temperature of the body, are typical of this class of cases. The prevailing mental tone associated with the disease was fear and apprehension, frequently associated with hallucinations of hearing and vision; voices were heard saying disagreeable things and with these hallucinations occurred anxious and agitated states. A brief case history of twelve patients is given.

**Extraordinary Factors in Angina Pectoris.**—Three cases are reported by Bohan as evidence of causes of angina out-

side the cardiovascular system. The first case, one of severe angina, indicates that heart strain and reflex disturbance from irritation of the fifth nerve was either the sole cause or an important contributing factor. Irritation of the fifth nerve as a possible factor in angina, is illustrated by the second case. The third case indicates that infected tonsils, apical abscesses, neuritis in the left shoulder and gallstones were possible factors.

**Oak Pollen Anaphylaxis.**—Annually for the last nine years, within a few days of the first of April, Kerr's patient became ill with symptoms of hay-fever, irritation and injection of the conjunctiva with excessive lachrimation, sneezing, etc. After the first week, a papular eruption appeared on the anterior surface of the neck, elbows, groin and popliteal spaces. In about a week the papules coalesced, forming a weeping eczematous condition, which persisted very obstinately for about four weeks. During this time a considerable bronchitis and some very slight symptoms of asthma appeared, and he was incapacitated for school work. Superimposed on all this there was a bacterial infection which was followed by a furunculosis which manifested a predilection for the region of the groin and buttocks. It was evidently an anaphylactic condition. A positive reaction was obtained from oak pollen. The condition cleared up quickly when the patient got away from the oak trees among which he lived.

**Modern Hospital, Chicago**

September, 1919, 1, No. 5

Romance of Sanitary Science. J. A. Tobey, Trenton, N. J.—p. 373.  
Disability by Age and Occupation. B. Emmet, New York.—p. 379.  
Jewish Health Work. H. J. Moss, Baltimore.—p. 385.  
Traumatic Hernia, So-Called Among Railway Employees. C. W. Hopkins, Chicago.—p. 389.  
Anilin Poisoning; Diagnosis and Treatment. R. P. Albaugh, Cleveland.—p. 398.  
Medical Benefits and Medical Profession Under Workmen's Compensation Laws. C. Hookstadt, Washington, D. C.—p. 399.  
How Industrial Medicine is Extended Through Mutual Benefit Associations. C. H. Lemon, Milwaukee, Wis.—p. 406.  
Surgeon in Relation to Public Utilities. C. M. Harpster.—p. 410.  
Influence of Season on Prevalence of Epidemic Diseases. C. V. Craster, Newark, N. J.—p. 425.  
Value of Public Health Nurse to Community. H. R. Stewart, New York.—p. 429.  
Mentality of Convalescence. E. A. Bott, Ontario, Canada.—p. 438.  
Social Service for the Chronic. S. Wachsmann, New York.—p. 444.  
Stammering and Modern Medicine. E. Tompkins, Pasadena, Calif.—p. 448.  
Repeated Blood Pressure Readings As Conservation Measure. L. M. Howes, Chicago.—p. 455.

**Southern Medical Journal, Birmingham**

September, 1919, 12, No. 9

\*Neutrophilic Index and Administration of Tuberculin. W. J. Durel, New Orleans.—p. 517.  
Secondary Dilatations in Chronic Myocarditis. A. G. Brown, Richmond, Va.—p. 521.  
\*Plain Human Serum Treatment of Pneumonia. J. H. Cannon, Charleston, S. C.—p. 523.  
Bronchopneumonia in Adults. L. J. Lindsay, Covington, Tenn.—p. 526.  
Conservation of Mental Energy. F. J. Farnell, Providence, R. I.—p. 530.  
Prevention of Spit Borne Diseases. E. G. Williams, Richmond, Va.—p. 536.  
Early Recognition of Mental Disease. L. E. Bisch, Asheville, N. C.—p. 538.  
Preventive Medicine as Applied to Mental Deficiency in Mississippi. T. H. Haines, Jackson, Miss.—p. 541.  
Mental Hygiene. J. M. Bebeau, Meridian, Miss.—p. 544.  
\*Fate of Bone Graft. W. Campbell, Memphis.—p. 549.  
Traumatic Head Surgery. C. W. Roberts, Atlanta.—p. 556.  
Uterine Calculus. G. R. Livermore, Memphis.—p. 558.  
Acute Unilateral Hematogenous Nephritis. Report of Case. J. M. Maury, Memphis.—p. 561.  
Blood Transfusion: Comparison of Methods. A. G. Brenizer, Charlotte, N. C.—p. 563.  
Dead Teeth. J. Novitzky, San Francisco.—p. 566.  
Deviated Septum. R. W. Hooker, Memphis.—p. 574.

**Neutrophilic Index in Diagnosis of Tuberculosis.**—Polymorphonuclear neutrophil leukocytes with two or more separate lobules, absolutely apart and not connected by an isthmus band, are more "matured" and are endowed with a better phagocytic and a greater antibody action than the polymorphonuclear neutrophil leukocytes with one lobule. In

cases of tuberculosis where tuberculin is administered, Durel recalls there is always an increase of polymorphonuclear neutrophil leukocytes with one lobule after the injection of a "tonic" dose of tuberculin. This is generally followed in a few days by a corresponding increase of polymorphonuclear neutrophil leukocytes with two or more distinct and separate lobules. Cases where tuberculin reactions are frequently repeated always show a persistently high neutrophilic index, i. e., a high percentage of polymorphonuclear neutrophil leukocytes with one solid lobule. These cases also always show an increase of moisture over the tuberculous lesions. This increase of moisture is accounted for by the overcrowding of polymorphonuclear neutrophil leukocytes about the tuberculous foci, the pressure of the cells against each other producing a pneumonic serum exudate. Durel emphasizes again that the predominance of one lobule polymorphonuclear neutrophil leukocytes, associated with an increase of moisture (moist rales) over the tuberculous lesions, and following a reaction to tuberculin or severe exertion, clears up a doubtful condition often seen, but for which no tangible reason could be given nor accountable cause assigned.

**Normal Human Serum Treatment of Pneumonia.**—Cannon reports a case of pneumonia in which he injected 30 c.c. of serum obtained from a donor who had not had pneumonia or influenza. After obtaining a negative Wassermann and finding the blood of the donor and the recipient compatible, about 75 c.c. of blood was drawn into a sodium citrate solution, and after allowing it to settle overnight in the refrigerator, the serum was pipetted off and 30 c.c. were given to the patient by the gravity method. In about an hour he had a rather severe chill, rise of temperature to 104 F., associated with a severe coughing spell; he became very nervous and cyanotic (probably from the exertion of coughing) and the pulse became very rapid. This was followed in an hour by a drenching sweat and an improvement in all symptoms. Within five and one-half hours after the injection the temperature had reached normal, pulse 102, and respirations 24. In the case cited the fact that the patient had had influenza and still had the cough he developed with that disease Cannon suggests that it is possible at least that it may have been associated with the Type IV infection which he had, although clinically the case was one of pure lobar pneumonia.

**Fate of Bone Graft.**—Campbell is of the opinion that in adolescents and young adults, grafts are more vigorous and apparently act as a living, integral part, showing no disintegration, but a gradual increase in size and thickness. Spinal grafts in young children, and probably in adults, are absorbed. The graft may be inert or very feebly osteogenic but mechanically perform the function for which it was employed, as in the neck of the femur (dense into spongy bone).

**Southwest Journal of Medicine and Surgery, El Reno**

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The Bat; Mosquitoes' Natural Enemy. C. A. R. Campbell, San Antonio.—p. 195.  
Health Insurance. F. H. Clark, El Reno, Okla.—p. 207.

**Southwestern Medicine, El Paso, Texas**

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Company Physician's Contract. H. A. Reese, Bisbee, Ariz.—p. 1.  
Need of a Standardized Physical Examination for Employees in Arizona. R. J. Stroud, Gleason, Ariz.—p. 4.  
Hernia from An Industrial Standpoint. G. A. Bridge and W. M. Randolph, Bisbee, Ariz.—p. 10.

**Surgery, Gynecology and Obstetrics, Chicago**

September, 1919, 20, No. 3

\*Treatment of Hour Glass Stomach. A. J. Walton, London, England.—p. 213.  
Treatment of War Wounds of Joints. P. Duval, Paris, France.—p. 222.  
\*Treatment of Metastatic Carcinoma of Spine by Deep Roentgen Rays. G. E. Pfaber, Philadelphia.—p. 236.  
\*Treatment of Uterine Cancer by Radium. H. H. Jarway, New York.—p. 242.  
\*Case of Secondary Melano-Epithelioma of Bladder. C. G. Roberts, Rochester, Minn.—p. 266.  
\*Surgical Suspension of Uterus for Relief of Pain. Mechanical Retention and Descent. J. V. Young, New York.—p. 267.

- Case of Megadolodenum In An Infant Two Months of Age. F. G. Dolase, Selma, Ala.—p. 278.
- Experimental Study of Use of Detached Omental Grafts in Intestinal Surgery. W. L. Finton, Jackson, Mich., and M. M. Peet, Ann Arbor, Mich.—p. 281.
- Futility of Bridging Nerve Defects by Means of Nerve Flaps. B. Stookey, U. S. Army—p. 287.
- Methods of Closing Fecal Fistulas. P. Lockhart Mummy, London, England—p. 312.
- New Sign of Fecal Impaction. R. Finochietto, Buenos Aires, Argentine—p. 314.
- Foreign Body in Urinary Bladder. B. H. Caples, New York—p. 315.
- Methods of Tracheotomy Without Loss of Blood. D. Guthrie, Sayre, Pa.—p. 316.
- Etymology and Treatment of Cystocele. J. C. Neel, San Francisco—p. 320.
- Improved Method for Sterilizing Catgut Sutures. C. H. Watson, Brooklyn—p. 323.

**Treatment of Hour-Glass Stomach.**—It is Walton's custom to excise the ulcer, to occlude the pylorus and to perform a posterior gastro-entostomy. With these methods, which have been carried out in over eighty cases, much more satisfactory results have followed. Hour-glass constriction may be met with in all stages. Sometimes the ulceration is the chief factor, the stenosis is slight, and there are no symptoms of mechanical obstruction. In such instances, the treatment is that of a simple ulcer on the lesser curvature. Ten case histories are presented.

**Metastatic Carcinoma of Spine.**—Pfahler claims that deep roentgenotherapy will bring about a healing process in deep seated carcinoma. Metastatic carcinoma of the spine is not a superficial disease. It is not Pfahler's intention to recommend roentgenotherapy in the treatment of such advanced carcinoma. Pfahler also encourages the use of the roentgen rays in the early treatment of carcinoma, claiming that a favorable and curative effect can be produced on carcinomatous tissue, even in an advanced stage. In all of the cases of metastatic carcinoma of the spine, which Pfahler reports, the disease was of the breast. Pfahler says that one cannot expect the patient to make a complete, permanent recovery, for ultimately the disease is apt to show metastasis, particularly in the areas not treated. However, with the clinical and microscopic proof of the destructive action on malignant tissue followed by a healing process, and with the experimental proof of a decrease in the malignancy of cancer tissue which has been exposed to the roentgen rays and a decrease in its capability of inoculation, Pfahler recommends most strongly the use of deep roentgenotherapy both as ant-operative treatment to be followed immediately by operation and then post-operative treatment, given after the proper interval, which should be four weeks after the ant-operative treatment.

**Radium Treatment of Uterine Cancer.**—The cases reported by Janeway in which radium therapy was used, are, briefly, as follows: Carcinoma of the cervix, seventeen cases, twelve clinically cured to date, from three and one-half years to six months after treatment; recurrent carcinoma of cervix, four cases; two clinically cured, sixteen and twenty-five months after treatment, one improved; carcinoma of fundus, four cases; two improved for periods of two years, two clinically cured, fourteen and twenty-one months after treatment; carcinoma of external genitals, five cases; three clinically cured to date, from twenty-one to sixteen months after treatment was begun; one improved, one unimproved.

**Secondary Melano-Epithelioma of Bladder.**—Richard's patient had pigmented moles irregularly distributed over the entire body. For the past five or six years, he had noticed that a rather large mole situated on the right side of the abdomen near the umbilicus had a core of granular debris which could be expressed, and two months previously it had begun to enlarge and had a tendency to bleed. Because of the bleeding the patient consulted his physician who excised the growth. Histologic examination revealed melano-epithelioma. Further surgical advice was sought, and the examination was negative, except for slight enlargement of the inguinal lymph nodes. The urinary findings were negative. A gland removed from the groin was found to be malignant in character, and therefore all the lymph glands

in both groins and Scarpa's triangle were removed; the external saphenous vein was ligated. While the patient was convalescing from the operation radium treatment was begun, and was continued at frequent intervals. Eight months later another small gland in the inguinal region was discovered, which proved to be of the nature of those previously removed. Ten months later increased frequency of urination and diminution in the size of the stream, and nocturia were noticed. The urine contained a number of erythrocytes and pus cells. On cystoscopic examination multiple areas of black rounded tumors, varying in size from 2 to 5 cm. were found on the right base of the bladder anterior to the right meatus. On the left wall two of the tumors had pedicles; the others were sessile. As soon as the bladder condition was discovered, intravesical radium treatment was instituted. To the present time 400 mg. hours have been given. At the last cystoscopic examination no material change was noticeable, except, perhaps, a slight increase in the size of one or two of the tumors.

**Sacral Suspension of Uterus.**—Young's conception of the indicated surgery in uterine displacement cases is as follows: In nullipara, for physiologic retroversion, round ligament shortening; for pathologic mechanical retroversion and descensus, sacral suspension and, if needed, round ligament shortening; when there is a conical long cervix, the tracheloplastic operation of Sturmdorf. In multipara, the restoration of all birth trauma; dilatation and curettage if indicated; for the hypertrophied infected lacerated cervix, the tracheloplastic operation for cystocele, the restoration of the vesicovaginal endopelvic fascia by the method of Rawls; for rectocele, the restoration of the retrovaginal endopelvic fascia, and the muscular interposition perineorrhaphy. He describes his uterosacral ligament shortening operation in detail.

**Omental Grafts in Intestinal Surgery.**—Finton and Peet find the use of detached omental grafts preferable to fixed grafts, except in the presence of general infection. They may be used on any abdominal organ. The indications are to replace lost portions of peritoneum; to straighten suture lines; to prevent adhesions; to check hemorrhages; to occlude the pylorus; to cover the stump of the cystic duct or fallopian tube and to reinforce the peritoneum in threatened perforations. The technic is simple and may be performed with little trauma and in a minimum period of time. In the absence of infection the thin graft survives at least six months practically unchanged.

**Futility of Bridging Nerve Defects with Nerve Flaps.**—In Stookey's opinion the repair of nerve defects by means of nerve flaps has not been definitely supported clinically, as evidenced by a critical study of the reported cases. Experimentally, it has been shown that nerve flaps do not serve as conducting paths for the down growing neuraxes. Nerve flaps whether central or peripheral are merely degenerated partial nerve segments. Continuity and union of neuraxes does not take place at the point of suture. By the formation of nerve flaps from the central stump a portion of the nerve from which neuraxes must grow is removed. Distal as well as central flaps may sever muscular branches. By reversing the flaps they are taken out of their field. Thus the down-growing neuraxes are prevented from reaching the muscles through these muscular branches even were regeneration to take place. For these reasons the nerve flap method to bridge nerve defects should be discarded in peripheral nerve surgery.

**New Sign of Fecal Impaction.**—The sign described by Finochietto is the auditory translation of the Gersuny sign. It is elicited as follows: Over the chosen area the funnel shaped end of a French stethoscope is applied. Over the shell end is applied the observer's ear, holding the instrument lightly with the fingers. The abdominal wall is depressed a few (from 10 to 40) millimeters with the stethoscope, and then the pressure is suddenly released. During the withdrawal of the stethoscope is heard a large moist rale if the sign is positive. Sometimes this is heard not only during the release of pressure, but also during its appli-

caution. Sometimes it is necessary to change frequently the place of the funnel in looking for this sign before it is found. Finocchio has found the sign positive in every patient with fecal impaction.

**Foreign Body in Urinary Bladder.**—In order to remove a paraffin pencil from the bladder without operation, Caples injected into the bladder 125 c.c. of a solution of 33.33 per cent. gasoline in paraffin oil at 110 F. Six subsequent injections, each of 125 c.c. at 110 F., were given. These were retained for intervals varying from two to five hours. The entire treatment covered a period of three days, and the total time of exposure to the solvent was seventeen hours. The urine and solvent were collected after each injection and by chilling them the paraffin was precipitated in decreasing amounts down to the fifth specimen. As the sixth and seventh gave no precipitate, the injections were discontinued. In the meantime, the patient's symptoms abated rapidly, and two days after his last injection his condition was normal. One week later on cystoscopic examination the bladder was normal and no trace of paraffin could be found.

**Tracheotomy Without Loss of Blood.**—Guthrie makes an incision in the midline of the neck from  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches long. The incision must end one-half inch above the sternal notch to avoid the arcus of the anterior jugular veins. The skin and the superficial fascia are incised and the wound held open by a pair of catspaw retractors which should not be more than 1 inch in breadth. The parallel branches of the anterior jugular veins escape injury if the incision is made in the midline of the neck because they lie to either side of it. The sternohyoid and sternothyroid muscles are separated by blunt dissection. If care can be exercised during this step of the operation, the muscles can usually be separated without injury to the thyroid ima beneath. The retractors are reset. The left blade holds aside the skin, the fascia and the two muscles; the right blade holds the skin, fascia, the muscles and the thyroid ima vein. This exposes the trachea. It is incised, the head is straightened, and the tracheotomy tube inserted. This method has been employed successfully fourteen times in all types of cases.

**Etiology and Treatment of Cystocele.**—Neel draws down the cervix and makes a deep transverse incision just below the bladder wall, through the vaginal mucosa and the underlying fascia. The proximal flap is caught by forceps, care being taken to include the fascia; the dissection is carried between the muscle wall of the bladder and the fascia to the urethra; a median incision is then made, the bladder is dissected free of the cervix and the fascia and displaced upward to its normal position. This section is carried out by a small piece of gauze over the finger, the pressure being applied chiefly over the fascia and edge of bladder. The fascial and mucosal edges are then caught separately by clamps and the separation begun by sharp dissection, care being taken to locate the proper layer in order to preserve the entire fascia; by blunt dissection the separation is carried well up to the pubic bones on either side. The remaining steps of the operation are the same as those employed in the treatment of hernia.

**Sterilizing Catgut Sutures.**—The only logical way in Watson's opinion in which sterility of suture can be obtained and maintained throughout the process of preparation is to sterilize the sutures in their ultimate storing fluid after sealing the tubes. The perfection of such a method constituted the problem studied by him. Representative sizes of catgut sutures corresponding to those usually employed in surgical practice were heavily infected with three different species of sporulating bacilli, this producing a more massive and resistant bacterial infection of the gut than would occur even under the most unfavorable conditions. With toluol as a tubing or storing medium the sutures were subjected to a temperature of 165 C. for five hours after the tubes had been sealed. The sutures were removed from the tubes and tested for the presence of living bacilli by appropriate bacteriologic methods. The fact that none of the sutures, after having undergone this sterilizing process showed the presence of any viable organisms would seem to prove the complete efficiency of this method of sterilization.

## FOREIGN

Titles marked with an asterisk (\*) are abstracted below.

## British Medical Journal, London

Sept. 20, 1919, 2, No. 3064

- International Control of Drugs of Addiction. W. J. Collins.—p. 79.  
Nature of Rabies and Antirabic Treatment. D. Semple.—p. 371.  
Acute Diffuse Peritonitis: Twenty-One Cases. B. Hughes.—p. 373.  
Fifteen Cases of Liver Abscess. P. Talbot.—p. 375.  
Treatment of Uterine Fibroids by Roentgen Ray. J. D. Harris.—p. 376.  
Work of a Venereal Disease Clinic. O. L. Rhys.—p. 378.  
\*Case of Primary Sarcoma of Liver. J. S. Morrow and W. H. McKinstry.—p. 378.  
Occurrence of Clubbed Fingers in Healthy Persons as a Familial Peculiarity. F. P. Weber.—p. 379.  
Ossifying Sarcoma of Vastus Externus. K. C. Jauka. p. 379.  
\*Primary Carcinoma of Ovary at Age of 11. C. A. S. Ridout.—p. 380.

**Treatment of Liver Abscess.**—In Talbot's opinion the majority of these cases can be treated successfully by aspiration with an ordinary 20 c.c. glass serum syringe. It does not appear to be necessary even to withdraw all the pus. Once the tension in the abscess cavity is relieved, the emetin carrying plasma can pass through the walls of the abscess cavity and exert its lethal effect on the amebas present there. After aspiration every patient was given a course of hypodermic injections of emetin hydrochlorid, 1 grain daily for one week and then on alternate days until 12 or 14 grains had been given. Whenever possible each patient was given 1 grain of emetin a few hours before operation, so that the first serum to flush the walls of the abscess should be carrying emetin. In addition to the fifteen cases of proved liver abscess Talbot saw seven or eight cases of hepatitis following dysentery, some of which were probably in an early suppurative stage and which cleared up rapidly with emetin.

**Primary Sarcoma of Liver.**—The symptoms in the case reported by Morrow and McKinstry were as follows: A man, aged 42, was admitted to the hospital in a condition of advanced emaciation. He stated that his health had been good until a year previous, when he began to feel pain in the stomach about half an hour after taking food, and he had a constant sense of discomfort during the intervals between meals. Flatulence was a prominent feature, but there had never been any vomiting. There was no noteworthy constipation. There had been a steady progressive loss of weight. The abdomen was distended by a large smooth solid tumor, extending from the costal margin to the brim of the pelvis; at its lower edge a distinct fissure could be felt in the middle line. There was some bronchial catarrh, with a persistent irritating cough. The urine was normal. A blood count showed only a slight secondary anemia (red cells, 4,000,000; hemoglobin, 70 per cent.), total white cells, 10,000 and differential white count normal. A Wassermann test was negative. The patient gradually sank, and died on the fourth day after admission. On opening the abdomen the liver was seen to have a mottled appearance and to be enlarged greatly, extending on both sides as low down as the iliac crests. The surface of the liver presented a large number of grayish white areas of new growth some of which were about the size of a pea, while others were larger, umbilicated, and slightly raised above the surface. The general "mottling" appeared to be due to the coalescence of these nodules, forming large grayish patches which were little, if at all, raised above the surface. In the gastro-hepatic omentum and in the mesentery slightly enlarged lymph glands could be felt, and those about the head of the pancreas were particularly large and matted together. The lungs showed numerous small whitish patches scattered over the surface. On microscopic examination the growths from the liver, lungs and lymph glands were found to present the same histologic features, those of an alveolar sarcoma. In view of the facts, first, that no evidence of a growth could be found in any of the other abdominal organs, and, second, of the enormous size of the growth in the liver, it was inferred that the tumor was a primary growth in the liver.

**Primary Carcinoma of Ovary at Age of Eleven.**—The tumor in Ridout's case weighed 2 pounds 14 ounces, and was about 8 inches in its long diameter. The pathologic report showed the presence of carcinoma cells in a scanty stroma.



**Influenza and Public Health Administration.**—Levers claims that the recent pandemic of influenza is practically the first in history which has challenged the powers of a fairly universally established public health administration. He says that we should not be afraid as a profession to recognize and to confess that some of our most cherished hopes and beliefs in public health administration have been very badly shaken by this pandemic influenza, and we should not in any spirit of injured pride or stiff-necked obstinacy attempt to bolster up or perpetuate official measures of control which have been proved all over the world to be futile. We ought not to shirk the fact that different infections demand methods of official supervision and that it is impossible to handle epidemic influenza in the same way as epidemic smallpox.

**Heart and Influenza Pneumonia.**—Gullett is convinced that one of the after-effects of influenza will be some weakness of the heart. What the effect on the lungs will be in those patients who have recovered from the pneumonic type, remains to be seen.

**Archives Mens. d'Obstétrique et de Gynécologie, Paris**  
April, 1919, 8, No. 3

- \*Interstital Pregnancy, R. Vaudesal.—p. 177.
- \*Abdominal Cesarean Section, E. Essen-Møller—p. 2, 1.
- \*The Stillborn during the War, V. Chambrelent.—p. 230.

**Interstitial Pregnancy.**—Vaudesal reports a case in which the interstitial pregnancy had continued for more than four months without serious accidents from rupture. The fetus had become encysted while the placenta remained in the primitive cavity of the implantation of the ovum, and it had continued its development. In this and in a second case the uterus was removed, but in a third case merely a wedge-shaped resection was made at an emergency laparotomy done for hemorrhage. These cases show that an interstitial pregnancy develops like any extra-uterine pregnancy up to and including the rupture. The possibility of this anomaly should be suggested by the Ruge-Simon sign, asymmetry of the adnexa, and the lateral insertion of the round ligament in relation to the tumor. If the tumor pivots more towards the Douglas pouch, the probabilities are more in favor of a tubal pregnancy. With the tumor farther forward, the course of the case will decide between the interstitial or the angle site. With the latter the pregnancy becomes a uterine pregnancy but the other proceeds to rupture. Nothing was found in all this research to indicate formation of decidua at any point. The forty-three page article concludes with considerable bibliography.

**Cesarean Section.**—Essen-Møller presents 106 cases of cesarean section at the Lund maternity as a basis on which he discusses certain obstetric problems, especially the question when he should save the child in this way even when we know that the risk for the mother will be enhanced thereby. He is confident that the improvement in the results of cesarean section in recent years has been so great that we need not hesitate to resort to it at need. In the 10 cases of cesarean section done for eclampsia, three of the women died, but in these fatal cases he had tampered so long that the intoxication was intense. His experience in these eclampsia cases has converted him to the view that vaginal cesarean section is preferable in these cases unless the narrowness of the vagina forbids. In 7 sections for placenta prævia one of the women died, probably from embolism. Fetal embolism has been known even after version alone, in these cases. He does not approve of cesarean section for placenta prævia except when hemorrhage is profuse, the cervix is not dilated enough for version and the mother is certainly not infected. In one case he did cesarean section knowing that the child was dead. There was very little hemorrhage during the operation, certainly much less than if he had waited for spontaneous dilatation of the cervix.

He makes a point of removing the uterus after the child has been extracted when the operation is done for malignant final conclusion is that abdominal cesarean section should be preferred to version or perforation when certain

that the woman is free from infection. With the slightest suspicion of infection, he attempts version or forceps extraction to avoid perforation of the living child. If conditions preclude a living child later or if there are absolute indications for it, he does cesarean section by the Porro technic. All the women recovered in his eight cases of this kind. The important point is to estimate when to operate. He does not approve of prophylactic interventions nor of waiting until the woman is in danger of infection. In all discussions of cesarean section he says that the outcome for the children should be recorded as well as for the women. Only one child's life was sacrificed, and this, from hemorrhage of the umbilicus, might have been avoided. All of the other 109 infants were safely delivered except the seven that were dead before-hand and one that succumbed to the effect of malformations. The mortality was 5.6 per cent. among the 106 women.

**Stillbirths in France.**—Chambrelent's statistics show that there was no increase in the average of stillbirths in France during the war.

**Paris Médical**

Sept. 6, 1919, 9, No. 36

- Ophthalmology in 1919, F. Terrien.—p. 173
- Ocular Localizations and Complications of Polymorphous Erythema, A. Terson.—p. 178.
- The Fourth Symptom in the Hutchinson Triad, A. Cantonnet.—p. 182.
- Ophthalmology and Surgery of the Face and Neck in 1919, L. Desfontaines.—p. 184.
- Peculiarities of Deafness in Musicians, A. Castex.—p. 192.
- The Minor Signs of So Called Latent Foreign Bodies in the Esophagus, Gusez.—p. 196.
- Cephalopod's Malformation of the Teeth, P. Fargouyol.—p. 200.

**The Ocular Manifestations of Polymorphous Erythema.**—Terson remarks in concluding this study of polymorphous erythema, that almost all affections of the eyes have a number of factors, even in the specific cases. General causes and occasional causes cooperate to induce the morbid condition. In certain cases of iritis and choroiditis no treatment seems effectual until the teeth are put in order, or the liver is treated, or the diseased urethra or uterus. Some times a vigorous purge will be followed by the complete subsidence of a conjunctivitis that has been showing but slight improvement under local measures. Dianoix has reported the powerful adjuvant effect, actually curative, of acetylsalicylic acid in a typical syphilitic iritis. He cites Manly's case of a woman of 51 who had eleven attacks of nodose erythema and in two of them, about the fourth day, siliceous glaucoma developed, requiring an emergency iridectomy and cured by this. Terson regards acute glaucoma as an identical process with acute edema of the lung. It induces hypertony because the means for excretion and exosmosis are so scanty. General pathology thus explains and identifies glaucoma. Le Couteur has reported a case in which glaucoma alternated with arthritis, and once there was an attack of acute edema of the lung.

**The Fourth Symptom with the Hutchinson Triad.**—Cantonnet regards chronic hydrarthrosis of the large joints, especially of the knees, as so common with Hutchinson's triad, keratitis and deafness in inherited syphilis that it deserves to be included with them in the characteristic triad. The joint and corneal lesions all yield to mercury as a rule.

**Presse Médicale, Paris**

Aug. 10, 1919, 27, No. 4

- The Pathology of Syphilis in the Genital Area, R. L. Ross and H. G. ...—p. 472.
- Neurology for Medical Students, Dr. A. L. ...—p. 475.
- ...—p. 476.
- ...—p. 477.
- ...—p. 478.
- ...—p. 479.
- ...—p. 480.
- ...—p. 481.

**Tuberculosis of the Skull.**—Kover remarks that recent publications show that vertebrae toward the base of the skull are not so rare as generally assumed. 13 cases have been published by five French writers since Pott's time.

plation of 206 cases in 1910. About 75 per cent of the cases develop before the age of 20, and there are almost invariably other tuberculous lesions elsewhere. The lesion causes few symptoms, merely a dull ache caused by pressure and not worse at night. In the case illustrated, the opening in the frontal bone was a necropsy surprise. If the condition otherwise permits, extensive resection into sound tissue is the most certain means to ward off recurrence.

Sept. 8, 1919, 27, No. 50

- \*Early Treatment of Acute Osteomyelitis. P. Vignard.—p. 501.
- \*Comparison of Expansion of the Two Sides of the Chest. L. Binet.—p. 502.
- \*Cultivation and Isolation of Anaerobes. M. Rhein.—p. 504.

**Early Treatment of Acute Osteomyelitis.**—Vignard expatiates on the difficulty of diagnosing and locating osteomyelitis in certain cases. He says that he has had several cases which proved fatal within two days although the general condition had not warned of profound intoxication. Wavering between the fear of aggravating conditions by an early operation and the fear of the process spreading and inducing septicemia or locating in an undesirable region, he finally compromised by making a fixation abscess, and he here reports seven cases in which a prompt cure followed the production of a turpentine aseptic abscess. In one case he temporized too long and the fixation abscess came too late. In less than a month later he had another almost identical case, the upper end of the femur swollen, painful and red, and the general condition so bad that an operation seemed inadvisable. Even after the fixation abscess 3 cm. in diameter had been induced, the fever kept high for two days but then conditions promptly righted themselves and the cure was soon complete. In another case the boy of 14 had fever and delirium after complaining of pains in his legs. The temperature had kept at 40 C. for three days. Then puncture of the hip joint released 3 or 4 c.c. of a turbid fluid, but the fever kept high and persisted for a day or two after the turpentine abscess had been induced, but then the temperature began to go down and the cure was soon complete. He now induces a turpentine abscess as a routine measure in all cases of osteomyelitis.

**Measuring Expansion of Each Side of the Chest.**—Binet gives an illustration of a device for photographically recording the expansion of each side of the chest separately.

**Cultivation and Isolation of Anaerobes.**—Rhein's method is merely cultivating, along with the anaerobes, *Bacterium faecale-alecaligenes*. On account of the absence of ferments in the cultures of the latter, the saccharolytic and proteolytic power of the anaerobes shows up very distinctly, and their characteristic odor is unmistakable. As the former is not toxic for animals, test inoculation with the combined cultures is practicable and instructive. To obtain pure cultures of the anaerobes, all that is necessary is to heat the combined culture for ten minutes at 56 C. This kills off the faecale. The latter can be used in the same way as a symbiote with the botulism. The anaerobes seem to proliferate as perfectly in combination with the symbiote as alone. Rhein generally uses pancreatic peptonated bouillon, and it does not have to be boiled before inoculating it with the germs. He gives a number of minor points, and a modification of Marino's method for isolating anaerobes, and he emphasizes the facility and reliability of this symbiotic culture technique which does not require any special apparatus and can be applied to almost all anaerobes.

### Progrès Médical, Paris

Aug. 9, 1919, 34, No. 32

- \*Etiology Transformation of Chronic Bursitis. J. P. Tourneux and A. Ginsty.—p. 311.
- \*Tuberculosis in Children. L. Kihadeau-Dumas.—p. 312.
- \*Spa Treatment of Bone Disease. L. D'Arlois de Jubainville and P. Mathieu.—p. 317.

**Fibrous Transformation of Hygroma.**—In the three cases described the tumor had been first noticed two or three months before, and it was readily shelled out. There seemed to be two factors involved, liquefaction of the adipose elements and hyperplasia of the connective tissue.

**Pulmonary Tuberculosis in Children.**—Kihadeau-Dumas has never been able to learn much that was conclusive from physical examination of infants and young children suspected of tuberculosis, but roentgen examination clears up the diagnosis. Tuberclelids are also significant, but they may be difficult to discover. Phlyctenae on the conjunctiva are instructive, and tubercle bacilli are often found in minute cutaneous or subcutaneous abscesses which seem an ordinary pyodermitis. He says that the best hope in treatment seems to be with tuberculin, especially with extremely minute doses given by the intradermal technic.

Aug. 16, 1919, 34, No. 33

- Significance of Pneumococci in the Blood in Influenza. Roussel and de Lavergne.—p. 321.
- \*Psychomotor Instability in Schoolchildren. G. Paul-Boncour.—p. 322.
- \*Spa Treatment of Disease of Upper Air Passages. P. Bourgeois.—p. 325.
- \*Ether in Treatment of Pertussis. Audrain.—p. 329.

**Psychomotor Instability in Schoolchildren.**—Paul-Boncour explains psychomotor instability in children as the continuation of what Simon calls cerebral irritability and Comby calls cerebral excitation. It may be traceable to some slight brain lesion. The child constantly changes his ideas and attitude. Nothing really interests him, and nothing can hold his attention for more than a brief period. The tendency can and often does disappear in time under vigorous treatment, hydrotherapy, special gymnastic exercises, rest between classes, and sedatives; sometimes specific treatment may be required. On account of the motor weakness, training for a trade is difficult unless muscles and hands are given special training to strengthen them. Puberty generally comes late in these children. If the medical inspector recognizes early this psychomotor instability, much can be done for the children.

**Ether Treatment of Whooping Cough.**—Audrain asserts that whooping cough can be rapidly cured by three or four intramuscular injections of ether at 66 degrees, given every second day. The dose is 1 c.c. up to the age of 10 months, and then 2 c.c. The series of four injections is rarely necessary, two or at most three usually suffice.

### Revue Mens. de Gynécologie et d'Obstétrique, Paris

June, 1919, 14, No. 6

- \*Influenza in the Pregnant. J. Andréodias.—p. 201.
- \*Hernia of Ovary Into Vagina. E. Rouffart.—p. 213.
- \*Amniotic Hydrothorax: Expulsion of Fetus 108 Days After Rupture of Membranes. A. Weymerseh.—p. 214.
- \*The Sponge in Gynecologic Surgery. C. Pellanda.—p. 217.

**Influenza in the Pregnant.**—Andréodias states that in 37.9 per cent of his 29 cases of influenza in pregnant women the pregnancy was interrupted. This is almost exactly the proportion noted in the records of the 1889-1892 epidemic of influenza. The abortion or premature delivery did not mitigate the disease; labor even seemed to whip it up. No tendency to hemorrhage was observed, and 61 per cent of the children were viable. The death rate among the 29 women was 34 per cent.

**The Sea Sponge in Gynecologic Surgery.**—Pellanda emphasizes the advantages of the sponge which becomes distended as it soaks up fluids; gauze loses its elasticity under the same circumstances. He regards it as almost indispensable for arresting profuse venous or capillary hemorrhage such as sometimes occurs after a difficult Wertheim operation. It is useful further in draining after colpotomy for pus in the pelvis. Used in hundreds of cases in Pollosson's service for these indications, there have never been any by-effects from it, and he lauds the absolute harmlessness and efficacy of the sea sponge for these conditions.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 21, 1919, 49, No. 33-34

- Influenza. G. Sobernheim.—p. 1235.
- Elliott's Glaucoma Operation. C. A. Hegner.—p. 1244.
- Colloid Carcinoma of Appendix Causing Volvulus of the Small Intestine in Man of Sixty-One. J. Dubis.—p. 1251.

Schweizer Arch. f. Neurol. und Psychiatrie, Zurich  
1919, 4, No. 2

- \*Localization of Stereognosis. R. Bing and L. Schwartz.—p. 187.
- Embryology of Corpus Callosum. J. M. de Villaverde.—p. 199. Cont'n.
- \*Biology and Psychiatry. C. v. Monakow.—p. 235. (cont'n.)
- \*Further Light on the Plantar Reflex. H. Bersot.—p. 277.
- Erethistic Oligophrenia. P. Sarasin.—p. 324. Cont'n.
- \*Schizophrenia and the Choroid Plexus. C. v. Monakow and S. Kitabayashi.—p. 363.

**Localization of Stereognosis.**—Bing and Schwartz affirm that the diagnosis of a cortical lesion is justified whenever the subject is unable to recognize objects by the touch, his sensory and perceptive powers otherwise unimpaired. The cortical lesion may be diffuse in which case there is loss of secondary tactile identification, but usually it is a symptom from a focal lesion. They have generally found this focal lesion at the middle third of the parietal ascending convolution and the parietal lobe on the opposite side from the astereognostic hand. In a case described with illustrations, the astereognosis of the left hand was so pronounced that, with the eyes closed, the man was unable to tell a coin from a pencil, a watch from a box of matches. Other symptoms also suggested a tumor in the brain; they had come on suddenly and by the tenth day left hemiparesis developed. The consent to the proposed operation was deferred and the young man died the seventeenth day after the initial symptoms. Necropsy confirmed the diagnosis, an abscess being found at the point specified above while the parietal lobe was nearly and the supramarginal gyri completely intact to all intents and purposes. The findings confirmed Head's statements based on study of war wounds of the cortex. Forty-three articles on various aspects of touch paralysis are listed in conclusion.

**Biology and Psychiatry.**—Von Monakow's extensive article is an attempt to bring psychiatry out of its place apart—according to the general acceptance of psychiatry at present—and have it take its proper place among the other departments of medicine. He seeks to demonstrate the logical physiologic connection between the brain and the psychic and nervous symptoms. This would simplify medical thinking, and if it can be corroborated by physiologic facts—which he thinks is fairly well established to a certain extent even now—the physician will be protected against many erroneous and lay interpretations of so-called nervous conditions, and the way will be smoothed for the diagnosis and rational treatment. He declares that under the influence of toxic action not only the mechanical innervation but the emotions and instincts can be completely transformed. The toxins responsible for this may come from without or may be generated in the body. Morphologic changes, alone or combined with disturbance in the internal secretions, may entail an embryologic retrogression, a retrograde generation of psychic functions which may lead to actual loss of functional continuity between the various centers or neurons of the cerebral mechanism. He reiterates that along with the biophysical Ablauf of function we must recognize a biochemical Ablauf. This latter may be irregular and migratory. The effect is a retrograde generation, a dropping back into earlier phases of psychic development, even back to infancy. But this dropping back does not affect all the elements of the mind in the same measure, and this results in great incongruities. The dropping back may be only temporary or it may be permanent. The reaction, he asserts, is always a defensive reaction. The psychosis in all its forms is merely this defensive reaction, plus possibly compensatory effects. It always represents the self-defense of the individual against the injurious influences acting on the central nervous system. These primary and secondary reaction conditions thus all conform to biologic-psychologic laws. He claims that these views provide for the first time a foundation on which can be built a bridge between the brain, the organ of the psychic and the symptoms of mental impairment. This biologic-physiologic mode of thought, keeping in constant touch with physiology and anatomy, will open new fields for research, especially on the choroid plexus, cerebrospinal fluid and biochemistry in general as factors in psychoses. He has been

impressed with the frequency of severe structural disturbance of the choroid plexus at necropsy of the insane.

**The Plantar Reflex.**—Bersot's title is "Variabilit  et correlations organiques. Nouvelle  tude du reflex plantaire." The different reflex reactions seem to follow the variations in the total capacity for reflex action. The toe and the contralateral reflexes are peculiar in that, while following these variations, they amplify them. Bersot insists that the plantar reflex in itself has not much significance, but it becomes really and objectively important when we record its frequency and the variations of this frequency.

**Schizophrenia and the Choroid Plexus.**—As mentioned in the abstract above, von Monakow has been impressed with the frequency of severe structural changes in the choroid plexus in the insane. In twelve cases of severe chronic schizophrenia, of different types, the choroid plexus was never found even approximating normal. In some of these cases the choroid plexus showed actual necrosis. It was most pronounced in the case of a physician with paranoid hallucinations but not much mental derangement, who committed suicide. Photomicrographs from this case show the amyloid degeneration of the connective tissue, scattered degeneration of the fringelike structure, accumulation of colloidal masses, and interpapillary exudation. Merely senile changes in the choroid plexus differ entirely from those found with schizophrenia.

Amazonas Medico, Man os

April-June, 1919, 2, No. 6

- \*The Clinical Forms of Ulcerating Granuloma. A. da Matta.—p. 73.
- The Ruoss Test for Sugar in Urine. A. da Matta.—p. 83.

**Ulcerating Granuloma.**—Da Matta describes with illustrations a typical case of ulcerating granuloma of the pudenda in the female. He classifies the various forms of granulomatosis as that affecting the skin (benign), the skin and mucosa (dubious), and cavities. In the latter the prognosis is always grave.

Anales de la Facultad de Medicina, Lima

May-June, 1919, 2, N. 9

- \*The Nervous Complications of Typhus. E. Odrizola.—p. 143.
- Prevention of Infanticide. L. Avedafio.—p. 152.
- Normal and Pathologic Language. L. D. Espejo. p. 169. Cont'n.
- \*Mycosis in Rats. E. Escemel. p. 190.
- \*Acute Fatal Dilatation of the Stomach. F. Quesada.—p. 193.
- Mental Disease in Early History of Peru. H. Valdivia.—p. 195. Cont'n.
- Alleged Endemic Occurrence of Yellow Fever on Peruvian Coast. J. Arce.—p. 219. Cont'n. See abstract, page 945.

**Nervous Complications of Typhus.**—Odrizola reviews recent literature on this subject, and describes a case in which during convalescence hemiplegia became installed, with certain spastic phenomena and aphasia. The paralysis subsided somewhat, but a tendency to atelectosis and the persistence of the aphasia denote actual degeneration. The urea content of the blood was high—1.80 gm.—but there were no appreciable disturbances from this. It seems as if urea in the blood does not have an unfavorable prognosis outside of chronic nephritis, according to his experience.

**Mycosis in Rat.**—Escemel gives an illustrated description of a mycosis affecting the head and inducing extensive destructive lesions in rats. In his two specimens there did not seem to be much toxic action as the animals were agile and not emaciated, although the eyes and scalp had been destroyed. The special fungus involved was the malassezia of the hyphomycetes group.

**Acute Fatal Dilatation of the Stomach.**—Quesada reports the case of a man of 40 convalescing from dysentery at a health resort, who complained of sudden, intense pain in the stomach. It was not relieved much by household measures, and he was taken to the hospital but died on the way, only a few hours after the first symptoms. Necropsy revealed extreme dilatation of the stomach with the duodenum occluded by pressure from the mesenteric vessels, plus the mechanical and toxic action of the liquor which the man had been drinking. Quesada remarks that the action of some

vacuum always opens the scene in these cases, but that the dilatation is promoted by the unconscious swallowing of air. Even with extreme dilatation of the stomach, no immediate harm results until the duodenum gets compressed by mesenteric vessels stretched taut by the abnormal conditions. Although the outlet of the stomach and duodenum thus becomes closed, there is no hindrance to the swallowing of air. There is even suction of air into the esophagus by a kind of valve action from the diaphragm excursions which are amplified by the nervous stress. The case described confirmed all these assumptions.

### Anales de la Facultad de Medicina, Montevideo

May, 1919, 4, No. 56

- \* *Blasptomycosis in America*. F. Escome!, p. 281.
- \* *Ligation of Hypogastric Artery*. J. Pou Orfila, p. 356.
- \* *The Physiological Criterion*. S. C. Rossi, p. 358.
- \* *Respiration in Babies*. J. Maria Estapé, p. 391.
- \* *Serotherapy in Agitans for Transfusion of Blood*. J. D. Parietti, p. 413.

**Blasptomycosis in America.** Escome! relates that cases of blasptomycosis in man have been published in Argentina, Brazil, Peru and Bolivia and that probably some cases classed as leishmaniasis probably belong in this category. When the fungus has once invaded the mucosa, it is liable to persist throughout life. There is no contagion from it in places where it is not endemic, as it seems to require the intermediation of some biting insect. There has been no effective treatment until recently, but tartar emetic by the vein and mouth, plus heliotherapy, seem to have awakened hopes of conquering the disease in the near future. He describes its geographical distribution, always to date in tropical forest regions, the characteristic salivation, and the crossed ridges on the palate. In three cases described the benefit from the above treatment amply confirmed the diagnosis.

**Ligation of Hypogastric Artery.** Pou Orfila has ligated the hypogastric artery in three cases which he describes with illustrations, and commends the technic he followed. The ligation was done for an arteriovenous aneurysm of the hypogastric artery and vein in one woman of 32 and to arrest hemorrhage after colpotomy in a younger woman with grave postabortus infection and recurring hemorrhages. A pus pocket in the pelvis had required the colpotomy. In the third case the intraperitoneal ligation of the hypogastric artery had been done for secondary hemorrhages from spontaneous obstetric rupture of the uterus and bladder. This route is preferable for the obese. By taking advantage of the cleavage, it is easy to reach the hypogastric artery through an incision in the flank. This technic is particularly useful when there are infectious processes in the pelvic cellular tissue. For the intraperitoneal route, a transverse incision above the symphysis is advisable. Ligation of this artery should be always considered in treatment of rupture of the uterus with threatening hemorrhage. Unilateral enlargement of the buttocks and pudenda is an important sign of aneurysm of the hypogastric artery. Thrill in the vaginal culdesac may be due to other local causes. He advises ligating with catgut in case of hemorrhage, and with silk for an aneurysm.

**Law of Specific Energy.**—Estapé refers to the law of the specific energy of sensory nerves which Müller enounced in 1840. Estapé argues that this law applies to all living matter, in all its manifestations, biologic, sociologic and psychologic. Müller's law aids us to define sensation as the transmission to the consciousness of a quality or state of the sensory nerve determined by some external cause in the different sensory nerves.

**Transfusion of Blood.**—The method of transfusion to which Parietti calls attention is done by means of a single tube which aspirates the blood from the donor and passes it on and into the vein of the recipient. The blood thus flows in an almost continuous stream, protected from the air, directly from one vein into the other. The suction is done by a small standard with two adjustable rollers between which passes the tube. By adjusting the rollers tight and pushing the frame back on the tube, which the rollers squeeze flat, a

vacuum is induced which aspirates the blood from the vein. A tube from a jar of 4 per cent. solution of sodium citrate enters the tube near the recipient's end, and the blood is thus entrained as it passes into the second needle. The article is illustrated.

### Annaes Paulistas de Med. e Cir., S. Paulo

May, 1919, 10, No. 5

- \* *Tuberculosis in Children in S. Paulo*. C. Ferreira, p. 97.
- \* *Serotherapy of Toxemia of Pregnancy*. A. Vieira Marcondes, p. 101.
- \* *Silent Gastric Ulcer*. Z. do Amaral, p. 105.
- \* *Friedreich's Disease*. A. de Almeida Prado, p. 108.

**Tuberculosis in Children in S. Paulo.**—Ferreira relates that tuberculosis has never been particularly prevalent at S. Paulo, and of late has been reduced still more, until recently it has been only 1.2 and 1.1 per thousand of the general mortality. Most of the cases are in the old part of town. In fourteen years up to 1916 there had been 186 deaths recorded from pulmonary, and eighty-three from abdominal tuberculosis in children under 10, and forty-three of tuberculous meningitis, a total of 350 deaths from tuberculosis, but it is probable that tuberculosis contributed to the death rate from pneumonia, measles, etc. During the last few years a vigorous campaign has been waged against tuberculosis, especially in children, and welfare work of different kinds is bearing good fruit, S. Paulo ranking high in defensive hygiene, public and private.

**Serotherapy of Toxemia of Pregnancy.**—Vieira has been experimenting with a liver-suprarenal extract in treatment of toxemia of pregnancy but found this unsatisfactory as it was blind work, not knowing which glands were at fault. More recently he has been using the serum from gravid goats. This induced urticaria in some cases, and actual serum sickness in one woman, consequently this method of serotherapy was modified. The proteins were extracted from this goat serum, but the other elements were left unmolested, and the serum was evaporated to one fifth, so that a single dose represented only 1 c.c. Clinical experiences with this perfected technic showed that the therapeutic effects were the same as with the whole serum, while it had none of the by-effects of the latter. With one or two injections, uncontrollable vomiting and eclampsia subsided promptly in some cases reported, and the effect was favorable also in pregnancy sciatica, neuralgia, jaundice, headache, and gastro-intestinal disturbances. With the aid of this *soro hormo gravidica*, as he calls it, there is no need to interrupt the pregnancy. It is made under Vital Brazil's direction at the Instituto Soro-therapico Butantan, the state institute for serotherapy.

**Perforation of Silent Gastric Ulcer.**—Do Amaral reports the sudden perforation of an unsuspected gastric ulcer in a young man. The intense pain was located in the appendix region, and the rigidity of the abdominal wall was most pronounced here. There was no history of stomach or duodenal symptoms, and the incision the eleventh hour was made for the supposed appendicitis. A gush of fluid escaped, but the appendix was exonerated. Then a supra-umbilical median incision revealed the perforation in the stomach. In two other more recent cases, twenty-four hours had elapsed before the operation and both of the patients died.

### Brazil-Medico, Rio de Janeiro

July 19, 1919, 33, No. 29

- Syphilis and its Prophylaxis in the Brazilian Navy*. J. Porto Carrero, p. 225.
- July 26, 1919, 33, No. 30
- Hemorrhagic Purpura; Two Cases*. Cardoso Fonto, p. 233.

### Medicina Ibera, Madrid

July 19, 1919, 8, No. 89

- \* *Exceptionally Grave Case of Paralysis Agitans*. E. Fernández Sanz, p. 33.
- Chaulmoogra Oil in Leprosy*. J. Sanz de Grado, p. 35.
- Imperfectly Treated Syphilis*. Sicilia, p. 37.

**Exceptionally Severe Case of Paralysis Agitans.**—In Fernández' case the woman of 79 presented continuous and intense tremor of the entire body, including the jaw and tongue. The tremor of the tongue had irritated it until it had

swollen and hung pendent from the mouth, incessantly shaken by the intense tremor. The tremor was complicated by absolute rigidity of the whole body, as if it were one solid piece, and extreme difficulty in breathing and in swallowing completed the clinical picture. Tracheotomy is being considered.

July 26, 1919, **S.** No. 90

- \*The Functional Capacity of the Heart. Garcia Triviño.—p. 53.
- \*Arsenical Treatment of Inherited Syphilis in Infants. Diaz Villarejo.—p. 54.
- Spinal Anesthesia in Surgery. C. Calderón.—p. 57.

**The Functional Capacity of the Heart.**—García applied different tests to twenty persons to determine the functional capacity of the heart, including Lian's method, Mendelsohn's and Mackenzie's, with Vaguez' differential pressure, the difference between the maximal and minimal tension, and the oculocardiac reflex. By comparing the findings with several of these tests we can generally obtain good oversight of conditions in the heart as a whole. His findings harmonized with the course of the cases, while the findings were unreliable with the Abrahams, Hertz and Gräupner tests.

**Treatment of Early Inherited Syphilis.**—Díaz has found mercury alone too slow in its action to depend on for young infants with severe manifestations of inherited syphilis. Combined with arsenic, as for adults, it will prove effectual in the majority of cases, but with involvement of the stomach or bowel, etc., mercury should not be given at all. These children are liable to have large numbers of the spirochetes in their viscera, and if the arsenic is given by the vein or muscle in too large doses at first, the massive destruction of the germs liberates such quantities of endotoxins that the child may succumb to this shock. Injection of neo-arsphenamin into the subcutaneous cellular tissue allows gradual and perfect assimilation of the drug, and its very slow elimination. He injects 1 cg. dissolved in 5 c.c. of serum per kilogram of body weight, making the injection in the shoulder, and waits two weeks during which the syphilitic lesions show improvement and the weight increases. The injection is then repeated twice at fifteen day intervals, possibly increasing by 1 cg. the last time. Then mercurial inunctions are begun and alternated with neo-arsphenamin. When the infant shows only mild manifestations of the syphilis, he begins with mercurial inunctions, and then adds the neo-arsphenamin in the same way.

### Prensa Médica Argentina, Buenos Aires

June 10, 1919, **G.** No. 1

- \*Membranous Pericollitis from Tardy Inherited Syphilis. M. R. Castex and Delfor del Valle.—p. 1. Cont'n.
- \*Celiac Crisis from Sclerosis of the Pancreas. C. Bonorino Udaondo and J. E. Carulla.—p. 9.
- \*Gastro-Intestinal Disease from Tardy Inherited Syphilis. M. R. Castex and N. D. Rosso.—p. 10. Cont'n.
- Discrepancies between the Axillary and Rectal Temperatures in Certain Cases of Appendicitis. R. A. Marotta.—p. 15.
- The Biologic Basis of Tuberculin Treatment. P. M. Barlaro.—p. 16.
- Ergograph for Testing Results of Motor Plastic Operations. G. Bosch Arana.—p. 18.
- The Arrhythmias. P. M. Barlaro.—p. 19. Cont'n.
- The Role of Syphilis in Banti's Disease. L. L. Rosso.—p. 21.—Cont'n.
- Early Diagnosis of Gastric and Duodenal Ulcers. H. Garcia Ligués.—p. 22.

**Chronic Abdominal Disease from Tardy Inherited Syphilis.** The main points of these articles were summarized recently on page 1169. Fourteen large roentgenograms accompany the case histories in these instalments.

**Painful Attacks from Sclerosis of the Pancreas.**—Bonorino and Carulla report a case in which paroxysms of agonizing pain, connected with the meals at first but later continuous and persisting, were the only appreciable symptoms, except for gastric acylia. There was no glycosuria and no tender points could be found. Functional tests of the pancreas failed to reveal insufficiency, but there was progressive weakness. No relief was obtained from any measures, including treatment as for syphilis. An exploratory laparotomy showed the stomach and duodenum normal. There were no pathologic antecedents except an obliterating arteritis with gangrene nine years before, compelling low amputation of the leg. The man died five days after the laparotomy, and

necropsy revealed sclerosis of the head of the pancreas although the rest of the organ seemed normal. The pains must have been the result of compression of some portion of the solar plexus, actual celiac crises.

July 10, 1919, **G.** No. 4

- Hyalid Cyst in Both Lungs. Alfredo Buzzi.—p. 41.
- Implantation of Teeth. F. E. Judson.—p. 47.
- Provisions for the Insane in Argentina. D. Cabred.—p. 44.

**Modern Treatment of the Insane.** Cabred tells of the fine results accomplished at the Colonia Nacional for the insane in Argentina, located at Luján. He emphasizes the advantages of the open door and occupation system of treatment, its superior efficacy with 30 per cent. cured or improved, and the lesser expense for construction and maintenance. The income realized from products of the colony amounts to quite a sum while the gain in the general health and spirits is great, as also the economy in service, materials, etc. He gives figures showing that the credit side of the account shows a balance from 1901 to the end of 1918 of 2,769,652.87 pesos.

July 30, 1919, **G.** No. 5

- \*Endless Dilatation of Stenosis of the Esophagus. R. Pini and R. Becco.—p. 49.
- \*Diathermy in Gonorrhoeal Orchi-Epididymitis. C. H. Niseggi and A. Astraldi.—p. 52.
- Fatal Hemorrhage from Supposedly Cured Nasal Miasis. P. M. Barlaro.—p. 54.
- Subacute Nephritis with Retention of Chlorids. Id.—p. 54.

**Endless Dilatation of Stenosis of Esophagus.**—Pini and Becco give an illustrated description of their case of cicatricial stenosis of the esophagus in a young man, from taking by mistake a tablespoonful of sulphuric acid kept for cleansing his hands. He took olive oil and tepid water at once and vomited several times, and also took a dose of calcined magnesia. There was repeated hematemesis, and the stenosis of the esophagus compelled an operation the third day as only fluid could be swallowed. With esophagoscopy, a sound was worked down into the stomach and drawn out through a gastrostomy opening and a stout silk thread attached to it. Rubber tubing fastened on the endless thread was found the most convenient means for enlarging the contracted lumen. The sharp edges of the tubes were smoothed off and the tube once in the stenosis was left in it for twenty-five or fifty minutes. The length of the piece of tubing is not specified, but the picture shows it as long as the distance from eyebrow to chin, and also shows how it was introduced at the corner of the mouth, the head thrown back. Other means of treating cicatricial stenosis are discussed, with considerable bibliography.

**Diathermy for Gonorrhoeal Orchi-Epididymitis.**—Niseggi and Astraldi expatiate on the advantages of this treatment which they regard as the most rapid, most energetic, harmless and painless method of treating this frequent complication of gonorrhoea. They report ten cases from their experience with twenty-three. This technique is now the routine treatment at the Hospital Nacional de Clínicas.

### Revista Clínica, Medellín, Colombia

June, 1919, **G.** No. 13

- \*Exophthalmic Goiter in Colombia. J. B. Montoya y Pérez.—p. 1.
- Quinn. G. Tori Villa.—p. 20.
- \*Tachycardia. A. Castro.—p. 32.
- Gastrocnemiotomy. L. Restrepo.—p. 40; 11 R. Villegas Arango.—p. 45.

**Exophthalmic Goiter in Colombia.**—Montoya comments on the rarity of this disease in his province, Antioquia, and reports in detail a case in a man and one in a young woman. The latter has improved considerably without any special medication, the pulse now being 100 instead of 130, and the patient is able to attend to household duties, but there is still emotional instability. Only one case has been published before in the province, and Montoya knows of only eleven cases in sixteen years. Seven were in well-to-do young women and two died. The result was mediocre in the few operative cases, as a rule, but in one woman of 44 thyroidectomy was promptly followed by subsidence of all the symptoms except the exophthalmos which has been only slightly improved.

**Tachycardia.** Castro's patient is a man of 26 whose extreme tachycardia is not influenced by change of position, time of day or exercise. Only the tachycardia of exophthalmic goiter presents these features, and the man seems excitable and loquacious but otherwise presents no symptoms.

### Revista Española de Medicina y Cirugía, Barcelona

July, 1919, 2, No. 13

- \***Mitral Stenosis.** A Aguilar Felou, p. 359
- \***The Tetys of the Myocardium.** M. and D. Bañuelos García, p. 362.
- Improved Technique for Staining the Tubercle Bacillus.** Raquel Grau, p. 365.
- The Medulla Oblongata.** J. Vilato, p. 367
- Conc'n.**
- Tubercle Bacilli in Sputum in Early Diagnosis of Tuberculosis.** Remigio Dargallo, p. 377.

**Mitral Stenosis.** Aguilar interprets the case he reports as an instance of mitral stenosis secondary to a tuberculous process in the lung. The tuberculous process had spread to involve the pulmonary veins, the aorta and pericardium.

**Tonus of the Myocardium.** The Bañuelos present evidence that the myocardium possesses a tonus like that in other muscles of the skeleton.

August, 1919, 2, No. 14

- \***The Prognosis and Treatment of Diabetes.** S. Carro, p. 417.
- Amputations of the Tibia, etc.** F. Margarit, p. 424.
- \***Comparison of Intubation and Tracheotomy.** Martínez Vargas, p. 427.
- Vaccination against Typhoid and Paratyphoid.** Remigio Dargallo, p. 433.

**Prognosis and Treatment of Diabetes.**—Carro insists that minute and continued study of the case is necessary before it is possible to institute proper treatment and draw the prognosis. The latter depends mostly on the multiple complications to which the diabetic is liable. It is important to discover whether there is other coexisting disease that may modify the course of the diabetes. When all this has been ascertained, Lahlé's test diet should be enforced for three days and then the third day the whole of the twenty-four hours' urine should be collected and tested for sugar, uric acid, chlorids, phosphates, purin bases, total nitrogen, urea and the azuric coefficient. The urine may be apparently normal except for retention of chlorids, and although the sugar may have disappeared yet the case may present an unfavorable prognosis on this account. When there is an arthritic diathesis or tendency to eczema, dyspepsia or nephritis, the dietetic treatment has to be materially different in each, as he describes in detail. By watching over the course of the case we can detect aggravation of certain symptoms or the appearance of new, and by modifying the diet to correspond may steer the patient past the danger point. On the whole he regards the pancreatic type as the gravest of the four forms of diabetes. The prognosis is also bad in the nervous or lypophysic type, generally of endocrine origin. A cure is usually realized in the type connected with acute infections, but less frequently with chronic infection or alcoholism. Diabetes in pregnancy generally subsides afterward.

**Parallel Between Intubation and Tracheotomy.**—Martínez cites authorities from the first century of our era who described diphtheria, but then and for long after it was regarded as a purely local affection. The first to describe it completely as a general intoxication from a local affection were Spanish writers of the sixteenth century. No symptom has been added since to their complete description "De morbo puerum." Tracheotomy is as old as diphtheria itself, even Hippocrates referring to both. Martínez continues, "Intubation was suggested in antiquity, and Bouchut of Paris in 1858 presented a tube for the purpose, but it was criticized so severely that intubation was not adopted until O'Dwyer of North America took it up—the fate of many initiatives in the Latin races, their initiative coming to flower and fruition in other countries which get the credit for the whole." Sota of Seville was the first to use the new method in Europe. All became enthusiastic over it when diphtheria antitoxin was discovered, but even now Martínez prefers tracheotomy when the child cannot be kept under constant surveillance with skilled hands to replace the tube if it is

coughed out. He always goes prepared for both intubation and tracheotomy. In three cases he found coexistent thymitis which rendered intubation impossible. In one case a retro-pharyngeal abscess had the same effect, and in some others edema of the larynx. The edema of the larynx in one case had closed the opening of the tube in the throat and grasped the tube so firmly that the tube could not be removed. The emergency tracheotomy and artificial respiration resuscitated the apparently moribund infant. The tube was thus in the larynx and the cannula in the tracheotomy opening for four days, but no harm resulted. Tracheotomy is indicated further when there is excessive production of tough membranes, and when there is preexisting subglottic laryngitis or bronchitis. In one case with pneumonia, forty hours after the tracheotomy the child had apparently fatal suffocation, but Martínez dilated the trachea and with forceps he extracted plugs of mucus. Then he introduced into the trachea and bronchi a lubricated soft rubber tube, drawing it up and down, and thus extracting large quantities of mucus, starting up the respiration anew, and the moribund child was brought back to life. He has applied this technic in a number of other cases, and reported in 1900 his success with this sweeping out the tracheobronchial passages. He deems this useful for combating accumulation of mucus, and paralysis of the bronchi, and for inciting to cough and respiratory movements, whether there is diphtheria present or not. In nine cases the tracheotomy was done in extremis. Even when the opening had been made, no air entered the lungs as the thorax was in a paralyzed condition, but he pounded twice on the abdomen, inserted the cannula, and started artificial respiration, with stimulating injections of caffein, camphorated oil and ether, and in a few minutes the child was resuscitated.

### Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 23, 1919, 2, No. 8

- \***Pathogenesis of Primary Hypertension.** D. Klinkert, p. 554.

**Pathogenesis of Primary Hypertension.**—Klinkert tabulates the arterial pressure findings, with the urea content of the blood serum, and the Ambard coefficient as recorded in twenty-five persons with an arterial pressure above normal. They had all applied for treatment on account of incipient angina pectoris, shortness of breath, or other symptoms from abnormally high blood pressure, but they did not present any symptoms calling attention to the kidneys which were presumably sound. But the urosecretory coefficient determined by Ambard's formula told an entirely different story. The Ambard index was much above normal in all but two of the twenty-five, the figure ranging from 0.101 to 0.300, in comparison to the normal figure of 0.06 or 0.08. Fourteen of the twenty-five also had a urea content of 500 mg. He lists and discusses the various theories in vogue as to the kidney being responsible for the high blood pressure or vice versa, pointing to the tabulated findings in his cases as apparently settling the question.

### Hospitalstidende, Copenhagen

July 30, 1919, 62, No. 31

- Improved Technique for Staining Granules, Especially in Sections of the Blood-Producing Organs.** V. Ellermand, p. 897.

August 6, 1919, 62, No. 32

- \***Ileus in the Pregnant and in the Parturient.** P. V. Tuxen, p. 921.

**Ileus in the Pregnant and in Parturients.**—Tuxen has been able to find on record only 106 cases of ileus in pregnant and parturient women, but he has encountered three cases himself. In one, torsion of an ovarian tumor had compressed the bowel, inducing mechanical ileus. In his second case, four and a half hours after the woman of 41 had been safely delivered of her fourteenth child, she suddenly developed symptoms of ileus, and a ruptured dermoid cyst was found. The contents of the small cyst had set up irritation, with dynamic ileus as the result. In the third case the bowel had become incarcerated from pressure of the gravid uterus at the sixth month. Diligent search failed to reveal any other cause for the ileus. The uterus expelled its contents a few days later.

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## THE RANGE OF THE GENERAL PRACTITIONER IN PSYCHIATRIC DIAGNOSIS\*

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BOSTON

One cannot help marveling at the progress made by psychiatry in the American medical scene. But the standing of psychiatrists and the prominence of psychiatric topics among medical men at large is more than paralleled perhaps by the vogue of psychiatrists and psychiatry in the broader circles of mental hygiene. It has been my privilege, as delegate from the Commonwealth of Massachusetts, to attend in the last few years many meetings of nonmedical workers, such as meetings of social workers, psychologists, general scientific workers, and even of teachers of philosophy; and I can report that this associate medical world (if we may call it so) is ready to go more than half way in meeting physicians on a mental hygiene platform. Too eager to enter on unsuitable tasks are these non-medical workers, some advocates of a Little Medicine might aver. But the Greater Medicine should open its arms to what Weir Mitchell called the "assistive" arts and sciences and, in matters touching the community, give over all that savors of a closed shop for M.D.'s only.

Though the face which psychiatry presents to the "assistive" nonmedical branches of mental hygiene is most respectable (the osmotic interchange perfect, one might say), the interior relations of psychiatry to the rest of medicine form something of a problem. One difficulty, which I do not here more than mention, is the proper adjustment of the planes of contact between clinical neurology and psychiatry. The research basis of these two divisions of practical medicine forms a continuous unit, having structural and functional aspects, to be sure, but nevertheless growing steadily together.

Leaving the interrelations of neurology and psychiatry to themselves for the moment, I come to my chosen topic. I consider that, all in all, the appreciation of psychiatry by the general practitioner has not kept pace with the increasing appreciation of it now being shown by neurologists and with the even greater advance in the esteem in which psychiatry is held by social workers, psychologists, philosophical and ethical teachers, and other practical and scientific types of nonmedical mental hygienists. In short, the general

practitioner ought to enter consciously and confidently the field of mental hygiene, some of the tasks of which lie very near his hand.

But why is neuropsychiatry caviar to the general practitioner of medicine? It is also, we must admit, caviar to the general theorist, in American medicine at least. A determined effort to overcome the step-motherliness of practitioners and theorists toward the general topics of this section of the American Medical Association must soon be made, if we are not to be quite outstripped by other nations even on the barest practical lines. I do not assign our unpopularity to inborn deficiencies of American practitioners. I am not even sure that our medical theorists are altogether responsible for averting their eyes. I am a little more inclined to fix the blame on the pedagogic group in our medical schools. Not that appropriate curriculums fail to be arranged, and not that clinical opportunities fail to be thrown open to medical students. But there is on the part of teachers in other branches than the neuropsychiatric an almost constant avowal of their lack of interest in nervous and mental diseases. This avowed apathy can hardly miss exerting its effect on the weary medical student, looking (as is his duty) for things not to learn. But what is the cause of the pedagogic look askance at nervous and mental diseases? Some of our own specialistic colleagues, who talk glibly of everything as a defense reaction, intimate darkly that neuropsychiatry is a sore subject with most medical teachers because they are so ignorant thereof. Be that as it may, I feel that not all the blame attaches to our nonpsychiatric colleagues, and that our own obscurantism has blocked progress.

How much can be done with a frontal attack is doubtful. But correspondence following a paper presented to this section last year on a similar topic led me to think that a flank attack on medical teachers and research controllers might not be necessary to secure greater interest in mental hygiene on the part of the general practitioner. In the first place, the psychiatrist is, in a different way, almost as general in his approach as the general practitioner. The map quality and representativeness in the nervous system of virtually all other systems in the body insures a consideration of many things by the psychiatrist after the precise manner in which a general practitioner faces the same situation. This generality of view (e. g. that a psychiatrist, like a general practitioner, has to be something of an endocrinologist, a good deal of a syphilographer, etc.) is just as advantageous and just as dangerous as the generality of view which it is the duty of the general practitioner to have. Again, the psychiatrist, far more than any other spe-

\* Read before the Section on Nervous and Mental Diseases at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

cialist (unless perhaps the obstetrician), has to take his patient as a total person, as a global individual—and this is precisely the duty of the general practitioner, and precisely the difficulty of the office consultant specialist as we usually see him. In passing, it may be noted that one of the reasons for the augmenting vogue of group practice by associated specialists is the demand for a more global and comprehensive view of each patient. Nevertheless, it must be conceded that even group practice often leaves the patient a *dividual* (as old scholastics said) rather than an *individual*, and that the studies made are apt to remain on an analytic basis rather than aspire to the higher terrace of synthetic work. Otherwise put, the *dividual* is considered to have flat foot for the orthopedist, astigmatism for the ophthalmologist, gastropnoxis for the surgeon, and so on: the *dividual* patient remains a congeries rather than a collection of symptoms. This is a quarrel which the general practitioner and the psychiatrist lunge in common against specialized medicine.

Perhaps no more need here be said of the community of views and tasks between general practitioners of medicine and specialistic practitioners of psychiatry. A presupposition of my argument is that the general practitioner, if he is to live up to the designation "general," ought to grasp and use relatively as much in any one specialty (e. g. dermatology, ophthalmology, psychiatry) as in any other specialty. But, as the general practitioner is ready to agree, he certainly does not know as much about psychiatry as about many other specialties. How shall he proceed?

In the first place, there is often a bit of an obsession to rationalize. The general practitioner feels his education in psychiatry deficient and any postgraduate instruction practically impossible. He develops a general *psychopathophobia*. Moreover, if in his presence some psychiatrist inadvertently uses a term like *psychopathophobia*, it becomes easy for the old outcry about terminology to be raised. As a matter of fact, the terms of dermatology or of the chemistry of metabolism are just as difficult as those of psychiatry, often more so. What we are dealing with (to continue with this naive terminological joking) is another phobia, *onomatophobia*. One must, of course, acknowledge that terms for exact and complex things can hardly ever become much less precise, and much more simple than the facts, without destroying the facts. But there are signs that terminology is solidifying and getting less and less equivocal in psychiatry. In any event, the immediate duties of the general practitioner do not carry him into actual mares' nests of terminology.

Suppose the *psychopathophobia* and *onomatophobia* to be sufficiently rationalized. There is another comment on the relation of the general practitioner to psychiatry which has an optimistic tinge. Judging him by the standard of his range in other specialties than psychiatry, the general practitioner is found to be comparatively well up in major aspects of psychiatry.

I will not repeat in detail the arguments before presented concerning the general practitioner's reasonably sufficient equipment for handling the syphilitic, feeble-minded, epileptic, alcoholic, focal brain (that is, these disorders in their major aspects), somatic ("symptomatic"), senile, and even perhaps the psychoneurotic disorders. Inadequate practice, at any rate grossly inadequate practice, is not often found among these

disorders, if we judge the practitioner by his achievements in other specialties.

In order to learn something of the status of the general practitioner with respect to psychiatry, I have looked over 500 brief descriptions of mental patients going to the psychopathic hospital in cases of the group we call the "temporary care group." That group is composed of patients who have never passed through the probate court or any judicial procedures. They are cases which physicians, or in some instances the chiefs of police and heads of boards of health, have thought suitable for observation at the psychopathic hospital. There is nothing mandatory about the hospital's receiving these patients for observation. The law says that the hospital may receive these cases for observation. Accordingly the admitting officers must make some preliminary observations of their own before the patients are admitted for observation. It must be carefully noted that these patients are *admitted*, not committed, to the hospital. A similar law to that for temporary care in Massachusetts is also in force in the municipality of New York. The law forms, as is well known, the acme of procedures in the interest of the mental hygiene of a community, as the modern psychopathic hospital acts as a magnet to bring psychopathic and all sorts of acute, curable, incipient or dubious cases to the state's observation and care.

For my present purpose, however, the point I wish to bring out is that this clinical material is very similar to and almost identical with material which, in most parts of the country, remains for many weeks or months under the control of general practitioners without recourse to the courts. Something like 1,200 or 1,500 patients of this order are under observation at the psychopathic hospital in Boston during a period of a year. They pass rather rapidly through a hospital of 110 beds, operating at from ninety to ninety-five beds, and are then passed back into the community or forward into receptacles for more chronic cases. Something like one third of all the patients are turned back into the community under proper supervision or, if possible, without supervision. This material, then, is exactly what the general practitioner has to deal with, though in most states he has no recourse to a modern institution like a psychopathic hospital. Accordingly the remarks about these patients made by the general practitioners will probably indicate what the status of psychiatry is in the mind of the general practitioner in Massachusetts.

Of course, among these "temporary care cases" there will be a number which have passed through the hands of specializing neurologists or psychiatrists.

A report made by such a specializing neurologist may run as follows: "Emotional deterioration, apparent impairment of memory. Hallucinated, aural. Depressed. Delusions, somatic type. No initiative. Listless, apathetic. Poor cooperation. No capacity for work." Such a report is informative, suggests the diagnosis dementia praecox, and is a fair sample of the routine report of a neurologist. The idea "emotional deterioration" is in our experience almost beyond the range of the general practitioner, nor have the words any very profound meaning for many excellent internists. Yet it would be comparatively easy in a brief period of observation in almost any hospital for the insane (not necessarily a psychopathic hospital) for a general practitioner or an internist who wished

to brush up this specialty to learn the special meaning of a phrase like emotional deterioration.

Another neurologist's report speaks of an army case as "showing marked motor acceleration, flight of ideas, and press of activity." These are phrases due to the effect of the Kraepelinian psychiatry on our American institutions. I am not at all sure that I believe the general practitioner of medicine in America should learn all the slang of the psychiatric clinics; but the general ideas underlying the differential diagnosis between dementia praecox and manic depressive psychosis ought certainly to be understood by every general practitioner.

We also receive many cases referred from general hospitals, some of which are of the highest standard. The only instance in which catatonia was specified in any of these reports came from such a high grade general hospital. The fact that an assistant physician in a general hospital should know of the existence of catatonia and be able to specify it in a report on a case ought not to be a remarkable fact. Still it is an isolated fact in the series of 500 cases whose temporary care data I looked over. We, I believe, did not determine that the catatonia in question really was a catatonia, but that is not the point I make. How many general practitioners are advised of the existence of catatonia and really envisage catatonia as they might sundry conditions in specialties like dermatology?

From a very good general hospital we received a statement something as follows: "Onset sudden with acute retention of paralysis (flaccid) of legs ten days ago. Severe pain in lumbar region preceding above. Temperature of 103 to 104. Remains high. Mentally deranged for about twelve hours." Mental derangement! This is a phrase like several others—"mental failure," "irrationality," "mind unbalanced," "cerebral degeneration," "nervousness," "patient erratic"—which phrases all seem to dodge the specific issue and to argue an utter lack of specification in the mind of the practitioner as to different forms of mental diseases and symptoms. There will be found in these reports excellent detailed accounts of the radiation of pain, the situation of tenderness, the Wassermann reaction, the phthalcin test with digitalis, the appearance and disappearance of edema of the ankles, and the like; but there is no corresponding objectivity in the account of mental symptoms.

To our astonishment, we one day received from a high-grade general hospital the following: "Patient has been moderately depressed. Yesterday and last night patient became confused, showed fleeting hallucinations and ideas of a somatopsychic character, somewhat nihilistic. Unreasonable. At times disoriented. Difficulty in keeping the patient in bed or on the ward." We afterward discovered that this report had been made by one of our own former psychopathic hospital interns who had become connected with the staff of the general hospital in question. Here was a very informative report, but one apparently quite beyond the range of most hospital practitioners.

Let us now come to the general practitioners themselves. There is a group of reports in which absolutely nothing is said of value. For example: "A violent and dangerous maniac" seems to say a good deal about a patient, who, however, turns out to be neither maniacal, dangerous, nor violent. Another statement, "This man has been acting queerly for the

last six months and seems to be all run down," is of little value, as also the report, "Has been gradually becoming mentally weak and physically weak." With all due allowance for the carelessness of some practitioners and the fact that many things may be said in conversation that cannot be put on official slips, it is clear that there is a good deal of dodging the issue, and what in the military service was so universally known as "passing the buck," in the field of general practice as it touches psychiatry.

On the other hand, there are numerous perfectly objective reports which, though they indicate absolute ignorance on the practitioner's part concerning psychiatry, nevertheless are very informative, for example, "Crying and laughing. Breaking furniture. No sleep for three nights. Very destructive. Burned \$150 in bills. Threw watch and chain away. Burned up new shoes and clothes." There is a report which tells something, though from other evidence we are aware that the physician in question has no claim to psychiatric knowledge.

Here is another objective report: "Patient does not sleep, is depressed, is afraid she is going insane, and has expressed a desire to die, but has never spoken of an attempt at suicide. The patient says she is worried about something in the past which she can never tell any one. Patient has an irregular heart, possibly on an arteriosclerotic basis."

Or take another objective report: "This man sits and broods, avoiding the company of other people always. He will not enter a street car if others are present. If empty, he will probably go in and sit down. He says other people have no use for him. He imitates actions of others in minute detail. He says he can't go on living this way."

These objective reports indicate clearly that we have in many practitioners a great deal to build on in our propaganda for the extension of psychiatric knowledge among general practitioners.

I have collected a number of instances of the grossly inaccurate use of phrases. Sometimes the users of these phrases are otherwise objective enough. Their inaccuracy merely points to their inadequate medical education. They are perhaps good observers, but poor reporters.

For instance, the statement that a girl has "hallucinations that a fellow has moved into the same house with her" means in modern technical phrase not "hallucinations" at all but "delusions." This confusion of hallucinations and delusions is the most common error in these reports. You may regard it as a venial error, seeing that as a rule the context will tell the psychiatric examiner whether the reporter meant delusions or hallucinations. That is of course true. But my point is that this confusion argues elementary ignorance on the part of the general practitioner, since practically the first thing which a medical student learns concerning psychiatry is this distinction between hallucination and delusion.

A more gross error in phrasing is the following: "Dementia resembling circular insanity developed." The fact that circular insanity, even if the phrase were now in common use, is a nondementing psychosis and does not resemble a dementia ought to be common knowledge among practitioners.

Such ignorance as this can readily be repaired by postgraduate work, and it is clear that a propaganda to this end will meet general approval.

It will be more difficult to eradicate odd ideas concerning etiology. In answer to the question, "What is the cause of the patient's mental derangement?" facts from the anamnesis are almost at random picked for exposition. Thus, "Patient gave her wrong age in securing a position and said that she had two brothers in the army. She feared she would be found out in these lies and arrested." Another, to the question, "What is the cause of the patient's mental derangement?" is "in love?" Another, "Overstudy." Another, "Has worked very hard for the past six months."

These facts on examination seem to be merely items in general situations. No one nowadays denies the psychogenic origin of a certain portion of mental disease or the psychogenic factor in every mental disease, but we must certainly do something about our statistical blanks if we are not to perpetuate fantastic etiology in the common run of cases. A patient, who is described as having "fallen forty years ago and injured his back, excited, destructive, depressed," has as the cause of his derangement "high blood pressure." This patient turned out to be a case of hemorrhagic encephalitis. Another sample: "Patient comes in after an argument over something. In this case it was over the proper way to fix the bent stern of a submarine chaser which he was working on, and he being a house carpenter undertook to make the ship carpenter do it his way, hence the attack."

I need make no further comment on these etiologic statements. An extension of our propaganda to the demonstration of a few samples of the major groups of mental disease in clinics for general practitioners given at the various hospitals for the insane nearest the centers in which general practitioners might congregate would no doubt serve to erase most of the etiologic rubbish here hinted at. But the propaganda would also wipe out some of the grossly inaccurate use of phrases above mentioned.

Meantime the internists and general hospital physicians would have to brush up their psychiatry and undergo a reeducative or an educative process. All of which would minister to the mental hygiene of the community.

#### SUMMARY

Psychiatry has become almost more popular with nonmedical mental hygienists than the medical profession. Of course, the relations that are ultimately to stand between clinical neurology and psychiatry are not entirely clear. But the relations between psychiatry and the general practice of medicine are disturbed by special difficulties, e. g., phobias on the part of the general practitioner concerning nomenclature and concerning his own supposed ignorance of psychiatry.

A frontal attack is proposed on the general practitioner, in addition to the flank attacks considered desirable in the past, for his proper postgraduate education.

Psychiatry is more a synthetic art than is clinical neurology, now predominantly analytic. But, being synthetic, psychiatry has much in common with general medicine. General medicine, psychiatry, and (to a certain point) obstetrics treat the patient as an *individual*, whereas the majority of the specialties treat the patient (in scholastic phrase) as a *dividual*.

The body of the text contains material illustrative of some inadequacies of the general practitioner re psychiatry. Many of these are easily reparable.

#### ABSTRACT OF DISCUSSION

DR. E. STANLEY ARBOT, Belmont, Mass.: Dr. Southard has advocated a frontal attack on the general practitioner. I think we should also make an attack on the medical student. After all psychiatry deals much more with abstract than with concrete symptoms. Not many men are interested in abstract things, but the psychiatrist has to be. We want to get hold in the schools of those medical students who can be interested in abstract topics of conduct, action and so on. In order to do that we must begin earlier than the subject of psychiatry is usually taken up in the medical schools. There has been difficulty in interesting medical students in psychology, partly because of the lack of development of the science itself. Until very recently it has not dealt with the every day matters of conduct and behavior, and yet that is what the psychiatrist is constantly running up against. Psychology as taught seems to have had no relation to psychiatry. What we need, therefore, is the introduction into the curriculum of the medical schools of a psychology that deals with the mental activities involved in the normal adjustments of everyday life and their application to the behavior disorders that are the subject matter of psychiatry. A few years ago I looked up the number of medical schools teaching psychology and there were only twelve or thirteen that had any place for it in the curriculum. I think that is one of the reasons why the general practitioner has so little knowledge of psychiatry when he goes into practice. Psychology seems to the average man an abstruse and mysterious subject with which he is incompetent to deal. That attitude must be broken down by avoiding the language and terminology that is so mystifying to him. By presenting a psychology of every day life as a preparation for psychiatry more men will be interested in it and go out as general practitioners without the defects of special knowledge which Dr. Southard deplors.

#### THE PHARMACOLOGY OF THE LOCAL ANESTHETICS\*

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AND

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Acute intoxication in man from the use of the local anesthetics is far more common than is indicated by the number of recorded cases. We undertook to investigate the causes of such intoxication, and sought to find means of avoiding it, or combating it when it arises. This investigation has included a study of the literature of the more important cases of human intoxication, and the performance of over 300 experiments on cats. The details of this work are published elsewhere,<sup>1</sup> the present communication being limited to a short discussion of the more important facts brought to light, especially with reference to their bearing on the clinical problem.

Nine of the local anesthetics were studied, and the maximum toxicity of each was determined by rapid intravenous injection into cats. The drugs used, the fatal dose of each, the concentrations of the solutions employed, and the relative toxicities of the drugs are shown in the accompanying chart. From the chart it is seen that cocaine is about intermediate in the group with reference to its maximal toxicity for the cat.

\* From the Department of Pharmacology, Cornell University Medical College.

<sup>1</sup> Read before the Section on Pharmacology and Therapeutics at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

<sup>2</sup> Part of the expense of this research has been defrayed by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

J. J. Pharmacol. & Exper. Therap. 12, 1919.

These relative toxicities, however, apply only for single doses injected rapidly into the blood stream. When large fractions of the minimal fatal doses are injected intravenously at intervals of from fifteen to twenty minutes, or when relatively dilute solutions of the drugs are injected slowly and nearly continuously, the several drugs can be divided into two groups based on the difference in their rates of elimination. Group 1 includes alypin, apothecin, beta-eucain, nirvanin, procain (novocain), stovain and tropacocain, all of which are rapidly eliminated, so that several times the minimal fatal dose of any of these can be injected in the ways just mentioned in periods of one or two hours without causing death of the animal. Group 2 includes cocain and holocain, which are much less rapidly eliminated, and which therefore cause death in much smaller total doses when given as described.

When injected subcutaneously into cats, the local anesthetics can again be divided into the same two groups, depending on their rates of elimination. All are apparently absorbed rapidly, but those of Group 2 are much more toxic by subcutaneous injection than those of Group 1 because their elimination is not rapid enough to keep pace with their absorption. Five or more times the minimal fatal vein dose of any of the members of Group 1 can be injected subcutaneously without causing death, while less than four times the fatal vein doses of those of Group 2 prove fatal.

When absorption from the subcutaneous tissues is delayed by the simultaneous injection of epinephrin, the difference between the two groups is emphasized, and the toxicity of the members of the first group is reduced far more than that of the members of Group 2. The elimination of members of Group 1 proceeds at the rate of at least one fatal vein dose every twenty minutes, while not all of a subcutaneous dose of cocain, one and one-third times that fatal by vein, may be eliminated in twenty-four hours or more.

The elimination of all of the local anesthetics is accomplished almost entirely by their destruction in the liver, as can be demonstrated by perfusion of the excised, surviving organ with diluted blood containing large quantities of the drugs in solution, and subsequent determination of the amount remaining in the perfused fluid.

Various efforts were made to influence the toxicity of the local anesthetics, including the administration of atropin or caffeine prior to the intravenous injection of the anesthetics; the addition of sodium bicarbonate to the solution of the anesthetic just before intravenous injection, to liberate the base; the production of nervous exhaustion in the cat; severe acute hemorrhage by removal of one fourth of the cat's total blood; and the production of narcosis by the administration of hydrated chloral. None of these measures had any influence on the cat's susceptibility to the intravenous injection of any of the anesthetics except acute hemorrhage and narcosis by chloral. Both of these caused some increase in the cat's susceptibility, as

shown by the fact that often it succumbed to doses smaller than the average fatal dose. This increased susceptibility is accounted for by the fact that both these measures interfere with the destruction of the anesthetics in the liver by reduction in the blood pressure and impairment of the circulation. The resistance of both the heart and the respiratory center is also probably reduced by the impaired circulation.

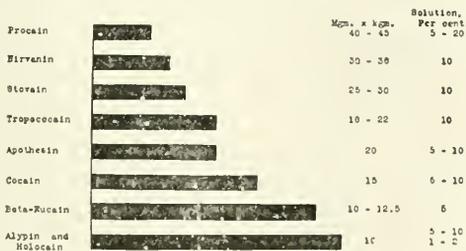
The symptoms produced in cats by toxic doses of the various local anesthetics are essentially alike, and they are also essentially the same as those observed in man. All of these drugs kill by simultaneous paralysis of the heart and the respiratory center. We therefore tried artificial respiration in cats as a resuscitative measure, with and without cardiac massage, but it proved ineffective, even when combined with massage of the heart.

The employment of artificial respiration in combination with stimulation of the heart by the immediate intravenous injection of epinephrin, however, enabled us to resuscitate the majority of cats after the rapid intravenous injection of doses of the local anesthetics up to twice the average fatal dose. Since the heart had stopped in most of the cats, it was necessary to practice massage of the heart in order to bring the epinephrin into contact with it. The success of this method of resuscitation depends on the rapid destruction

of the local anesthetics, whereby the excess administered is promptly eliminated if the circulation can be maintained for only a few minutes by the stimulation of the heart with epinephrin. But even with such stimulation, and when it is evidently recovering, the animal will die of respiratory paralysis unless the center is supported for a few minutes by artificial respiration.

The success of the preceding measures, in which the brief stimulation of the heart played the most important part, led us to try the effects of previous stimulation of the heart by the administration of a dose of ouabain (so-called crystalline strophantin). We then administered doses of the local anesthetics up to twice the average fatal dose, and employed artificial respiration to tide over the period of respiratory paralysis. By these measures, cats usually survived doses of the anesthetics up to one and three quarter times the average fatal dose.

It is evident, therefore, that if the circulation and respiration can be maintained for even a few minutes, the rapid destruction of the local anesthetics by the liver will care for amounts considerably in excess of those which are usually fatal. The close analogies between the behavior of man and cats to toxic doses of the local anesthetics, and the fact that man also recovers rapidly from the effects of nonfatal doses, suggest that he also accomplishes their elimination or destruction in his liver, and it seems highly probable that the use of epinephrin and artificial respiration will prove effective as resuscitative measures in many cases of acute poisoning in man. It is, however, to be remembered that serious intoxication has been seen in man following extremely small doses of the local anesthet-



Relative toxicity and range of concentration of solutions for the several local anesthetics; fatal doses in milligrams per kilogram.

ies, suggesting the occasional existence of a marked degree of hypersusceptibility; and in such cases doses which are relatively small, as compared with the average commonly employed, may actually be several times the minimum which would be fatal in the particular individual, so that even the most effective resuscitative measures may well fail under such circumstances.

While cardiac massage cannot be carried out so efficiently in man as in the cat, it can be performed sufficiently to cause the greater part of an intravenous injection of epinephrin to reach the heart; and several satisfactory methods are available for carrying on artificial respiration in man. These measures, also, are all such as can be applied without loss of time under most conditions, and they certainly seem to be the most effective means at our disposal for saving life after the development of symptoms of acute intoxication by the local anesthetics. Since acute poisoning in man occurs when least expected, those who frequently employ these local anesthetics should always be prepared to apply the three resuscitative measures of intravenous infusion of epinephrin, artificial respiration, and cardiac massage. All three should be used in combination, since no one alone is effective, except in rare instances.

Finally, in order to diminish the likelihood of intoxication from the subcutaneous injection of the local anesthetics—especially those of Group 1—in man, epinephrin should be added to their solutions as a routine, because by delaying their absorption it renders it more probable that the destruction by the liver can keep the amount present in the circulation at any one time at a point below that sufficient to cause intoxication. The use of epinephrin also has the further advantages of prolonging the anesthetic action of a given quantity of the drug and of reducing the amount required for anesthesia by permitting a larger proportion of the dose injected to remain in contact with the tissues to be anesthetized, and by maintaining the contact for a longer period of time than when the drug is injected alone.

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#### ABSTRACT OF DISCUSSION

Dr. DAVID I. MACHT, Baltimore: I wish to say a word concerning the toxicity of the recently discovered new local anesthetic, phenmethylol or benzyl alcohol. If you inject into the saphenous vein of an unanesthetized normal dog (as can easily be done), a 1 per cent. solution of benzyl alcohol in doses of 20 c.c. per kilogram weight of the animal, the animal will get up and play as normal as ever. This is not the fatal dose of the drug. The fatal dose is at least forty times less than that of cocaine. As far as I know, this toxicity is less than that of all the commonly known local anesthetics. The low toxicity is due to the fact that the drug is not an alkaloid or a narcotic, but a simple compound, which is easily and rapidly metabolized and detoxified by the body and is excreted for the most part as hippuric acid.

**Mother's Milk and Cow's Milk.**—Many are familiar with the chemical difference of the two milks, but we wonder how many really appreciate the total difference in physical and chemical properties. The fats of the two milks contain different proportions of palmitic, stearic and oleic acids, have different melting points, and the fat globules are of different size, all producing a difference in digestibility and absorbability. The proteins contain different proportions of casein and globulin and a different amount of lecithin and chemically combined phosphorus that are very important in bone formation and brain development.—Julius Levy, M.D.

## HYSTERICAL HEMIPLEGIA

REPORT OF CASE RESULTING FROM A SHRAPNEL WOUND OF THE SCALP AND PRESENTING INTERESTING CLINICAL FEATURES \*

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AND

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While the history and clinical picture we are privileged to report may not be considered especially unusual by those medical officers who, during the great war, encountered all manner of functional nervous manifestations, the condition nevertheless does possess features of interest to the general practitioner and presents several points worthy of discussion by the neurologist.

#### REPORT OF CASE

*History.*—W. P. W., a married man, aged 29, American, marine diver, enjoyed good health during youth and obtained a common school education.

So far as we could determine, the family history presented nothing noteworthy. His mother and father were dead; the former died from a complication of diseases at the age of 62; the father succumbed to pneumonia a few weeks before. The patient had two brothers and two sisters. One brother died from wounds, in France, during the past year. The remaining brother and two sisters were alive and well.

April 22, 1902, he enlisted in the United States Navy; he contracted malaria during July, 1903, and was discharged for this disability, May 10, 1904. Shortly thereafter he was awarded a monthly pension of \$12, which is still in force.

After this country declared war against Germany, this man applied for enlistment in the military service of the United States, but was rejected at Detroit and Cleveland as "medically unfit," for what reason we are unable to ascertain; but it is presumed that the examining officers took into consideration the fact that he had been discharged from the Navy as physically disabled. May 1, 1917, he was accepted by the authorities at Windsor, Ontario, and went overseas with the Canadian Expeditionary Forces, June 27, 1917.

His service at the front was uneventful until on or about Aug. 1, 1917, when he claims to have volunteered to accompany a rescue party, at night, in search of their captain, who was reported lost in No Man's Land.

The officer was found severely wounded and in need of prompt surgical attention. In the face of a heavy German bombardment this soldier started back to safety, carrying the wounded officer. As he approached the communicating trenches, shells were exploding thick and fast; but he succeeded in delivering his charge to the stretcher bearers. At that moment he felt a sharp sting on the left side of the head and believes he fell forward into the trench. He was treated at the clearing station during the subsequent twenty-four hours and then removed to British General Hospital No. 8, where it was found he was paralyzed on the entire left side of the body, including the face. The period of unconsciousness, he stated, was brief. He was confined to bed for a period of one month. Since then he had been able to get about with the aid of crutches or a cane.

Oct. 28, 1917, he was transferred to England and received treatment and observation in several special military hospitals. During the many examinations he heard his condition discussed as a "hemiplegia" resulting from a shrapnel wound of the left scalp. He intimated that the examiners used the term contrecoup. The weakness of face, he avers, gradually disappeared in a few weeks.

\* Read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

June 7, 1918, he was invalided to Canada and further observed. The disability, however, remained practically unchanged and he was discharged at Toronto, Jan. 2, 1919, as "medically unfit." A monthly pension of \$50 was granted him.

From the medical history of this soldier as recorded in the final report of the Canadian Medical Board, dated Toronto, Ont., Dec. 12, 1918, a copy of which was kindly furnished by Major E. E. Fletcher, I quote the following:

"History: Wound of left side of head by piece of H. E. shell and struck on head by piece of timber. This was followed by hemiplegia on same side as wound. Hemiplegia may be due to contrecoup or more likely to some intracerebral vascular disturbance. X-ray of skull negative. Operation considered inadvisable.

"Present Condition (Objective): Power of left arm poor throughout, about one-third normal. Loss of all power for fine movements of left hand. Partial loss of power of left leg. Coarse tremor of left arm and sometimes of left leg. Sustained left ankle clonus. Plantar reflexes give Babinski response on left side. Left foot held in position of partial equinovarus. Can walk (using a stick) with marked limp on left leg. Sensation normal; no astereognosis. Small depressed area on left side of skull about 2 inches above left ear. Is somewhat emotional and at times hysterical. There is slight mental deterioration.

"Present Disability: (1) Partial loss of function of nervous system. (2) Defective eye sight.

"Final Conclusions of Board: Wassermann on spinal fluid and blood negative several times in England. Disability of soldier now 100 per cent. The report also states that this soldier told one of the medical officers there was a weakness of left side of body, following his attack of malaria in 1903; but he now denies having made this assertion."

*Examination.*—Our first examination, Jan. 20, 1919, disclosed a man of large frame and excellent development. He was exceedingly tremulous, anxious and depressed. He walked with crutches, carried the left arm close to the body, and dragged the left leg in a somewhat flexed position. The fingers of the left hand were firmly contracted but not of the Babinski and Froment type of reflex contracture. A partial left hemianesthesia prevailed; reflexes of the left side were quite sharp; a fairly well sustained clonus of the left ankle and left patella were detected, and as typical and complete a Babinski response of the left foot as we have ever encountered was elicited. The Oppenheim and Gordon signs, however, were absent. The left leg was paretic and slightly atrophied without appreciable change in the electric reactions. No vasomotor or thermic abnormalities existed.

A healed depressed scar, about three-fourth inch in length, adherent to the skull, was found on the left scalp at a point about 2 inches above the left ear. This wound is said to have been infected. The small toe of the right foot was amputated some years ago following a crushing injury.

The heart, lungs, blood vessels and abdominal viscera were normal. The pulse rate was 110, regular and of fair volume. The blood pressure measured 115 mm. systolic and 98 diastolic.

The patient's record, as personally related, plus the physical findings, was strongly suggestive of an organic palsy, and not until his history was further scrutinized and a more careful study made of the symptoms did it appear that we were probably dealing with a functional derangement.

He went on to say that he had returned to Cleveland a cripple, and he became quite emotional as he told of his wife's unfaithfulness during his absence in France and how he had lost his American citizenship by enlisting in the Canadian army. He stated that he had applied at the U. S. Marine Hospital, this city, in the hope that the trouble in his brain might be located and possibly corrected by surgical means. If his condition was incurable he wanted to know it at once, as suicide was preferable to a life of invalidism.

Complete roentgenograms of the skull were made by Dr. T. J. Taylor at Lakeside Hospital, and not a single suspicion of fracture was detected.

Dr. Leo Wolfenstein made a painstaking investigation of the eyes, and reported that the patient claimed defective vision of the left eye, apparently about 20/100; but when he placed a plus 600 sph. in front of the right eye, the vision of the left eye was found to be at least 20/30. In the right eye, the patient claimed vision of about 20/70, but with a little strategy the vision of the right eye proved to be normal. During his observation of the case the vision seemed to vary from time to time. The eye grounds were entirely healthy, and no error of refraction was detected. The fields also varied considerably from day to day. There was no nystagmus.

The spinal fluid was obtained by Drs. Richard Dexter and C. L. Cummer, and their findings were: Pressure, not increased; globulin, not increased; cell count, none.

The Wassermann reaction read: 0.1 c.c., negative; 0.3 c.c., negative; 0.5 c.c., negative; 1.0 c.c., negative.

*Treatment and Result.*—Arrangements were then made to subject the patient to a systematic plan of therapy. He was candidly informed that his brain had not been organically damaged, and was assured that if he would cooperate with us a recovery might consistently be expected. It was explained to him that he undoubtedly had been severely shocked and his nervous system undermined thereby; but the trouble, fortunately, was functional.

Sedatives were used to allay the extreme emotionalism and to overcome a persistent insomnia. Saline baths each night, galvanism every other day, and regulated exercises were prescribed.

From the very beginning, a decided change for the better was noted. His nervousness gradually abated, and he became enthusiastic and hopeful. In less than two weeks his gait was very much more stable, and to our surprise the alleged Babinski phenomenon and clonus of the left ankle and knee disappeared. Crutches were discarded for a cane, and within a month he was able to go about unassisted. He complained, however, of difficulty in crossing congested streets. Crowds excited him, and he sometimes feared he might lose his control and be injured by some passing vehicle.

During the first six weeks the left hand remained more or less contracted. He told us, however, that sometimes when alone he was able to walk and use the left arm almost as well as before he was wounded; but the moment he came in contact with people the paralysis would recur. With the use of electricity we seldom failed to relax fully the contracted left fingers, but the result was temporary. As an additional suggestive measure, alcohol was injected into each left finger with the same psychic effect. On one occasion he remarked that the alcoholic injections seemed to release something in the left side of the head.

Time after time this soldier would report for treatment remarkably improved and highly encouraged. At other times he was tremulous, fearful and deeply depressed. Trouble of some sort continued to cross his path. Always impressionable, the slightest annoyance invariably aggravated the disability and increased his nervousness. A chance meeting with his alleged unfaithful wife, a death in the hospital and the notification of his father's demise were some of the numerous perturbations which retarded his progress. As our observations proceeded, we finally were convinced that the Canadian medical officers made a proper interpretation of his mental state. He was not only poorly equipped to withstand ordinary strains and stress but wholly incapable of adapting himself to his environment. Many of his statements proved to be base prevarications, and he made claims that were extravagant and oftentimes sensational. His chief ambition was to pose as a wounded hero, and he habitually feasted on pity and sympathy. One day I saw him marching in a military parade, leaning heavily on a cane and carrying the left arm in an unnecessarily awkward position for the evident purpose of attracting attention. His expression of sadness and dejection was pronounced.

For a while the condition, though greatly improved, remained somewhat stationary, and we decided to take a firm stand with him. Instead of remaining at the hospital to follow instructions, he was wandering about the streets mak-

ing acquaintances of a questionable character. The odor of liquor had been detected on his breath; but this he stoutly denied. He did, however, admit that persons had stopped him on the street and urged him to forsake medicine and seek relief at the hands of various cults whose cures, they declared, were more permanent.

We openly accused him of loafing on the job, and he was told that it looked very much as if he was not especially anxious to regain his health so long as he enjoyed monthly pensions in the amount of \$62. This seemed to jar him, so to speak, and he instantly retorted that if he could be convinced that the paralysis would never recur, a full recovery would probably follow. He also admitted that his general sense of well-being was greatly improved; that the paralysis was ever so much less; that the nervousness and insomnia had practically subsided, but that he was constantly haunted by the fear that a piece of shrapnel had penetrated his brain, as the examining officers so often declared. Another interesting assertion was the confession that more than once he felt as if his health had been restored, but some excitement would arise to blast his hopes.

At the final examination, May 15, 1919, the patient looked well and was adequately nourished. He had gained 10 pounds in weight. He walked alertly with a slight limp, favoring the left leg. He was able to stand erect with the heels and toes together, and could stand on either foot unassisted. No clonus or Babinski toe response prevailed. He carried the left arm in an almost normal position, but there remained a moderate contraction of the thumb and first finger of the left hand which interfered with the fine movements of the left hand. The grasp of the left hand and the strength of the left arm and left leg were vigorous. The heart action was normal. The pulse rate was 88. The blood pressure measured 130 mm. systolic and 93 diastolic. The depressed flesh wound of the left scalp remained unchanged. The patient was able voluntarily to extend the great toe of each foot while the remaining toes retained their normal position. The tendon of each extensor hallucis longus was still prominent.

Mentally he was quiet and self composed. He had lost much of his emotionalism and apprehension, but was still morbidly impressionable. He was optimistic as to his recovery, which he believed was not far distant. He stated that during the excitement incident to the recent socialist uprising in the Cleveland streets, May 1, he almost forgot that he was a cripple.

#### COMMENT

The case is of interest in consequence of the confusing nature of the neurologic symptoms. Our initial examination disclosed a contracted left hand, a decided weakness and limp of the left leg, plus an apparently complete Babinski phenomenon of the left foot with a more or less pronounced clonus of the left ankle and patella. These clinical observations were also detected and recorded by the Canadian medical officers, and unquestionably influenced their opinion that the affliction was an organic hemiplegia and therefore a total disability.

At first we readily would have agreed with this classification; but the facts that the soldier sustained a slight flesh wound of the left scalp followed by paralysis of the same side of the body, including the face, and that subsequent roentgenograms of the skull and Wassermann tests of the blood and spinal fluid were reported by competent observers to be negative aroused sufficient doubt in our minds to warrant delay in forming a definite conclusion.

After one month's observation and treatment we became convinced that the disability was none other than the expression of a hysterical disturbance. The early subsidence of the suspicious nerve signs and the marked general improvement by suggestive measures

only, the abnormal impressionability of the individual, his inability to withstand the ordinary pin pricks of life, the pronounced emotionalism, and the eye manifestations did much to shape our diagnosis.

Little significance was placed on the clonus of the left ankle and patella, as this symptom frequently occurs in functional disorders and is therefore worthless as a pathognomonic sign.

The possibility of an admixture of hysteria and an organic lesion was carefully considered and eventually excluded. Nor did we overlook the importance of the reported observations of experienced neurologists that hysteria has never developed on the battlefield or when the soldier is still in danger, but only when he finds himself in relative safety. This patient is unable to give any reliable data as to when the paralysis first appeared. During the first twenty-four hours he was dazed and confused, but he entertains a vague impression that the condition developed while en route to the hospital in a military train.

The question now arises as to whether or not the alleged Babinski response of the left foot was genuine and therefore pathologic. We are inclined to doubt it and prefer to interpret the phenomenon as a psychogenic movement of resistance. On the other hand, when the sole of the left foot was gently stimulated there was a prompt, though slow, dorsal excursion of the large toe, and a simultaneous plantar flexion of the four external toes, symptomatic of the Babinski reaction. Perhaps the undue prominence of the tendon of the extensor hallucis longus as well as the patient's ability to cause voluntarily a full dorsal movement of both large toes, while the other toes retained their normal position, may have influenced the behavior of this symptom.

In medicolegal work, instances are on record in which litigants have ingeniously succeeded, after some practice, in producing a full upward movement of one or both large toes, in much the same manner as certain persons have learned to wriggle an ear or wrinkle half of the forehead; but this patient emphatically denies that anything of the sort ever entered his mind.

The man has been under systematic treatment for a period of four months; and, while he is still partially disabled, a full recovery, we believe, may reasonably be anticipated.

Unfortunately, he has been subjected to innumerable examinations and tests; has listened repeatedly to discussions and controversies concerning his condition; and during his long residence in various special military hospitals, has come in intimate contact with all sorts of nervous invalids. All of this has undoubtedly tended to impress on his susceptible mentality the conviction that he is an incurable paralytic. It is also important to note that as a result of his extensive medical experience he has acquired a knowledge of "traumatic hemiplegia," which is interesting if not instructive. Then, again, if his disability has earned for him monthly pensions sufficient to satisfy his ordinary needs, without exertion on his part, there is little incentive to call into action his higher control. On the contrary, it is apt to operate, consciously or unconsciously, as a deterrent to his recovery.

Finally, it may be added that this clinical report serves the additional purpose of pointing out with what degree of perfection hysteria may simulate organic disease, and also emphasizes the difficulties one experiences in avoiding errors in diagnosis.

## ABSTRACT OF DISCUSSION

DR. ALFRED GORDON, Philadelphia: The Babinski sign has been reported to have been found in cases of hysteria, but a careful examination will always reveal some error in the procedure or the method of bringing out the reflex. One has to stroke very gently the sole of the foot in order to bring out a genuine Babinski without dorsoflexion of the entire foot. With reference to the knee jerks in hysteria one must equally be careful in interpreting the reflex. A brusque, abrupt, sudden elevation of the leg is more in favor of a diagnosis of functional disease than of organic disease. Here again the case reports do not give a detailed account of the procedure employed or a detailed description of the phenomenon. With regard to the compensation question in functional nervous disease, there is a tendency at present to regard hysteria as malingering on the part of the patient. At the meetings of French neurologists the question was raised especially and for a special detailed discussion by the most eminent men. At first there was an inclination to decline compensation for cases of functional nervous disorders, hysteria included, and only one man, Pitres, of Bordeaux, raised his voice against such a decision, discussing at length the injustice rendered the individuals in this class. Another meeting was held for the same purpose and finally the entire association came around to Pitres' views, and 20 per cent. disability was considered as a standard for hysterical paralysis or other functional manifestations.

DR. TOM A. WILLIAMS, Washington, D. C.: Two fallacies in such cases must be guarded against. One is mistaking for the extensor reflex the true Babinski, the defense reaction. Another is the simulation of the Babinski on the part of the patient. The defense reaction can readily be differentiated from the true Babinski phenomenon, if one knows the behavior of each. With reference to ankle clonus, it is not difficult for a patient to simulate this. The experienced neurologist, however, can make the differentiation, and if not an experienced neurologist, by a kymographic tracing. There is another interpretation in some of these cases, namely, that the patient has had a lesion capable of producing disorder of the pyramidal tract which will produce that sign and which rapidly disappears, such as meningeal irritation. The patient grafts the hysteria on the organic condition, and when he is examined one discovers only the hysteria and wrongly imagines the former reactions are due to the hysteria. The criterion of the case is the fact that the phenomenon can be induced and removed by persuasion and suggestion, in which case it cannot be an organic phenomenon.

DR. ALBERT E. STERNE, Indianapolis: We have practically all had similar experiences, or will have like experiences at this time of returned soldiers, for reexamination is often requested by the war risk department and a number of cases will present similar complexities which we are somewhat at a loss to interpret. We are laboring between two emotions, ourselves, in making our reports on these cases; namely, that we want to do justice to all the boys coming back who have been injured, but at the same time protect the government and ourselves from fraud. Whether organically injured or functionally disabled makes little difference, because a man functionally disabled is almost as badly off and sometimes worse off than one with a palpable bodily injury. The government compensations will amount in time to terrific figures and we are all anxious, naturally, to see that compensation is not awarded where it is not due. The suggestions grafted on these men in their prolonged convalescence in various camps must not be overlooked. I am convinced that the great majority of these boys do not desire to remain invalids; they are not in the malingering class, but they exaggerate. There is a tremendous proclivity in the average normal individual to exaggerate symptoms, either through self-pity or the desire to excite sympathy. We must not be too sure about the revelations the reflexes present. Where the reflexes are seemingly positive, if tested and retested often enough they may be found changed. They are not always consistent. You should make the patient feel that you are with him, as much as possible, but are not going to encourage any unfit-

ness on his part that can be cured, or encourage him in functional invalidism.

DR. LEWIS J. POLLOCK, Chicago: The important fact as to compensation for the war neuroses is not that the patients are not going to be compensated enough for their disability or that the government is going to be cheated out of money wrongly applied. The important thing is to get the boys well. If you hold out the promise of a compensation to a hysteria patient you will afford him an opportunity for continuing the functional condition. If it is decided that there is to be no compensation for functional disease that disease will disappear much more rapidly. The best compensation for a neurosis is its cure, and any other form of compensation is a sad commentary on our therapeutic efforts.

DR. HUGH T. PATRICK, Chicago: I understood Dr. Williams to say that if this were hysteria it would immediately disappear under persuasion or suggestion. If he would modify that to "immediately disappear under effective persuasion" I would agree with him. But the fact remains that some do not disappear under persuasion or suggestion. Hysteria in soldiers is more easily treated than hysteria of civil life and yet the records show that they have been subjected to persuasion and suggestion for many months at a time and have not been cured until they reached the man who made the suggestion which appealed to the patient and then they got well. I think it should not go abroad as the sense of this section that hysteria will at once disappear under suggestion or persuasion. I would like also to support what Dr. Pollock said about these functional cases. They also can be compared to the same thing in civil life. If a man or woman has traumatic hysteria and sues for \$20,000 it is well known that in the vast majority of cases after litigation is ended the hysteria disappears. A few days after the signing of the armistice the vast majority of the war neuroses had disappeared. Consequently, the giving of compensation to a purely hysterical disability is a great mistake. In the prewar period any one who had the opportunity to see the thousands of cases of traumatic hysteria in Germany and found practically none in France because the laws of the two countries were so different, would come to the same conclusion.

DR. W. S. LINDSAY, Topeka, Kan.: I understood Dr. Williams to say that he did not consider that this case was organic. I have known of a case of cerebral tumor attended by convulsions where it was possible for the attendant to avert the convulsive seizures by engaging the attention of the patient. We cannot exclude cerebral disease because we must take into consideration the fact of cerebral inhibition.

DR. FOSTER KENNEDY, New York: The question of compensation of discharged soldiers suffering from hysteria is a matter of most potent interest at present and we should get our minds clear on this question. The British government pensioned about 25,000 soldiers for what was called shell shock up to May, 1918. This involved a very large sum of money and a large number of men. These cases furnished the medical view of what shell shock is. The doctors were wrong and the soldiers were right. The soldiers knew it was a neurosis associated with the desire to preserve life, also a breakdown of the man's adaptation to environment. It was not the result of petechial hemorrhages in the brain. The medical men advised the government and the result was this method of compensation. I understand the French take the position that they will not compensate for a functional condition. That seems to be a serious thing for the individual and in these days of the civilian army the individual should be given a certain amount of consideration. It is not true that you will cure your hysteria patients if you do not compensate them. You will have to decide what is hysteria and what is organic disease first. If you can be sure of your diagnosis then you can decide accurately. As a matter of fact, most people when they get an injury of the arm in war go through a period of defense immunization. If they are told that the arm is paralyzed then the seed of hysterical paralysis is sown. You must make it a rule to be very sure of your diagnosis, or you must have a very strong compensation board to decide what is hysteria in some cases and

what is organic in others because the chief error that is being made all the time is a question of diagnosis.

DR. EDWARD F. MAYER, Pittsburgh. I do not believe it wise to assume the same attitude toward war hysteria now as was done before the armistice. I agree with Dr. Patrick and Dr. Pollock that the feature of noncompensation was advisable during the war and that it would have been better had all the armies practiced it from the beginning. But there is a different angle to the problem now. Though the fear of the battlefield has been removed and the instinct of self-preservation is no longer disturbed, nevertheless continued disability not only implies a fixation of symptoms but a protective mechanism which needs removal and which is in most cases due to other factors than the war situations and experiences. They are unable to care for themselves and must be given hospital facilities, vocational work and competent neurologic oversight until recovered and after-care help so that no economic worry affects them after discharge. The War Risk Insurance Bureau, I know, realizes this problem but it is complicated I find by the fact that many of the war neuroses have been discharged and must themselves take up with the War Risk Board their problems instead of its having been done by army neurologists in advance of discharge. Let us, therefore, separate the compensation problems of the war and the compensation problems of after-war. In the latter case, compensation is deserved and necessary and we neurologists must above all recognize it.

DR. JULIUS GRINKER, Chicago. At the meeting of another section I heard some one remark that the diagnosis of hysteria is only a sign of the examiner's perplexity. I did not think I would hear a similar expression voiced in this section. Many people mean different kinds of disease when they speak of hysteria. In hysteria there is simulation, but it is of the unconscious kind. This we know to be only one of the many symptoms of hysteria. I think the speakers who preceded me had in mind conscious as much as unconscious simulation when they spoke of war hysteria. After everything has been said on hysteria one thing is certain, namely, that it exists and is a functional disease and must be treated as such. Not all cases of traumatic hysteria which have been awarded compensation in industrial life have thereby been cured because the disease is not synonymous with simulation. No one remedy will cure all forms of hysteria. Whatever name you give the disease, it exists, and as medical men we are justified in recommending compensation to those who become genuinely hysterical as the result of trauma whether in peace or war.

DR. HARRY H. DRYSDALE, Cleveland. Dr. Williams is inclined to regard the curability of hysteria a rather easy matter, but it has not always been so with us, especially in the cases of long duration. The case I have brought to your attention was complicated by the award of a liberal pension which consciously or unconsciously has served to deter recovery. The differentiation between simulation and true hysteria should not be difficult if the investigation is carefully conducted. When necessary, suitable observation will clear up any doubtful points. I am heartily in accord with the remarks of Dr. Pollock and Dr. Patrick.

**Industrial Tuberculosis Experience in 1918.**—The industrial department of the Metropolitan Life Insurance Company has recently published a report of the department's tuberculosis mortality experience for the year 1918. The death rate from tuberculosis (all forms) has decreased every year for the Metropolitan since 1911, when the rate was 224.6 per hundred thousand. In 1918 the death rate had fallen to 187.4, which is, however, only slightly lower than the rate for 1917—188.9. With this experience rate of the Metropolitan company may be compared the general mortality rate for 1917 throughout the death registration area in continental United States, which was 146.4. It would be interesting to study the causes as to why the death rate of those insured by the company should have been 42.5 higher in 1917 than the general rate for the whole United States. In view of the fact that those insured averaged doubtless younger one would naturally expect the rate lower.

## UROBILIN AND UROBILINOGEN OF STOOL AND URINE IN PERNICIOUS ANEMIA

THEIR VALUE IN DIAGNOSIS AND PROGNOSIS\*

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The material for this study consisted of twenty-seven cases of pernicious anemia, and as pathologic controls nine miscellaneous conditions which included one case each of chlorosis, carcinoma ventriculi, purpura, familial hemolytic icterus, Banti's disease, lymphosarcoma, acute cholecystitis, hemochromatosis, and tabes dorsalis.

The method was a modification of Wilbur and Addis's<sup>1</sup> spectroscopic method. The modification was instrumental and has been described recently by J. D. Boyd,<sup>2</sup> working in our laboratory under the direction of Dr. Louis Baumann. The instrument "was constructed from a Hellige colorimeter and a hand spectroscope and consisted essentially of a hollow glass wedge which can be moved vertically before a fixed spectroscope" (8 cm.). The sample is prepared in the usual manner. "The cell, which holds about 10 c.c., is filled with the solution, and the point is found when the spectrum just disappears with moderate light<sup>3</sup> but reappears when the light is diminished by changing the light screen of the spectroscope." It is essential to obtain a uniform sample of the stool mixture. The results were reduced to terms of 1 cm. of liquid.

Calculations for the stool are made from the formula:

$$\frac{2,000}{5} \times \frac{100}{2} \times 8 \times \frac{1}{2}$$

The 2,000 = dilution of stool; the 5 = Wilbur and Addis' concentration unit; 100 = instrumental reading; 8 = previous dilution;  $\frac{1}{2}$  = results reduced to 1 cm. divided by the size of the top of the wedge.

For the urine the formula is slightly modified, thus:

$$\frac{24 \text{ hour volume}}{5} \times \frac{100}{R} \times 2 \times \frac{1}{2}$$

All attempts to separate accurately the stools for a given period with carmin, charcoal, barium sulphate and bismuth subcarbonate, though a constipating diet was used, yielded no constant results. This uncertainty was due first to the occasional administration of purgatives to the patient by the medical staff without the knowledge of the laboratory; secondly, to the individual constipation so often present in bed patients which necessitated, with laboratory approval, the administration of a cathartic and consequently the evacuation of a soft stool in which demarcation was impossible; and thirdly, to the occasional presence of a diarrhea.

Further, even if a correctly demarcated stool was obtained, the length of time necessary for the collection of the stools is so great that the true amount of urobilin and urobilinogen may be reduced by oxidation, either in the intestinal tract or in the laboratory container. These difficulties seem insurmountable from a clinical standpoint. An attempt was made to overcome

\* From the Medical Clinic of the University Hospital of the State University of Iowa.

1. Wilbur, R. L., and Addis, Thomas: Urobilin: Its Clinical Significance, *Arch. Int. Med.* 13: 235 (Feb.) 1913.

2. Boyd, J. D., Jr.: *J. Lab. & Clin. Med.* 4: 495, 1919.

3. We found full light better.

them partially by collecting stools as they occurred over a period of seventy-two hours, determining in each stool the urobilin and urobilinogen content, and then dividing the total dilutions by the number of the twenty-four hour periods studied, namely, three. Lastly, the occasional condensation of Ehrlich's reagent by the putrefaction derivatives in the urine and stool interferes with the distinctness of the absorption band of the urobilin. This was overcome by the determination of the urobilin before the addition of Ehrlich's reagent, then of the urobilinogen after the addition of the reagent, and adding the results together.

The urobilin and urobilinogen estimation of the duodenal contents, so enthusiastically recommended by Schneider,<sup>4</sup> and subsequently by Giffin, Stanford and Szlapka,<sup>5</sup> was determined in five cases. Four showed definite, and one questionable qualitative increase in bile pigment. Three showed the abnormal presence of urobilinogen, which amounted to 6,800, 2,400 and 1,520 dilutions, respectively; the other two cases which were negative were undoubtedly cases of pernicious anemia, and there was a well defined increase of the urobilinogen in the stools. We have therefore placed less confidence in the duodenal determination than in that of the urine and stools, contrary to our expectation entertained after reading Schneider's and Giffin's articles. It is, of course, possible that more experience in this method might overcome our present prejudice.

No attempt has been made to review the literature, but we cannot refrain from referring to one or two papers. H. Scholz<sup>6</sup> quotes Salomon and Charrias as asserting that in pernicious anemia the urobilinogen content of the stools is two or three times the normal amount, while in chronic gastritis and in cancer of the bowel or stomach it is only a third or a half of the normal. Scholz himself, using Authenriet's colorimeter and a standard sodium phenolphthalein solution, found that in eleven of thirteen cases of carcinoma ventriculi the urobilinogen content of the stools was materially reduced but that in the two other cases the findings were conflicting. Further, his findings in pernicious anemia, both in the urine and in the stools, were not constant. He concludes that while the urobilinogen content of the stool has only slight differential value, a marked urobilin content can determine the extent of the hemolysis and whether the case is suitable for splenectomy or not.

On the other hand, O. H. Robertson<sup>7</sup> found an increased quantity of urobilin in the stools in eleven cases of pernicious anemia, and observed that "those patients in whom the evidence of blood destruction was most marked gave the highest urobilin estimations." He concludes "first, that the quantity of urobilin in the stool may be taken as an approximate measure of the degree of hemolysis occurring in the body, and second, that such estimation is of very definite clinical value in the diagnosis of conditions questionably hemolytic in character, particularly in anemias of uncertain type."

Robertson<sup>8</sup> in a later paper states that "the variation in the urobilin output may be taken as an index of

corresponding changes in the course of that disease." McCrudden<sup>9</sup> more recently came to very similar conclusions.

RESULTS

We have divided over twenty-seven cases of pernicious anemia into four groups according to the degree of the anemia as determined by the total red cell count. In the tables representing each group, in addition to the figures of the urobilin-urobilinogen content, we have indicated in one column the other evidences of the hemolytic process, namely, the high color index and the presence in the stained smears of poikilocytes, anisocytes, erythroblasts and polychromatophilic cells. For each of these abnormalities we have given a value of 1, so that when the table shows a figure 3, it means that three of the five above enumerated abnormalities are present, and so forth.

We thought it would also be of interest to tabulate the evidence of the disease process in the nervous system as indicated by the presence of paresthesia, diminution of objective sensibility (particularly the vibration and the two point discrimination senses), and disturbances of coordination and alteration in the cutaneous and tendon reflexes. If these various tests are applied as a routine, it is surprising how frequently some evidence of a subacute degeneration of the spinal cord can be demonstrated in cases of pernicious anemia. In fact, one cannot emphasize too much the diagnostic value of a careful examination of the nervous system in all cases suspected of pernicious anemia.

TABLE 1.—FINDINGS IN GROUP 1

Case No.	Blood Count	Blood Sugar	Cord Lesion	Urobilin and Urobilinogen		
				Urine	Stool	Total
4	4,700,000	0	+	2,910	24,000	26,910
9	4,000,000	2+	+	13,310	60,000	73,320
8	4,000,000	3+	+	2,466	42,000	44,466
10	4,000,000	4-	+	.....	21,000	21,000
5	4,000,000	2+	7	300	50,000	50,300

Group 1 included five cases with a red cell count varying between four and five millions. All five cases showed, in spite of a very slight anemia, a well defined increase in the urobilin and urobilinogen content of the urine and stools, ranging from 21,000 to 73,342 dilutions, or an average of 40,400 dilutions. Further, in all but one case (Case 10) and possibly in another (Case 35) the urobilin and urobilinogen were definitely increased in the urine, which is, of course, pathologic. It is of interest to note that four of the five cases showed other evidence of disturbed blood formation either in the shape, size or staining reaction of the individual red cell, in the presence of nucleated red cells, or in the high color index. Lastly, the existence of a long standing disease process was evidenced by well defined signs of a subacute sclerosis of the cord in at least four cases.

Group 2 comprised nine cases with counts varying from three to four million. This group did not reveal so striking an increase in the urobilin and urobilinogen content of the urine and stools, varying from 4,800 to 30,600 dilutions, or an average of only 12,400 dilutions. All but one case (Case 30), and that a clinically doubtful case, showed other evidence of disturbed red cell reaction. Further, six of them had definite objective signs of a cord lesion, while the three others

4. Schneider, J. P.: Splenic Pathology of Pernicious Anemia, Arch. Int. Med. 17:32 (Jan.) 1916.  
5. Giffin, H. Z., Stanford, A. H., and Szlapka, T. L.: Am. J. M. Sc. 155:562 (April) 1918.  
6. Scholz, H.: Deutsch. med. Wochenschr. 45:62 (Jan. 16) 1919.  
7. Robertson, O. H.: Urobilin in the Stool in Index to Blood Destruction, Arch. Int. Med. 15:1072 (June) 1915.  
8. Robertson, O. H.: Urobilin in the Stool in Pernicious Anemia as Influenced by Splenectomy, Transfusion and Salvarsan, Arch. Int. Med. 16:429 (Sept.) 1915.

9. McCrudden, F. H.: Boston M. & S. J. 177:907 (Dec. 3) 1917.

showed at least subjective sensations suggestive of an early process in the sensory tracts.

We believe that the relationship of relatively high blood count and low urobilin and urobilinogen content in this group may be explained by the development of a period of improvement, so frequent in the course of the disease.

TABLE 2.—FINDINGS IN GROUP 2

Case No.	Blood Count	Blood smear	Cord Lesion	Urobilin and Urobilinogen		
				Urine	Stool	Total
26	3,800,000	3+	—	...	9,300	9,300
27	3,800,000	3+	—	3,000	27,400	30,400
28	3,800,000	4	+	560	0,000	20,500
29	3,800,000	3+	—	...	8,000	8,000
30	2,600,000	0	—	200	4,000	4,800
13	3,700,000	3+	—	...	7,000	7,000
10	3,250,000	2	—	...	14,613	15,893
14	3,250,000	2	—	931	8,975	9,106
20	3,250,000	3	—	80	8,700	9,000

Group 3 comprised five cases with blood counts ranging between two and three million red cells. As in Group 1, all showed a very marked increase in the urobilin-urobilinogen content of urine and stools, varying between 44,640 and 130,285 dilutions, or an average for the series of 98,565 dilutions. The evidence of disturbed hematopoiesis was more marked in this group than in any, not excepting Group 4. Lastly, signs of cord involvement were present in four cases and were questionable in the fifth.

TABLE 3.—FINDINGS IN GROUP 3

Case No.	Blood Count	Blood smear	Cord Lesion	Urobilin and Urobilinogen		
				Urine	Stool	Total
11	2,600,000	4+	—	2	2	121,000
1	2,100,000	5	—	15,000	112,600	130,600
15	2,000,000	5+	—	30	50,100	50,700
16	2,000,000	3+	—	1,740	12,940	41,400
19	2,000,000	5	?	300	95,500	96,000

Group 4 comprised seven cases with a red cell count ranging between one and two million. The total urobilin and urobilinogen content in this group varied between 21,350 and 136,000, or an average of 62,950 dilutions. On the other hand, the evidence of disturbance of the red cells was most marked, even more so than in Group 3. The cord lesion was definite in five cases, doubtful in one, and absent in one case.

TABLE 4.—FINDINGS IN GROUP 4

Case No.	Blood Count	Blood smear	Cord Lesion	Urobilin and Urobilinogen		
				Urine	Stool	Total
7	1,700,000	5	—	750	30,570	21,250
31	1,700,000	2+	—	1,200	135,160	136,200
17	1,260,000	4+	—	...	40,000	40,600
18	1,000,000	5+	—	3,120	49,000	43,150
18	1,000,000	5+	0	460	30,200	20,000
17	1,000,000	5+	?	1,848	48,000	49,848
6	1,000,000	5+	—	2,000	117,000	119,000

## CONCLUSIONS

1. The evidence of abnormal hemolysis occurs first in the stools, second in the duodenal contents, and lastly in the urine.

2. An increase of the urobilin and urobilinogen in the urine and stools above 12,000 dilutions is a constant finding in pernicious anemia during the period of remission.

3. The presence of even small amounts of urobilinogen in the urine is evidence of a probable pernicious anemia in the absence of signs of biliary or hepatic disease.

4. A low red cell count with a low urobilin and urobilinogen count indicates an arrest of the activity of the disease process, and a period of improvement may be anticipated.

5. On the other hand, a high red cell count with a high urobilin-urobilinogen content indicates a marked hemolysis and often precedes a steadily falling blood count, as was also demonstrated by Robertson and McCrudden.

## THYROIDECTOMY IN TOXIC GOITER

## A BASIC FAULT IN THE SCHEME OF OPERATION

H. M. RICHTER, M.D.

CHICAGO

The reaction following partial thyroidectomy in very toxic cases of hyperthyroidism is well known. The use of various surgical and nonsurgical methods of reducing thyroid activity as a preliminary to thyroidectomy is universal. Various methods of preventing the psychic and operative traumatism inflicted by the operation itself are also in use.

It has seemed to me that the excessive reaction sometimes observed is due not merely to faulty technic but to a basic fault in the scheme of operation, and that the primary mortality can be radically lowered and the ultimate result materially improved by the operative method suggested.

The reaction is essentially an excessive, acute hyperthyroidism. Were it permissible to make a complete extirpation of the gland, the only reaction possible would be due to the manipulation of the gland during its removal, which would be analogous to the administration of so much toxin hypodermically; that is, with the action of the given dose, the effect would cease, whereas, as a matter of fact, the reaction is often persistent and progressive. This reaction is due not merely to the technical error of inflicting traumatism on the gland during its manipulation, though this undoubtedly plays a material part. It is rather that we initiate an excessive degree of activity in the portion of the gland that we leave behind; and that we leave behind so much thyroid tissue that it is capable of responding to the traumatism by producing a profound degree of intoxication.

The basic fault in the scheme of operation is to leave behind an amount of thyroid altogether unnecessary and capable of such excessive action. The term "subtotal," as used by Bartlett of St. Louis, serves well to describe the extent of the operation. The removal of all or nearly all of the thyroid is, of course, not a new procedure. The early history of the development of the modern surgery of the thyroid includes the story of complete removal with operative myxedema following. Yet so little thyroid tissue was found to be necessary that apparently very complete removal of the gland often caused no harm. The general practice today is to leave altogether too much thyroid tissue behind. The amount of thyroid necessary to the patient is very small: the danger of removing too much—that is, of leaving too little—is not great. The normal thyroid weighs from 35 to 50 gm. Here, as in other organs, the gland is in enormous excess of the requirements of the organism, and may be operatively reduced to but a fraction of this weight. A few grams of thyroid tissue suffice to carry on its function.

It is not rare for a lobectomy in very incomplete thyroidectomy to be carried out in the more toxic patients for the purpose of reducing the hyperthyroidism. But, it is just here that it is unusually dangerous to leave behind a large amount of hyperfunctionating thyroid. It is to the toxic cases that a very radical thyroidectomy offers the patient the best means of escaping the danger of immediate overwhelming intoxication. We leave behind a large mass of hyperfunctionating thyroid tissue, throwing it into excessive activity as we do so. Instead, we should leave behind nothing more than a safe minimum. The removal of "two-thirds" to "three-fourths" of the thyroid will not do. Irrespective of the size of the goiter, we should leave only a few grams of the gland. It is possible that even less hyperplastic than normal thyroid need be left behind.

I have carried out the radical operation here suggested in a fair series of cases. The operation was not so radical in the earlier cases, and the records are faulty in determining just how many of the series were subjected to the complete operation. But in a consecutive series of more than 100 cases, dating back over a period of five years, at Wesley Memorial Hospital, including the less radical operations, there has been only one death. This patient became delirious on the table while the operation was in progress under local anesthesia, and died within twelve hours of an intense exacerbation of all of his symptoms. One patient died while in the hospital awaiting operation. No patient who consented to operation was refused operation or told to come back later for operation; that is, no opportunity was taken to avoid extreme risks. A few preliminary ligations were made before I felt safe in carrying out the radical operation in severely toxic cases, and undoubtedly a preliminary ligation will always be preferable in a very limited number of the more critical cases. In my experience this has been well under 10 per cent. of the toxic cases.

In the same period in my service at Cook County Hospital, the total number of cases was rather small. Here, too, the radical operation was almost universally carried out, no ligation being made in the series. Here, too, no operation was deferred when the consent of the patient could be obtained. One death occurred in the entire series. The operation in this case was carried through without incident. The patient apparently was in good condition. She died suddenly on the table before removal from the room. No necropsy was obtained. In this case the table was elevated to the semisitting position during the operation. Thus, in the two cases that terminated fatally, a deviation from the usual method was made that probably had no important part in the result; but I believe that neither local anesthesia nor the semisitting position is desirable in operations for goiter.

In several of the cases it was found that, after the removal of the goiter, more thyroid tissue was left behind than was intended. In these cases the greater part of this remaining thyroid tissue was strangulated by sewing through and through with moderately heavy catgut. While faulty in that it left a mass of tissue behind to undergo necrosis, no bad results were clinically noticeable, and it served to reduce the operating time below what would have been necessary to carry out a further excision.

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## PROSTHETIC APPLIANCES IN SURGICAL TREATMENT OF WOUNDS OF THE FACE AND JAWS\*

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In general, maxillary splints are anchored in the teeth and the alveolar ridges. The amount of retention depends on the security and the method of attachment used, while the position and existence of teeth relative to the fracture determine the type of splint to be employed in a given case. When an injury includes the partial or total loss of teeth, or renders the existing teeth unavailable as a means of anchorage, fixation of the fragments is gained (1) by the adaptation of the splints entirely to the alveolar ridges, (2) by external appliances which acquire their support from the cranial bones, or (3) by sutures through the maxillary bones, either alone or in combination with certain appliances.

It may be necessary in the treatment of a case to use any one or all of the foregoing methods to effect the immobilization of the maxillary fragments.

In the event of extensive destruction of the maxilla or the mandible, with consequent gaps in the continuity, perhaps no bony union may be anticipated; yet it is necessary to provide that such portions as remain shall be capable of some degree of function in order that oral restorations may subsequently be successfully accommodated. Unless the remaining stumps of the mandible are conserved and favored through the use of adequate appliances, then ultimate uselessness ensues through displacement, deformity and lack of habitual mobility.

The teeth serve as the basis for immobilization, and at the same time as the accurate guide to the former occlusion and position of the jaws in their normal relation one to the other. If the splint is so constructed that the former occlusion of the teeth is restored, then the relocation of the body of the mandible in an automatic position is a near certainty.

The assertion that fracture of the mandible by a foreign body is invariably accompanied by a loss of tissue may be true so far as the teeth and alveolar ridges are concerned; but in the majority of cases, even when there is extensive comminution, the destruction is insufficient to cause a lack of continuity at the points of injury. In other words, severe comminution does not necessarily imply a practical nonapproximation of the fragments of the mandible.

In view of these facts, it is a safer standard to restore the segments by the splinting to a natural occlusion, leaving modifications for application in very rare and peculiar cases. This principle is especially true in the accomplishment of early fixation, because experience has shown that in many cases of grave comminution, in which there were apparently gaps in the continuity of the mandible and a loss of substance, bony union ultimately formed. In the early days of treatment, it is not possible to foretell the regenerative powers which the tissues will manifest under careful methods.

\* Read before the Section on Stomatology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

APPLICATION OF MECHANICAL FORCES TO  
THE SOFT TISSUES

Any comprehensive scheme of treatment for the repair of bone is tempered by the condition of the soft tissues, and the construction of a splint for the immobilization of a maxillary fracture is influenced by the

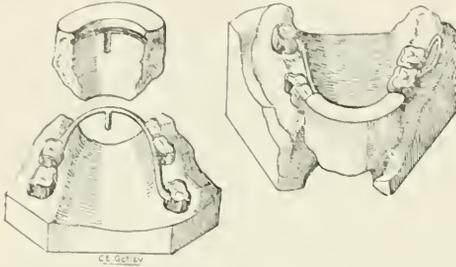


Fig. 1.—Hand and wire splint with a perpendicular wire or T. A vulcanite piece with grooves corresponding to the wire is made of sufficient bulk to prevent tissue contraction, and at a later stage it acts as a support in connection with plastic operations.

nature of the wound of the face. The surgeon's aim is to restore all tissues as nearly as possible to a normal state, in other words, to repair the injured bones without loss of function, and to close the wounds with the least possible distortion, scar formation or adhesion. If no appreciable loss of soft and hard tissues has occurred, then these objects are easier of attainment; but if, on the contrary, a distinct loss has taken place, it becomes necessary to resort to plastic operations for the correction of soft tissue deformity, and to utilize artificial devices as functional and cosmetic substitutes for bony tissue.

In a strict sense, the splint deals with the repair of bone. But in nearly all cases of gunshot wound of the face and the jaw, the involvement of the soft tissues is appreciable, a circumstance which likewise can be met by the construction and adaptation of an appliance. Such an appliance may be in reality an integral part of the splint or an adjunct to it, or it may be entirely separate from it.

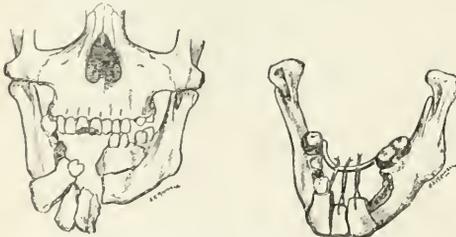


Fig. 2.—A hand and arch splint maintains the correct relation of the posterior segments to the mandible, while the anterior segments are brought in alignment by means of wire sutures through the bone.

Experience has shown that the treatment of the fracture cannot be carried out as a thing apart from the wound of the face; and in bringing about the repair of both hard and soft tissues, due regard must be given to each in the construction of mechanical devices. As a case under treatment progresses from day to day, slight or even radical changes are frequently indicated in the splints or appliances, and often surgical assis-

tance is necessary or may tend to hasten the patient's recovery or forestall a certain deformity. Just as the care of the wound and the fracture should not be reduced to two distinct, separate procedures, so the mechanical and surgical technics are inseparable; for perhaps a proposed operation would fail without the help of a suitable mechanical device, and perhaps a certain device would serve no purpose unless adapted and applied by surgical assistance.

The mechanical devices used on the soft tissues are intended primarily to direct the course of recovery and not to correct a deformity. Their greatest usefulness is to be obtained by their application at an early period in the treatment of a patient, when undesired conditions can be anticipated and the occurrence of disfigurement prevented.

Appliances may be used immediately after injury to support the soft tissues, for at this time the parts are soft and still flexible, though inflamed. Gentle pressure applied to the facial tissues during the early course of healing is a satisfactory means of averting undue contraction.

Appliances are also used intra-orally to keep the tissues in a state which prevents undue adhesions to the alveolar ridges, and therefore maintains a more suitable field for the reception of later artificial restora-

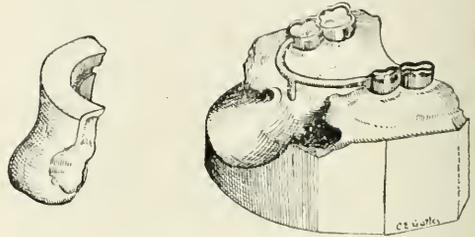


Fig. 3.—The hand and arch splint maintains the correct relation of the posterior segments, while the vulcanite appliance supports the soft tissues during the process of healing.

tions. If this aspect of the treatment is neglected, then the ultimate ideals will not be attainable. In orthopedic surgery, the operative technic is modified as far as circumstances permit to facilitate the adaptation of artificial limbs; and the same practice is advisable, and even obligatory, in the treatment of injuries of the face and jaws. The remaining tissues must be prepared for the artificial restorations which will constitute the last phase of the treatment.

As a rule, appliances of a semipermanent nature are indispensable to the success of a plastic operation on the soft tissues. During the work they serve to hold the contour of the face, lips or nose from within, and in general to act as a support for the soft tissues, as did the natural bony structure of the parts involved prior to the injury.

## CLASSIFICATION OF FRACTURES

As stated heretofore, in order to utilize the mechanical appliances intelligently, it is necessary to have a comprehensive knowledge of the principles governing the application of splints, and for this reason a practical classification of fractures is of service. Many such classifications are offered. The one which I presented in 1915 was based on the location of the fractures in relation to the mechanical forces governing the construction of splints, and was faithfully used in the

oral surgery department of the Harvard unit until the termination of our services with the British army.

FRACTURES OF THE MANDIBLE

1. *Fractures Anterior to the Last Existing Tooth.*—

In this type, the sound teeth on both sides of the fracture serve as a basis of anchorage for the splint which reduces the displacement. The splints are modified only to accommodate the variations of extent of injury between these existing teeth.

Figure 1 shows a very common type of injury of the mandible, in the treatment of which metal caps or bands are fitted to the teeth and connected by a strong arch wire. If the area of fracture is extensive, the arch is naturally longer, and carries at about its middle a short, perpendicular wire, the purpose of which is to form the source of attachment for a removable appliance of vulcanite rubber for the support of the soft tissues. This combination of splint and appliance

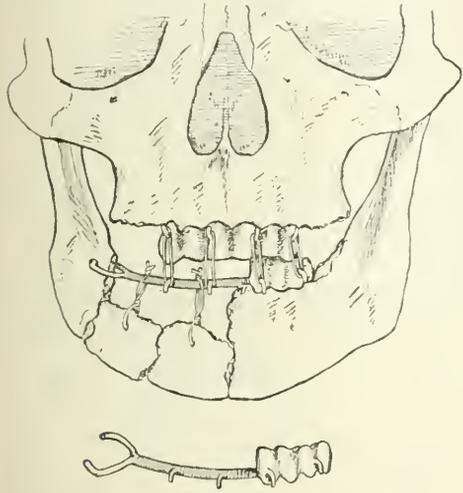


Fig. 4.—Immobilization of segments of fractured mandible when there are no teeth available on one side.

illustrates the use of mechanical devices both for the repair of the bone and of the soft tissue; the metal splint holds the parts of the fractured mandible in the

In some of the more extensive injuries, there exist available teeth on both sides of the fracture, but there is also a severe laceration of the soft parts, and the fragments of bone in the area of fracture are grossly displaced. In this condition it is necessary to raise the fragments to alignment by means of wire sutures from



Fig. 5.—Splint and appliance designed to obtain a gradual correction of the position of the edentulous side of the mandible.

the arch wire of the splint (Fig. 2). An external appliance is utilized to aid the support of the part involved.

If the injury includes a substantial loss of bone, the same method of splinting is employed to maintain the remaining parts of the mandible in an anatomic position; but the vulcanite appliance becomes more extensive in design, and is practically intended to replace the portion of the jaw which has been destroyed (Fig. 3).

It sometimes happens that the band and wire splint, when constructed, is difficult to adjust and cement to the teeth. In this event, it is made in two parts, in such a manner that they may be applied separately. The arch wires of the sides pass each other and are ligated tightly together.

2. *Fractures Posterior to the Last Existing Tooth.*—

In this type of injury, a different method of fixation is necessary, because teeth (or a tooth) are available on one side of the fracture only for the attachment of a maxillary splint. As a rule, the teeth of the upper jaw serve as the anchorage for the appliance which immobilizes the fragments of the lower jaw.

A simple illustration of this type would be a case in which the dentition was good and there existed a fracture of the mandible at the angle. Immobilization of the parts of the mandible is effected by upper and lower metal cap splints cemented to the teeth, with small hooks on them for intermaxillary ligation.

In some instances the comminution includes a considerable portion of the mandible, a condition in which,



Fig. 6.—Intermaxillary vulcanite splint made in sections to facilitate introduction and adjustment in the mouth.

as previously described, no teeth are left on one side of the injury. In this case, the remaining part of the jaw, with teeth intact, is immobilized by means of splints attached to both upper and lower teeth, and, in addition, an arch wire is extended from the lower splint over the injured area. This arch wire serves the same purposes as were described in the previous type of fracture (in which teeth existed on both sides of the

CLASSIFICATION OF FRACTURES IN RELATION TO MECHANICAL FORCES GOVERNING THE CONSTRUCTION OF SPLINTS

I. Mandible....	<ol style="list-style-type: none"> <li>1. Anterior to the last existing tooth</li> <li>2. Posterior to the last existing tooth</li> <li>3. Edentulous</li> </ol>	
II. Maxilla.....	<ol style="list-style-type: none"> <li>1. Fracture of alveolar process and teeth</li> <li>2. Partial fracture(s) with or without comminution and partial loss of bone</li> <li>3. Complete fracture with or without loss of bone</li> </ol>	<ol style="list-style-type: none"> <li>(a) No loss of tissue</li> <li>(b) Comminution</li> <li>(c) Multiple fissures</li> <li>(d) Distinct loss of tissue</li> </ol>
III. Mandible and Maxilla....	The foregoing conditions in comminution	

desired position, and the vulcanite serves to prevent collapse and contraction, with subsequent adhesion, of the muscular tissue.

fracture), for the attachment of vulcanite appliances and for the suspension of smaller fragments of the mandible by means of wire sutures (Fig. 4).

In this type of fracture, great inconvenience is experienced because of the fact that the portion of the

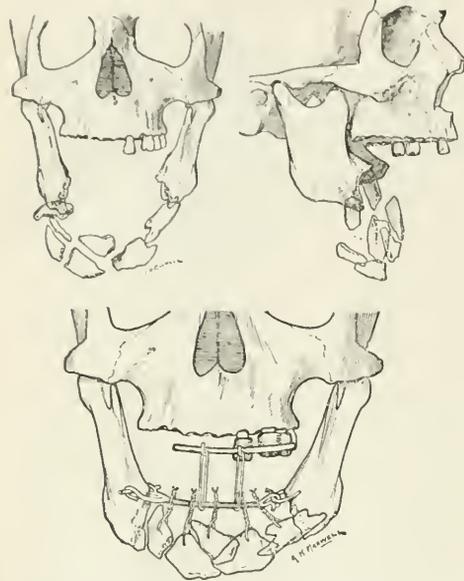


Fig. 7.—Immobilization and alignment of greatly displaced segments of a fractured mandible when no teeth are available for the attachment of splints. When the arch and wire sutures lose their efficacy, they are replaced by a vulcanite intermaxillary splint. Additional support is also procured by means of an external chin piece, as in Figure 13.

mandible which is devoid of teeth has a pronounced tendency to be displaced upward, outward and forward, thus lessening the natural intermaxillary space at this region. In order to overcome this fact, a small intermaxillary splint of vulcanite is constructed for the edentulous side of the jaw, having its bearing on the upper occlusal surfaces of the teeth and the lower alveolar tissue. This appliance is held in place by its accurate fit to the tissues, and by attachment to the wire arch which passes over the injured area (Fig. 5).

3. *Condition in Which There Are No Teeth Adjacent to the Fracture.*—If the fractured lower jaw is edentulous, the process of immobilization is rendered more difficult, and the control of the fragments is not effected as securely.

If the fracture is not severely comminuted and the displacement of the parts of the mandible is not pronounced, then satisfactory fixation is gained by the adjustment of the ordinary intermaxillary splint, which fits the remaining alveolar ridges and the upper ridges and teeth. The intermaxillary splint may be constructed in sections to facilitate introduction into the mouth (Fig. 6).

If the comminution and displacement are severe, and there exist fragments of the bone which can be saved, then the following means of immobilization is resorted to: A heavy arch wire is attached to the posterior segments of the mandible and passes over the injured area. To this the fragments are suspended and drawn

forward and upward by means of wire sutures; and the assembled lower jaw, as a whole, is immobilized by means of intermaxillary ligatures which pass from the lower arch wire to a metal splint applied to the teeth of the uninjured upper jaw (Fig. 7). After a few weeks, when the fragments have become consolidated and the light sutures have lost their efficacy, the lower splinting is removed, and an intermaxillary splint of vulcanite replaces it.

In cases in which the lower jaw presents no teeth, and there is a large gap in the continuity in which there are no fragments worth conserving, a splint is used to keep the posterior fragments in as good condition as possible. This comprises small intermaxillary splints for both sides—accurately fitted between the mandibular stumps and the posterior teeth of the upper jaw—which are joined either by a heavy wire, or by a piece of heavy plate metal which allows a certain amount of flexibility (Fig. 8).

It is important to emphasize the necessity of caring for almost any portion of the lower jaw which remains. Even though there is left only a short stump of the mandible at the angle, it should be favored and, by the application of an appliance, kept active, free from adhesions and in good anatomic position, with a view to its service later as a means of support for oral restorations.

#### FRACTURES OF THE UPPER JAW

In some respects, the maxilla is in extreme contrast to the mandible: It is sufficiently rigid to prevent complete fracture from its attachment; but, at the same time, it offers greater resistance to a penetrating foreign body, thus transmitting fractures to the nasal bones and other structures which are in anatomic proximity. The structural delicacy of its parts con-

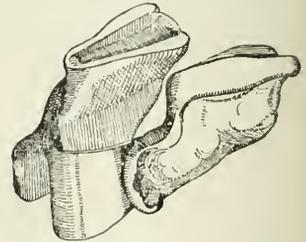


Fig. 8.—Intermaxillary vulcanite splint used when there is less extensive loss of mandible posteriorly. The vulcanite fits the mandibular stumps, and adhesion, displacement and inactivity are averted.

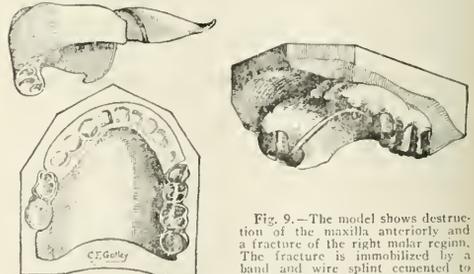


Fig. 9.—The model shows destruction of the maxilla anteriorly and a fracture of the right malar region. The fracture is immobilized by a band and wire splint cemented to the teeth. The vulcanite base plate fulness and contour to prevent undesirable adhesions and contractions of the soft tissues. It also serves later as a supporting appliance in connection with plastic operations.

duces to extensive comminution. In cases of partial or complete fracture of the upper jaw, the resultant displacement is lateral if the comminution is slight; but if it is great, the displacement is downward.

1. *Fracture of the Alveolar Process.*—The simplest type of fracture of the upper jaw is that in which the piece of metal causes comminution of the alveolar

This immobilization is effected by the use of a tightly fitting jacket splint or by a band and arch wire cemented to the teeth. If the latter method is adopted, a jacket splint or a removable vulcanite piece should be used in conjunction with it, if the wound of the soft tissues is of appreciable size, to support the face about the affected area. The same procedure is indicated when the injury is confined to the palate.

3. *Complete Fracture of the Maxilla.*—Comminution and laceration of the entire maxilla is not rare. It is evident that in the event of this condition there is no basis of anchorage for immobilization available within the mouth, as in the types of cases previously described, and that extra-oral means of support must be used. Before proceeding further with the description of the splints needed, it is advisable to show the construction of a headgear which meets the requirements of the condition.

Gutta-percha, 4 mm. thick (as used in orthopedic surgery), is cut to fit the forehead and temporal regions, softened in hot water and then bandaged over these parts until it has regained its natural hardness. The headgear is completed by the addition of webbing straps which form a sort of cap over the head. From



Fig. 10.—Gutta-percha is fitted to the forehead and temporal regions and is retained by a headgear of webbing. The wire arch which passes in front of the face rotates in the holes in front of the ears to allow a wider range of adjustment. In this illustration, the ends of the arch are threaded and pass through small metal tubes (which have short spurs soldered at right angles to permit introduction to the holes in the gutta-percha) with nuts to control the length. In other instances, the ends of the facial arch may be bent at right angles to allow direct insertion in the holes. The median wire controls the height of the arch. Any part of the appliance serves as an anchorage for intra-oral splints, and for nasal and facial supports.

process. In some instances this is accompanied by lines of fracture which radiate to other parts of the bone. The treatment of such cases is primarily surgical, since no definite repair of the bony tissue is possible, and consists of the removal of loose and useless spicules and fragments, followed by the approximation of the borders of the lacerated mucous membrane, provided the inflammation is not severe.

It is highly desirable to construct a vulcanite base plate which fits the entire mucous surfaces of the injured maxilla, and which has an accurate occlusal contact with the lower teeth. The purpose of this appliance is to mold the palate and alveolar ridge as the healing goes on, in order that no objectionable muscular adhesions which would render the retention of a denture difficult at a later date shall be allowed to form.

2. *Partial Fracture of the Maxilla.*—In addition to an injury to the alveolar process, there may occur the fracture of a part of the maxilla, with attendant displacement and mobility of a portion. The fixation of the loose segment is accomplished by using the solid part of the maxilla as a point of anchorage (Fig. 9).

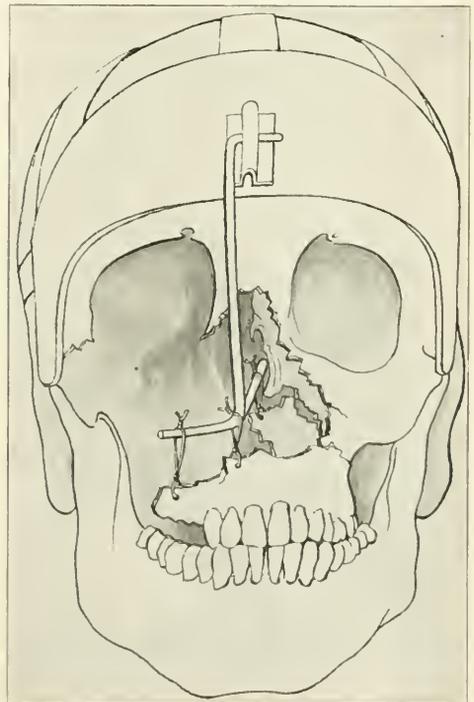


Fig. 11.—Immobilization of the maxilla following complete fracture. Owing to the free exposure of the superior aspect of the maxilla, the method of direct wiring, from the nose to an extension from the headgear, is in some cases very efficient, and also easily done.

the lower ends of the gutta-percha, at about the level of the tragus of the ear, a heavy arch wire is attached, which passes just in front of the mouth. A stiff but lighter wire also passes vertically over the nose from

the median line of the arch to the median line of the gutta-percha (Fig. 10). After the headgear has been fitted, the occipital region of the head may be shaved and adhesive tape used to secure the webbing which covers that part to the skin. Thus, either the gutta-

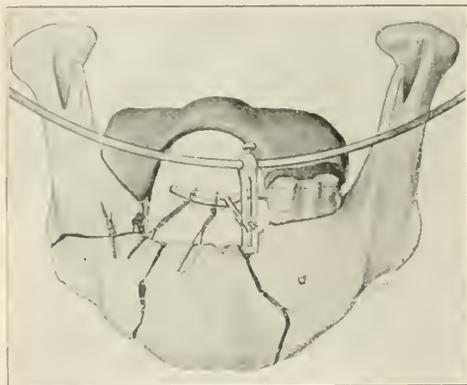


Fig. 12.—Adjustment of the splints to the arch wire; compare Figure 10.

percha or the arch is available as a firm anchorage for nasal, facial, intra-oral or extra-oral attachments; and the appliance may be modified in many ways to meet the requirements of an individual condition.

A simple case of fracture of the entire maxilla, with no displacement, may be effectively treated by strong bandaging of the head and jaws with the teeth set in natural occlusion. This condition, however, is more usually encountered in accidental fractures.

The upper jaw, as the result of gunshot injury, may be reduced to a number of small fragments, with some attendant loss of tissue. When this is the case, it is necessary first to assemble the parts in good relation, and then to effect immobilization by means of extra-oral appliances. The well known Kingsley splint, anchored to the arch wire of the headgear, is admirably suited to complete the fixation.

Large, open wounds of the nose and zygomatic region often have intimate connection with the maxilla, permitting the fixation of the upper jaw by means of a wire suture passed directly through its upper aspect, which suspends it from the headgear directly. Supplementary support may be given to the jaw by a chin piece so adapted as to press the lower jaw continuously in occlusion with the upper teeth (Fig. 11).

If the foregoing methods do not meet the situation in certain instances, the following method may be utilized: The teeth of the sound lower jaw are covered with a cap splint which carries a small attachment—hook, tube, etc.—at its median line. Elastic force is used from this attachment to the headgear to pull the lower jaw against the upper, thus producing a fixation with good relation of the teeth after consolidation.

In applying splints to the upper jaw, there are certain facts which should be observed. The fragments tend to become firm sooner after injury than in the case of fracture of the lower jaw, and the consequent displacement is very hard to correct. Early fixation, even if it be but temporary, is indicated.

In the case of comminution of the upper jaw, provided there are sufficient teeth remaining to reconstruct a useful dentition, the occlusion of these teeth naturally serves as the best guide for the position of fixation. But if that method of splinting is used which brings the teeth into operation, the point at which the teeth come into occlusion is the point for immobilization, and not the point at which the maxilla meets resistance from pressure by the splinting against associated structures. In other words, the comminuted maxilla is so mobile that it can be pushed upward or inward a considerable distance beyond its former anatomic position.

If the Kingsley splint is used, it should be so constructed that the occlusal surfaces of the teeth are visible, and in actual contact with the lower teeth without the intervening thickness of vulcanite or metal.

#### FRACTURES OF BOTH THE MANDIBLE AND MAXILLA

Fractures of both the mandible and maxilla are quite common. The general principles and methods used in the immobilization of the parts are a combination of those already outlined. If there exists partial fracture of the maxilla, then the parts are assembled first, next, the lower jaw is repaired, and, if necessary and available, support is provided for the mandible from the splint applied to the maxilla, if the remaining firm portion of the latter is capable of withstanding the strain put on it without injury. If a solid portion of the upper jaw cannot be utilized, or if the patient is



Fig. 13.—Chin piece used when upward and forward pressure on the tissues is required. The rods of the chin piece pass upward through metal tubes. The tube carries an irregular shaped wire, the lower end of which is bent at a right angle to allow rotation in a second tube attached to the headgear, and the upper end of which passes to the temporal region. The lower elastic causes upward pressure, while the elastic at the temporal region gives the forward pressure.

edentulous, then, in case of necessity, the headgear may be used to supply the desired basis of anchorage (Fig. 12).

If both jaws are edentulous, then the intermaxillary vulcanite splint, preferably made in two sections to facilitate introduction in the mouth, is used, and aided in its adaptation, if necessary, by attachment to the headgear, or by pressure beneath from a chin piece (Fig. 13).

### UNITED FRACTURES OF THE MANDIBLE TREATED BY BONE GRAFT

PRELIMINARY REPORT \*

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ST. CHARLES, MO.

The severe injuries of the jaw, incurred in the past war, necessitated some formulating and standardizing of treatment. The chronology is rather interesting because economic questions entered somewhat into the manner they were handled, especially in the beginning

from the rib, tibia and ilium, and osteoperiosteal grafts had their percentage of successes.

Free bone grafts embedded in vascular tissue were conscientiously and deliberately attempted by Imbert and Real to remedy bony defects in the mandible.



Fig. 1.—Cole's pedicled graft: incision made so that graft can be taken from opposite side of mandible, if necessary; intratracheal anesthesia.

of the war, when men were scarce and it was necessary to get many back to the front in the shortest possible time.

My observations were made while serving with the British at various hospitals in London, and during a personal experience in the clinic of Messrs. Cole and Bubb, at King George Hospital.

At Croydon, one of the largest jaw hospitals in England, Mr. Colyer shortened the period of convalescence and got most marvelous results by approximating the broken fragments at the expense of occlusion, depending on extractions and artificial dentures to give what I saw to be nearly if not perfect functional results.

Summaries of the results of autogenous bone grafts for defects of the lower jaw, from various operators in the different countries, including 237 of the enemy, reported by Lindemann at Düsseldorf, justified its general use.

The technic was slowly improved, and the percentage of "takes" rose proportionately. Grafts were taken

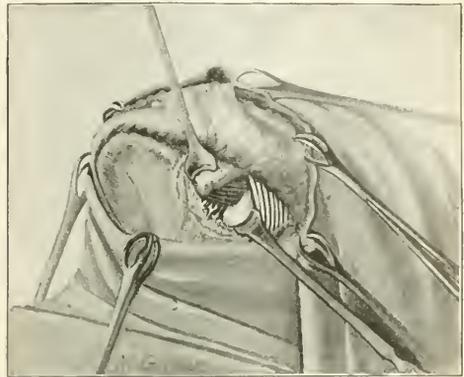


Fig. 2.—Defect in mandible due to loss of bone; fragments immobilized by intra-oral splints (open bite).

Such attempts were made with the idea that the graft would be more likely to succeed after its nutrition had been definitely determined by the establishment of fresh vascular connections. They found that if the graft was embedded more than from three to four weeks it so softened that effective fixation could not be attained. In all cases the results as regards bony union were a complete failure.

Mr. Cole, a highly trained and skilled surgeon, chief of the maxillofacial department of King George Hospital, maintained from the beginning that the ideal treatment should be applied to the jaw, as well as to

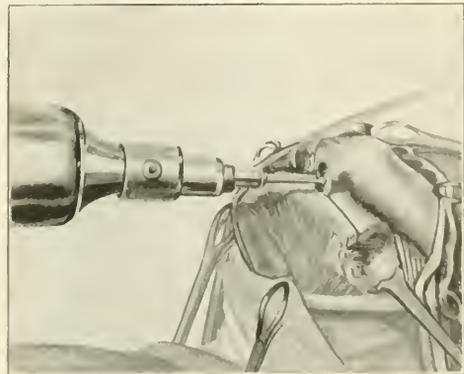


Fig. 3.—Cutting graft from lower border of mandible with electric saw, leaving its vascular muscular attachment as pedicle.

other parts of the body, where there was loss of bone. In his extensive experience in the treatment of ununited fractures of the mandible, he developed what is generally known in England and this country as Cole's pedicled bone graft. He has reported<sup>1</sup> thirty-

\* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

five cases, in nearly all of which I had the pleasure to assist. I had the opportunity, while in his service at the King George Hospital, to do seventeen additional bone grafts and three at U. S. Army General Hospital No. 40.



Fig. 4.—Drilling anterior and posterior fragment preparatory to wiring.

With the exception of a few cases, in which operation was performed just before I left England, the success in practically all was assured. The exact statistics, however, will be published in a later paper, which will include many cases which are awaiting bone graft in my service in General Hospital No. 40.

I have carried out the technic as worked by Mr. Cole, not finding it necessary to vary in the least, and the

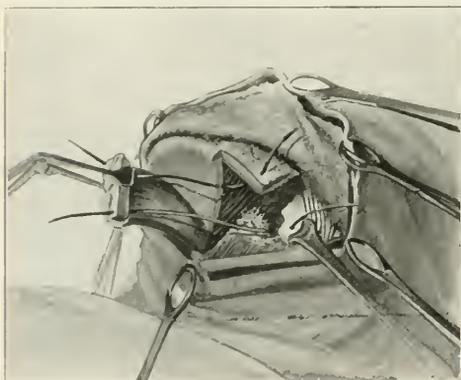


Fig. 5.—Wires through fragments and graft; graft held by Cole's forceps.

accompanying illustrations are made after that technic. The nontouch or "knife and fork" surgery, as it has been called, is most scrupulously carried out. A piece of the mandible about a quarter of an inch wide is removed with the electric saw, leaving attached muscle

and fascial tissue, which includes the platysma myoides and usually most or all of one or two of the anterior bellies of the digastric muscle. This graft is shifted across the gap and wired firmly to the anterior and posterior fragments.

The graft is very viable and bleeds readily; in one case there was present a spurting vessel from the cut surface of the graft. In exposing the fragments, should the mucous lining of the mouth be opened, it is better to abandon the operation and wait until it closes. However, in one case of mine a salivary fistula resulted which showed that I had opened into the mouth; but it closed in a few days and the graft gave perfect union in the usual length of time.

There was perhaps no other clinic, especially in the beginning of the war, that better appreciated the valuable coordination of dentist and surgeon. Mr. Bubb, a very keen, skilful and resourceful dentist, had charge of the dental maxillofacial department of the clinic. The mechanically perfect, though complicated orthodontic splints which have grown out of the valuable teachings of Claud Martin were not adapted to war

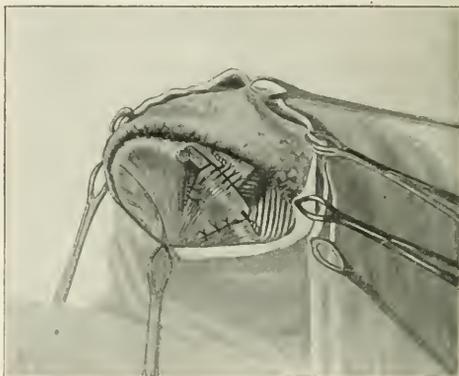


Fig. 6.—Graft in place; wires twisted tight and a few catgut sutures placed to obliterate dead space under pedicle.

purposes, when hundreds of jaw cases are treated and time and lack of mechanics are a factor. The standardized splint was termed by Mr. Bubb a "modified detachable Gunning." The open bite splint was used universally, and the fractures treated in terms of the upper jaw. Impressions were taken in sections, if need be, and assembled on a proper articulator. The posterior fragment was always most carefully controlled and put in proper relation to the anterior fragment and the upper jaw.

The distinct advantage of the open bite which is appreciated by the surgeon has other things to commend it. Trismus was unknown in patients treated in our clinic.

Plastic operations of the mouth should always be done in the open bite. Extension appliances with intra-oral pads which were always used before any extensive plastic operation, were made detachable, and of wire, so that they could be quickly adjusted with the pliers, a great advantage or improvement over the complicated jackscrews with bolts and nuts to adjust. All plastic reparation was invariably done first, before a bone graft was attempted, a reasonable length of time being

allowed to pass for the tissues to clear up from a possible latent infection in the tissues. In some cases the time was materially reduced, as we found that liberties could be taken with the pedicled graft which would not be tolerated with the free graft.

When it was deemed necessary to thicken the walls so as to make a proper bed for the graft, decalcified bone was introduced beneath the skin, after it had been undermined. This worked most admirably. The process of absorption developed a good fibrous wall which could be used in from four to six weeks. We were struck with the tolerance the tissues had for this foreign body, even after it was put into a septic bed. This was a substitute for the fat graft, and it was soon used exclusively for filling spaces after depressed scars were raised.

In edentulous cases a circumferential wire was used around the body or ramus of the mandible and fastened to the splint. This maintained the proper position of the fragments until the contraction of the muscles was no longer a great factor in misplacements. The wire could usually be removed in several weeks, after which a saddle or gutter appliance attached to the Gunning splint well controlled the fragments.

Intratracheal anesthesia was invariably the choice, in which we were fortunate to have the expert services of Mr. Francis Shipway.

While the roentgen ray was deceptive in some cases in the determination of the progress of osteogenesis, the marked and uniform difference between a free and pedicled graft proved that the pedicled graft is superior, because it remains a live graft throughout the process of repair and does not absorb, as we have noted the free grafts do, both in many of our own cases and in those done in France and Switzerland.

**Safety Zone for Babies.**—According to a report on infant mortality in Saginaw, Mich., given out by the Children's Bureau of the U. S. Department of Labor, it is more than six times as dangerous for a baby to be born in one section of the town as in another. The investigations of the bureau have shown that the essentials of a safety zone for babies are that a majority of the fathers in it must earn a living wage, the mothers must not be employed during the year before or the year following the baby's birth, the mothers must receive proper care when their babies are born, both fathers and mothers must be able to read and write, and the babies must be housed properly. In the ward in Saginaw where the least favorable conditions prevailed, one baby out of every six died before it was 1 year old, as compared with one death in every thirty-four babies in the best residential wards. In the ward having the highest infant mortality, a majority of the fathers had very small wages. The infant mortality rate for the babies of working mothers was 132.7 as compared with 78.3 for those whose mothers were not gainfully employed. In Saginaw the deaths of two thirds of the babies were due primarily to prenatal causes. Thus the baby's environment and economic condition at birth determines to a great extent whether or not it shall survive.

## INFECTED FRACTURES OF THE MAXILLAE\*

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In the brief period of time allotted for this discussion of infected fractures of the maxillae, I will not enter into a detailed description of them, but will confine the paper to a few observations made in connection with work done at one of our hospitals, at which such cases were received for treatment.

These fractures range from simple fractures to those associated with great loss of bony substance and the enveloping flesh. The treatment of simple fractures requires only approximation of the parts and fixation of the jaws by various means already understood, accompanied by proper care and cleanliness. This is the type of fracture usually dealt with in civil practice, and infection rarely occurs.

Fractures due to gunshot injuries in the war are accompanied with and complicated by projection of bone and tooth fragments into the surrounding soft tissues, loss of bone substance, extreme laceration of the flesh, and the presence of foreign bodies and pus-forming organisms, all open wounds being infected by these organisms.

The early treatment of these cases has been fully outlined previously, such as the work done at dressing stations, and at field, evacuation and base hospitals. Those that came under observation and treatment at General Hospital No. 11 had all received

some previous treatment but still presented ununited fractures, union having been delayed by infection.

Many of the patients wore excellent dental splints, so that fixation was accomplished. In some, the loss of bone was so great that union was not to be expected (though the amount of bone that forms in some of these cases is surprising), and bone grafting was necessary. Bone grafting too early after healing of the wound is to be avoided, experience here, as elsewhere, having shown that latent infection in closed wounds is exceedingly likely to be violently aroused, and the graft lost. A large percentage of the cases presented sinuses, external and internal, and required frequent dressing and irrigation with either physiologic sodium chlorid solution or surgical solution of chlorinated soda (Dakin's solution).

In this connection, the following appears in a recent number of *Review of War Surgery and Medicine*:

It is stated by Groves that the probability of latent infection, and the length of the duration in any given case, are

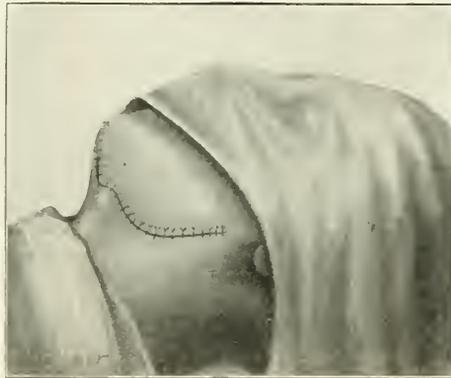


Fig. 7.—Wound closed with fine horsehair; often a drain is left for twenty-four hours in lower angle of wound.

\* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

in proportion to the extent of the primary wound and its degree of infection; the amount of scar tissue deposited between the tissues; the length of time during which manifest infection is known to have been present, and the extent of bone involvement.

Taylor and Davis, however, say that latent infection is due to the persistence of bacteria for a long period within the dense structure and the canaliculi. There they are protected from the body fluids and phagocytic cells. They fur-

is particularly essential that no loose bone fragments be removed from the site of the fracture if there is the slightest attachment to the tissues. Bone fragments apparently hopelessly injured will often recover their vitality and serve as a valuable matrix for new bone formation, even should some of these fragments be thrown off later, it having been found that bone fills in more rapidly than when extreme curettement has



Fig. 1 (Case 2).—Two sinuses from infection by teeth in line of fracture; five months after injury.



Fig. 2 (Case 2).—Five teeth in fracture area.



Fig. 3 (Case 2).—Teeth removed; union occurring, sinuses healed; after twenty days.

ther state that the presence of organisms within the dead bone (whether in sequestra or in portions still attached to living bone) rather than in the soft tissue, is probably the cause of the sinus and the occurrence of the acute recrudescences of infection or flare after secondary procedure.

By the gradual erosion of the sequestrum at the bottom of the sinus, as well as the outgrowth of bacteria from this nidus of infection, continued reinfection of the sinus tract may occur.

#### SEARCH FOR THE CAUSE OF INFECTION

The problem, then, was to discover and remove the cause of continued irritation and infection in these

cases. Piersol states that on the inner surface of the inferior maxilla one may trace the mylohyoid ridge running upward and backward from the sublingual fossa past the molars. Above this line the bone is covered by the mucous membrane of the mouth. Diseases of this portion find expression in the oral cavity. Those of the lower portion of the bone are likely to involve the soft parts and the glands of the neck.

Aided, then, by roentgenograms, clinical evidence and anatomic relations, careful search was made to find the cause of the nonunion of these old fractures.



Fig. 4 (Case 4).—Sinus from injury below mylohyoid ridge; four months after injury.



Fig. 5 (Case 4).—Bone fragments and second molar the source of infection.



Fig. 6 (Case 4).—Union occurring following removal of sequestrum and tooth; after thirty days.

cases, most of which had received attention that in great numbers of fractures had effected a cure.

It was noticeable that the larger number of infected fractures occurred in the mandible. Maxilla fractures barely exhibited pus-discharging sinuses.

A well-established therapeutic procedure, when anatomically possible, is to remove the infection by surgical operation. Again most writers agree that it

Foreign bodies, bits of metal, etc., were rarely found, having been no doubt removed in previous treatment. A few cases exhibited bits of shattered bone or bone sequestrums that were being exfoliated. These were removed, and union quickly followed. There yet remained cases showing no foreign bodies, no sequestrums, jaws rigidly fixed by interlocking dental splints, still evidencing no sign of union. (We have, however,

noted the occurrence of union in a few cases in which infection was present.)

One method of securing immobility appears to me to have been in itself a cause of lack of union as well as causing unnecessary loss of teeth, namely, the wiring together of the jaws by twisting ligature wire around the necks of the teeth and tying the ends to the ends of similar wires attached to opposing teeth, thus holding the jaws in occlusion. This method should be employed only as a temporary measure. Longer period of wiring causes the wired teeth to become loosened, permitting motion to the jaw, elongating the teeth; the mucous membrane becoming swollen and suppurative, often infected and discharging pus, while extraction of the teeth often becomes necessary. This is especially true when there is much loss of bone substance, the strain being too great for them.

RETENTION OF LOOSE TEETH AND POSSIBLE RESULTS

In addition to the retention of bone fragments in the areas of the fracture, we have also been advised by most writers that the teeth loosened should also be retained. One writer clearly states that "loose teeth

tered. A few pulps were not completely devitalized in appearance, but registered no sensation even when removed.

INSUFFICIENCY OF ROENTGENOLOGY TO DISCLOSE THE TRUE CONDITION

Roentgenograms do not show the condition clearly. Possibly the pulps had not been devitalized a sufficient length of time. The teeth had not changed color, transillumination and electric current giving no positive results. The roentgenogram does, however, show the relation of the teeth to the fracture, and an exploratory drill soon demonstrated the vital or nonvital condition of the pulp. The removal of these dead pulps and the filling of the root canals, as is done in routine dental practice, is practically impossible in most cases, for various reasons, and extraction was the only alternative. I am happy to say, the results were so satisfactory that my regret over the loss of the teeth soon passed away.

This statement is not intended as a condemnation of all teeth in the line of fracture of the maxillae. We observed something over 200 cases, whereas there were several thousand cases in the war. The conclusion



Fig. 7 (Case 5).—Drainage in neck injury below mylohyoid ridge—three months after injury.



Fig. 8 (Case 5).—Teeth and sequestrums removed in a thirty day period; splint with posterior fragment depressor.



Fig. 9 (Case 5).—Firm union of fractures following removal of all teeth after thirty days. Attempt to save teeth prolonged the treatment in this case.

should be replaced in their sockets, no matter how loose they appear to be in the fracture, as they will eventually tighten in place." We observed that this practice had been followed in most of our cases and found no fault with it. However, as time passed, all other causes having been removed, the teeth naturally came under suspicion. Colonel Blair, on seeing these patients, did not hesitate to condemn the teeth. My associate, Lieutenant McCauley, and I did not at first concur with him in this; but, all other means having been exhausted without result, we extracted teeth in or adjacent to the line of fracture in two or three cases and were surprised to note the rapidity with which union occurred thereafter.

The extracted teeth were carefully examined. The pulps were found to be devitalized, sometimes absent, the root-ends were resorbed, sharp-pointed like a carpet tack, or were roughened and pitted. The pericementum was destroyed from 1 to 2 mm., the root length from apex to crown. Foul odor was also noticeable.

The plan was then adopted of drilling an exploratory operation into every tooth in the vicinity of a fracture, and in nearly every instance a dead pulp was encoun-

tered. A few pulps were not completely devitalized in appearance, but registered no sensation even when removed.

desired is that if union is delayed, careful examination of the adjacent teeth should be made, possibly by an opening into the teeth. The firmness of the teeth often leads one to believe them unaffected, but it is better to have a firm union with no tooth than a firm tooth with no union.

Bone sequestrums usually exfoliate; teeth rarely do.

The conclusion regarding teeth in or near the line of fracture being identical in so many cases, we made a careful study of the matter and desire to submit extracted teeth and roentgenograms to substantiate the statement, especially since it is contrary to the usual belief.

Effort was made to retain teeth for abutments in bridgework restorations. Patients were held as long as ninety days before such teeth were extracted, but delayed union was the only result. We have found that following extraction the fracture quickly united. If partially united and springy, springiness disappeared, pus discharge stopped, sinuses closed in a few days, and the patients invariably expressed satisfaction and comfort not previously enjoyed.

CASE 1.—E., wounded, Oct. 14, 1918, arrived, April 15, 1919, six months after injury. There was no union. A sinus was

present. Roentgenoscopy revealed the teeth in line of fracture. April 19, 1919. The teeth were extracted the same day. The sinus closed, April 25, 1919. Roentgenoscopy, May 25, 1919, revealed the union five weeks after extraction of teeth.

CASE 2.—M., wounded, Sept. 29, 1918, arrived, April 4, 1919, five months after injury. There was no union. Two sinuses were present. Roentgenoscopy revealed teeth in the line of fracture, April 4, 1919. The teeth were extracted the same day. Roentgenoscopy, April 24, 1919, revealed the sinuses closed, union of fragments occurring in twenty days.

CASE 3.—B., was suffering from a bilateral fracture of the mandible, having been wounded, Sept. 29, 1919. He arrived, April 6, 1919, six months after injury. There was no union. A sinus was present in the right cheek. Roentgenoscopy, April 6, 1919, revealed the teeth in the line of fracture. The teeth were extracted. May 26, 1919, the sinus had healed, with union on the left side and a bone graft on the right side after seven weeks.

CASE 4.—D., wounded, Oct. 21, 1918, arrived, Feb. 10, 1919, four months after injury. A sinus and a springy union were present. Roentgenoscopy, Feb. 11, 1919, revealed the teeth and sequestrums in the line of fracture. The teeth and sequestrums were removed. Roentgenoscopy, March 13, 1919, revealed a union and the sinus closed after thirty-two days.

CASE 5.—L., wounded, Aug. 6, 1918, arrived Nov. 10, 1918, three months after the injury. Roentgenoscopy revealed bone sequestrums removed, drainage on neck, Oct. 11, 1918. Feb.

observation with people who are operated on for tumors of the jaw under a general anesthetic, that the death rate is apt to be very high because of lung complications due to aspiration. When time permits, local anesthetics are preferable. In selected cases, primary repair of the soft tissues can be made to great advantage but the bones should be restored immediately to their proper positions and held there. We probably had about 2,300 cases of face and jaw injuries in the war, most of them occurring between July 14 and Nov. 11, 1918. Only about 600 of these men returned to this country as patients, the remainder being discharged over there. It was chiefly due to the number of skilled dentists we had available that this result was possible. The work of Dr. Kazanjian was known to all of the Allies and I was very proud that he came from an American school. It is impossible to give an intelligent discussion, in the 400 words allotted, of the vast amount of work he has presented. The work necessitated by this war has put bone grafting of the lower jaw on a firm basis. I think the only definite rules are that it should be an autogenous graft of live bone and should be placed in a clean field. Whether one selects the rib, the tibia or the ilium should depend rather on the conformation of the bone needed than on any other consideration. The periosteum and endosteum should be preserved over as great an area as possible. The greatest danger to these grafts is not failure of primary healing but subsequent absorption which always takes place unless union is firm and



Fig. 10 (Case 7).—Sinus in left cheek due to infection by teeth in fracture area; five months after injury.



Fig. 11 (Case 7).—Five teeth in fracture area.



Fig. 12 (Case 7).—Teeth extracted; union occurring; sinus closed, after twenty-five days.

11, 1919, union had taken place. This case is used to show injury to bone. Drainage through neck was for anatomic reasons. Union in this case was delayed sixty days in the attempt to save the teeth.

CASE 6.—H., wounded, Oct. 14, 1918, arrived, March 4, 1919. Springiness of union and sinus were present after five and one-half months. The first roentgenogram, March 4, 1919, revealed teeth in the line of fracture. The teeth were extracted. The sinus was closed in ten days—April 5. Radiogram, May 2, 1919, revealed union thirty days after extraction.

CASE 7.—M., wounded, Aug. 10, 1918, arrived, Dec. 20, 1918, four months after injury. There was no union and much infection. The first roentgenogram, Dec. 20, 1918, disclosed the teeth in the line of fracture. The teeth were extracted, December 20. The second roentgenogram, Jan. 15, 1919, revealed the fracture united after twenty-five days.

Numerous other cases came under observation and treatment with similar results.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. KAZANJIAN, TAINTER AND DAMERON

DR. V. P. BLAIR, St. Louis: The lives of many patients can be saved or the convalescence period shortened by proper early treatment. Then comes the question of death or severe illness as a secondary result of the injury. It is a very old

the bone is subjected to functional strain. The fewer sutures or wires used to hold it in place the better, as fancy mortising operations give a higher percentage of failures. In the reconstruction work, dental splints are a most important item and often present most complicated problems. These have been well met by such men as Dameron and a number of others who have been working in hospitals devoted to reconstruction of the face.

DR. C. W. WALDRON, Ste. Anne de Bellevue, Quebec, Canada: I would like first to tell you how glad the members of the British, Canadian, Australian and New Zealand sections of the Queen's Hospital at Sidcup were to have the large number of American surgeons and dental officers with us for duty, and also to have those who were stationed in other parts of England come and watch our work. We certainly enjoyed their company and their help. They gave us many new ideas, and we were very sorry that Col. Sir Arbutnot Lane was unable to swing an American section around to the Queen's Hospital at Sidcup. Bone grafting of the lower jaw is one of my pet subjects. I feel that it is nothing like the problem that it was three or four years ago. In the case of fractures with a moderately well nourished bed between the end of the bones, and where the bones are of good quality and good size, free grafts are very successful. The problems in so far as mandibular bone grafting is concerned are, to my mind, now confined entirely to those cases where there is practically no tissue bed, that is not

more than two or perhaps three millimeters of connective tissue between the external skin surface and the mucous membrane of the mouth. In these cases, I feel that the pedicle grafts, as advocated by Mr. Percival Cole of King George's Hospital, London, or the osteoperiosteal grafts, are indicated as they have a much better chance of living than free grafts. Another problem is the control of the posterior fragment, where there is a tendency to fixation. That is a matter, of course, of cooperation between the dental surgeon and the surgeon. The institution of very early mobility is indicated, encouraging the patients to use their jaws to the greatest extent possible. In advocating the iliac crest as a good graft, I feel that it conforms the best with the principles laid down by the men doing extremely good work in bone grafting. It is very strong and readily trimmed to shape. We wire it in position, adopting very simple methods of preparation of the fragments. We have discarded electrical equipment. We feel that a nontouch technic, as advocated by Sir Arbuthnot Lane is advisable, and that the simpler operative methods are preferably. If the entire bone reformation is due to the activity of the ends of the fragments of the mandible, the iliac crest fulfils our desires in that being very cancellous, it is capable of being invaded by blood vessels much more rapidly than in the case of a compact tibial graft. This has been well shown by my colleagues in Toronto, Drs. Gallie and Robertson. I am glad that bone grafting is now on a sure basis. We know we shall get good results if we use reasonable care and do not operate too soon, or where there is latent infection.

DR. FRED H. ALBEE, New York: In drawing lessons from the recent war for application to civilian practice, great caution should be employed, lest many of the experiences thereby gained prove not entirely trustworthy. The type of jaw case, for instance, so frequently met in army work will rarely be encountered in civil practice. Personal experience with civilian cases of injury of the jaw has shown such cases to be usually of many years' standing, with persistent nonunion owing to extensive pathologic changes in the bone ends, such as churning, loss of osteogenesis, blood supply, etc. In the army, on the other hand, the cases of jaw injury met are usually of only a few months' duration, and are usually more favorable to union. The high vascularity of the tissues of this region and the retention, in most cases, of the osteogenic power of the jaw fragments have afforded such favorable conditions as have, doubtless, contributed largely to whatever degree of success has been attained by the use of the recently revived osteoperiosteal graft in reparative work on the jaw. Repair of the jaw with extensive loss of bone substance, however, offers great difficulties of mechanical fitting and adjustment. Such work requires an accuracy and rapidity of technic only secured by delicately adjusted motor driven instruments. The construction of a suitable framework over which to restore the contours of the face is of primary importance if the cosmetic result is to be satisfactory. The inadequacy of the osteoperiosteal graft for this purpose is apparent. Only by means of a strong fixation graft, molded and firmly inlaid into each fragment, can the proper contours of the face be restored. As a supplement to the fixation graft, of the peg or inlay type, the osteoperiosteal graft is of great service in furnishing an additional focus for bone-growth. The high percentage of failures reported by certain individuals in this work, may be attributed largely to the use of foreign bodies. Kangaroo tendon is more trustworthy than silver wire. Like the osteoperiosteal graft, the use of the pedicle graft is distinctly limited. The pedicle graft is seldom indicated or feasible. Its utter inadequacy is especially apparent in jaw cases in which there is much loss of bone. This jaw work, if it is to be ideal, should always be done, when possible, with the closest cooperation between plastic surgeon and prosthetic dentist. The statement was made that the dental splint will furnish sufficient support in all cases. Where there are teeth, that is possible, but in cases in which there is loss of molar teeth, as well as bone, it would not be of any use. Moreover, if the patient is not able to tolerate it, the splint must be removed. The greatest stimulus to healthy metabolism and proliferation of

the graft is mechanical stress. By one sure means only can this stress be brought to bear on the graft, namely, by its insertion into the substance of the host bone fragments by such an accurate inlay technic as will insure a perfect cabinetmaker fit.

## ECTOENZYMES OF STREPTOCOCCI\*

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The enzymes, as Beatty<sup>1</sup> defines them, are the catalysts of living organisms, and are divided into two groups: ectoenzymes and endoenzymes. The former, excreted from cells into the surrounding medium, can be detected by their characteristic properties, and the latter contained only in the cells, have to be extracted by special means.

As to the method of detection of bacterial ectoenzymes, the auxanographic method of Beijerinck seems to be the simplest. The method consists in mix-

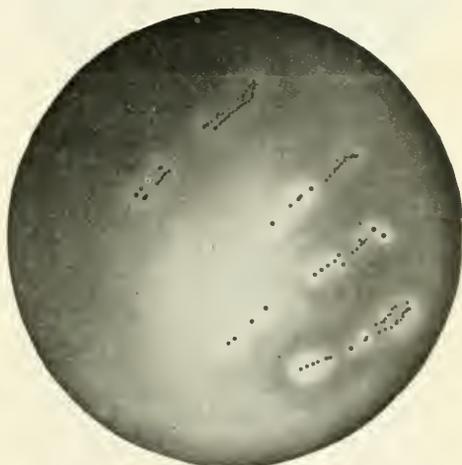


Fig. 1.—Milk agar plate showing the digestion of casein. There are two zones—light and dark—around the colonies. Twenty-four hours' incubation at 37 C.

ing agar with any substance that can be used to detect bacterial ectoenzymes. The mixture is then inoculated with the organism, plated and incubated at 37 C., and the plate studied carefully after incubation. The presence of bacterial ectoenzymes may be shown by a zone of digestion or other change around the colonies. This zone usually appears clear and wide. By this method, Bijkman<sup>2</sup> and Buxton<sup>3</sup> demonstrated amylase, lipase, casein-splitting enzyme, etc., excreted by different organisms.

### THE AMYLASE OF STREPTOCOCCI

**Technic.**—Starch paste is prepared by dissolving 4 gm. of cornstarch in 200 c.c. of distilled water. To this solution 0.1 gm. of asparagin is added. The solu-

\* From the John McCormick Institute for Infectious Diseases, Chicago.

<sup>1</sup> This work was aided by a grant from the American Medical Association through its committee on Scientific Research.

<sup>2</sup> J. Beatty, J.: *The Method of Enzyme Action*, Philadelphia, P. Blakiston's Son & Co., 1917, p. 8.

<sup>3</sup> Bijkman, Centralbl. f. Bakteriol., 20: 841, 1901, *ibid.* 25: 1, 1903.

<sup>4</sup> J. Buxton: *Am. Med.* 4: 137, 1903.

tion is then autoclaved for fifteen minutes at 120 C. Before and after sterilization, the solution should be thoroughly shaken in order to avoid the formation of clumps. The paste thus prepared should not be kept more than three days. Asparagin is used as a coenzyme.

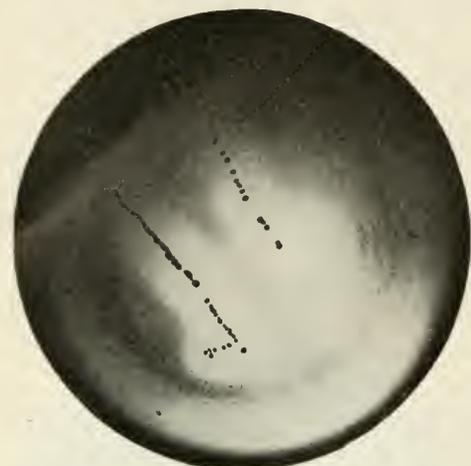


Fig. 2.—Milk agar plate showing the progress of digestion. Forty-eight hours' incubation at 37 C.

Beatty<sup>4</sup> states that an addition of 0.05 gm. of asparagin to 100 c.c. of starch solution containing amylase increases the velocity sevenfold.

4. Beatty, J.: The Method of Enzyme Action, p. 34.

TABLE 1.—THE ECTOENZYMES OF STREPTOCOCCI

Cultures	Types	Sources	Results	
			Amylase	Caselin-Splitting Enzymes
No. 1	Hemolytic.....	Throat (normal).....	+	+
2	Hemolytic.....	Throat (normal).....	0	+
3	Hemolytic.....	Throat (normal).....	+	0
4	Hemolytic.....	Throat (normal).....	+	0
5	Hemolytic.....	Throat (scarlet fever).....	+	0
6	Hemolytic.....	Throat (scarlet fever).....	0	0
7	Hemolytic.....	Throat (scarlet fever).....	0	0
8	Hemolytic.....	Throat (scarlet fever).....	0	0
9	Hemolytic.....	Throat (dog).....	+	0
10	Hemolytic.....	Throat (dog).....	+	0
11	Hemolytic.....	Abscess.....	0	0
12	Hemolytic.....	Empyema.....	0	0
13	Hemolytic.....	Leptomeninges.....	0	0
14	Hemolytic.....	Blood (scarlet fever).....	+	0
15	Hemolytic.....	Milk.....	0	+
16	Hemolytic.....	Milk.....	0	+
17	Hemolytic.....	Milk.....	0	+
18	Hemolytic.....	.....	0	+
19	Hemolytic.....	.....	0	+
1	Green producing.....	Influenza.....	0	0
2	Green producing.....	Influenza.....	0	0
3	Green producing.....	Influenza.....	0	0
4	Green producing.....	Influenza.....	0	0
5	Green producing.....	Influenza.....	0	0
6	Green producing.....	Influenza.....	0	+
7	Green producing.....	Influenza.....	0	0
8	Green producing.....	German measles.....	0	0
9	Green producing.....	German measles.....	0	0
10	Green producing.....	German measles.....	0	0
11	Green producing.....	German measles.....	0	0
12	Green producing.....	German measles.....	0	0
13	Green producing.....	German measles.....	0	0
14	Green producing.....	Throat (scarlet fever).....	0	0
15	Green producing.....	Throat (scarlet fever).....	0	0
16	Green producing.....	Throat (scarlet fever).....	0	0
17	Green producing.....	Throat (normal).....	0	0
18	Green producing.....	Brain.....	0	0
19	Green producing.....	Brain.....	0	0
20	Green producing.....	Throat (measles).....	0	0
21	Green producing.....	Throat (measles).....	0	0
22	Green producing.....	Throat (scarlet fever).....	0	0
23	Green producing.....	Epidemic poliomyelitis.....	0	+
24	Green producing.....	Epidemic poliomyelitis.....	0	+
25	Green producing.....	Epidemic poliomyelitis.....	0	+
26	Green producing.....	Epidemic poliomyelitis.....	0	+

Starch agar is prepared as follows: From 4 to 5 ounces of nutrient agar are placed in a flask, heated until the agar is melted, and then cooled to from 45 to 50 C. Now 1 c.c. of starch paste is added to each 6 c.c. of agar. Approximately 7 c.c. are used for each plate. In the shake method, 1 c.c. of the starch paste is added to 6 c.c. of melted sugar in a tube at 45 C. This tube is inoculated with bacteria, the whole thoroughly mixed and poured into a Petri dish. In my experience the surface streak method gives a better result.

TABLE 2.—THE INFLUENCE OF TEMPERATURE ON THE ACTION OF STREPTOCOCCAL ECTOENZYMES

Enzymes	Strains	37 C.		0 C.		50 C.		56 C.		60 C.	
		24 Hours	24 Hours	48 Hours	48 Hours	48 Hours	48 Hours	48 Hours	48 Hours	48 Hours	48 Hours
Amylase	AN	2	3½	2	3½	3	3	2	2	2	2
	150	2	3½	2	3	3	3½	3	3	2	2
	57	1½	2	1½	2½	2	2	1½	2	2	2
	59	2	2	2	3	3	3	2	2	2	2
	7	2	3½	2	3½	3	3	2	2	2	2
Caselin-splitting	0 C	2	3½	2	3½	3	3½	3	3	2	2
	12	2½	4½	3	4	Medium dried up					
	13	2½	4	2½	4	Medium dried up					
	2254	2	4	2	4	Medium dried up					

The plates inoculated with organisms are incubated at 37 C. for twenty-four hours. The digestion of starch by amylase will be shown by a clear and wide zone. The zone of digestion progresses as the time of incubation increases. Now if a diluted Lugol's solution is poured over the surface of the medium there appears just outside of this clear zone another narrow pink zone usually about 1 mm. wide. As is well known, iodine gives a blue color with starch; erythrodestrin, a red color; but maltose or leukodestrin, no color. Thus we may conclude that the clear zone and pink zone represent maltose and erythrodestrin, respec-



Fig. 3.—Starch agar plate made by the shake method showing the digestion of starch; treated with Lugol's solution after twenty-four hours' incubation. The light areas are the areas of digestion. A dark zone around this area can occasionally be seen and this zone stains pink with iodine on the original plate.

tively, the digestive products of the action on starch by the amylase secreted by streptococci. The results of my observations on different strains of streptococci are given in Table 1.

If a small portion of the medium in which starch has been digested by amylase is removed and dissolved in a tube of 4 c.c. of distilled water at 45 C., and 2 c.c. of Fehling's solution are added to this solution, which is then heated to boiling, it is usually found that the



Fig. 4.—Starch agar plate, surface streak, forty-eight hours' incubation at 37 C.

Fehling solution is reduced within twenty minutes. In each case a control should be made. A positive test would mean the presence of maltose.

#### THE CASEIN-SPLITTING ENZYME OF STREPTOCOCCI

*Technic.*—Milk, which should be free from fat, is sterilized in an Arnold sterilizer by the discontinuous method; however, it may be sterilized for five minutes at 120 C. in the autoclave. The milk should be neutral or slightly alkaline to litmus.

Milk agar is prepared in the same way as starch agar. A clear zone around the colonies indicates the digestion of the casein, but in most instances a coagulation precedes digestion and this is shown by a dark zone (Table 1).

If a small portion of the clear zone is removed and placed in 4 c.c. of distilled water at 45 C., and to this solution when cold is added 5 per cent. of acetic acid drop by drop, no precipitation takes place, which means that casein is absent.

#### THE INFLUENCE OF TEMPERATURE ON THE ACTION OF THE ECTOENZYMES OF STREPTOCOCCI

Four starch agar or milk plates are inoculated with the same culture and incubated at 37 C. for twenty-four hours in order to get an initial growth. Then the plates are kept at different degrees of temperature. The results are shown in Table 2.

In view of the results, it is evident that the ectoenzymes of streptococci become inactive at 0 C. and are able to continue their action at as high a temperature as 56 C.

Cultures 9 and 10 from the sputum and lungs, respectively, of influenza patients digested casein only after forty-eight hours' incubation and the latter had a stronger activity than the former.

#### SUMMARY

Among hemolytic streptococci there seem to be three groups: one digesting casein, one starch, and the other neither casein nor starch. Among the green-producing streptococcal organisms only two groups are indicated: one digesting casein, and the other without action on starch or casein.

St. Louis City Hospital.

### A CASE OF TUMOR OF THE PONS VAROLII\*

TOM BENTLEY THROCKMORTON, B.Sc., M.D.  
DES MOINES, IOWA

*History.*—A white lad, aged 17½ years, first came under my observation in October, 1912, complaining of nervousness and inability to walk properly, conditions which were said to have been present for a number of years but to have progressively grown worse during the previous three or four years. The family and personal histories were negative. The onset of the trouble had been insidious. At about 8 years of age, it was first noticed that the boy's right eye had a tendency to turn inward. This was progressive, so that at the end of five years complete internal strabismus was present. Vision and gait, however, could not have been greatly interfered with at the time, for it was ascertained that the lad won an egg race at a town carnival, the winning necessitating the transference of a number of eggs from one spot to another, dipping them up and carrying them by means of a spoon. An itinerant eye specialist attempted to overcome



Fig. 1.—Characteristic position of head; also the right sided proptosis, the right sided facial paralysis and the distinct lowering of the right shoulder. The left sided ptosis is more apparent than real.

the visual deformity by doing a tenotomy on the internal rectus muscle. Then because the eyeball appeared more prominent and the lids were more separated on the right

\* Read before the Section on Nervous and Mental Diseases at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

side, an endeavor was made to decrease the palpebral fissure. In other words, it would not be unreasonable to assume that the ocular condition at that time consisted of a complete paralysis of the external rectus, proptosis and incipient seventh nerve weakness.

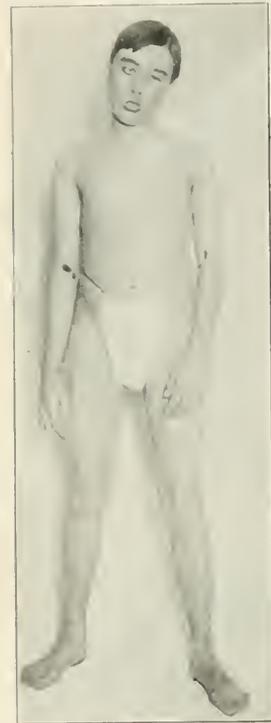


Fig. 2.—Characteristic attitude assumed when standing. Note the broad base obtained by spreading the feet apart, an endeavor to overcome the ataxia (flashlight photograph).

The ataxia was of the cerebellar type, not being appreciably influenced on closure of the eyes. The so-called characteristic cerebellar attitude of the head was present; that is, the chin turned to the affected side and the head tilted to the contralateral shoulder. A double choked disk existed, more marked on the right side, and the visual acuity on this side was 6/60, as compared with 6/10 on the opposite side. There was slight involvement of the ophthalmic division of the right fifth nerve, as indicated by diminution in corneal sensitiveness, while the sixth, seventh, eighth, ninth, tenth and eleventh cranial nerves on the right side were all involved to a marked degree. Involvement of the left sixth, eighth and twelfth nerves was evident from weakness of the external rectus muscle, moderate diminution in hearing, and a tendency for the tip of the tongue to curve to the left side on protrusion. The latter condition, however, may have been more apparent than real, as the pulling aside of the paralytic right cheek caused the tongue to protrude more nearly in the median line, its curvature to the left possibly being due to the prolonged habit of being displaced by the paralyzed muscles of the right cheek. The motor pathways to the left arm and leg were involved, as shown by motor weakness, increased tendon jerks, hypertonia of the leg muscles, and an extension of the great toe by the Babinski and Chaddock methods. The crossed paralysis syndrome, indicative of pontile lesions, was

beautifully illustrated by the seventh nerve lesion of the right side associated with motor paralysis of the opposite arm and leg. The laboratory findings were completely negative as far as the blood Wassermann, subcutaneous tuberculin, urine and blood tests were concerned.

**Neurologic Symptoms.**—General Symptoms of Brain Tumor: (1) headache; (2) projectile vomiting; (3) double choked disk; (4) vertigo.

**Cerebellar Symptoms:** (1) ataxia, unimpaired on closure of eyes; (2) characteristic attitude of head; (3) reeling, lurching, staggering gait, more toward the right; (4) dysdiadochokinesia; (5) asynergy; (6) nystagmus.

**Brain Stem Symptoms:** Right: Optic, choked disk; O. V. D., 6/60; trigeminal, ophthalmic division; abducens, complete; facial, complete; auditory, almost complete; glossopharyngeal, pneumogastric and spinal accessory, all involved to a greater or less degree; motor pathways to left arm and leg.

Left: Optic, choked disk; O. V. S., 6/10; abducens, moderate; auditory, moderate; hypoglossal (?).

**Operation and Result.**—A decompression operation was performed by Dr. C. E. Ruth, at which time the entire right cerebellar lobe was exposed, first, in the hope of relieving the symptoms due to increased intracranial pressure, and, secondly, that a tumor might be found in some accessible position. Nothing, however, was ascertained as to the presence of a tumor, save an increased resistance, felt by the palpating finger in the region of the pons. Postoperative convalescence was uneventful until the sixteenth day was reached, at which time, without apparent cause, the fever rose to 103 F, unaccompanied by pain or discomfort. A hernial protrusion over the operative site became so marked as to warrant the necessity of a paracentesis, at which time 75 c.c. of clear cerebral fluid were withdrawn. Two days later the eruptive rash of smallpox appeared. Following the recovery from this disease, the patient returned to his home, where he lived in comparative comfort for almost five years subsequent to the operation. During this time his general health greatly improved, he was free from headaches and vomiting, and while a double optic atrophy slowly followed in the wake of the preexisting papillitis, he never completely lost his eyesight. Needless to state, the organic changes in the nervous mechanism produced by a growth, the first symptom of which was observed when the boy was 8 years old and which ultimately caused his death fourteen years later, never were eradicated; but the prolonging of life, with comparative

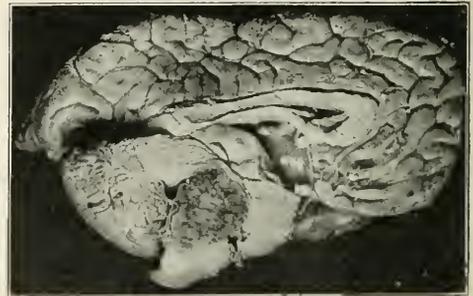


Fig. 3.—Mesial section through brain, showing pontile tumor.

freedom from symptoms which would have made death preferable, more than justified the operative interference.

**Necropsy.**—Sixteen hours after death, a necropsy was performed by Dr. D. J. Glomset, at which time the brain was obtained. The dura mater stripped easily from the calvarium save at the point of the old operative site, where the attachment of the meninges was quite firm. There was considerable atrophy of the right cerebellar lobe; but no external evidence of a tumor could be found, save that indicated by the presence of several pia-arachnoid cysts which lay along the under

surface of the brain, particularly at the junction of the transverse fibers of the pons with the medulla. After the brain had been hardened, a mesial section was performed which revealed a spherical mass 3.5 by 4 cm. in diameter, occupying the space between the superior cerebellar peduncles and the crus cerebri above, the medulla oblongata below, the transverse fibers of the pons anteriorly, and filling, practically to its entirety the fourth ventricle. The center of the mass was somewhat necrotic and showed evidence of recent hemorrhage. The tumor was distinctly encapsulated and without



Fig. 4.—Section through brain stem and cerebellum. Note atrophy of right cerebellar lobe.

great difficulty was separated from its capsule except at the point of its greatest attachment, which apparently sprang from the longitudinal fibers of the pons and their continuation downward through the medulla. The outer surface of the growth was quite irregular and nodular, the nodules penetrating the cerebellar tissue, particularly on the right side. Microscopic examination of the tumor showed that it was gliomatous.

#### ABSTRACT OF DISCUSSION

DR. FRANK W. LANGHORN, Cincinnati: I am interested in this case as an example of careful study and accurate localization of a basilar tumor. We should recognize the fact that there are two groups of these cases which come before the clinician, in one of which he advises early operation to save the patient's vision. Exploration which is practically harmless is not only allowable but we are warranted in taking some chances. How far we shall go after that is another matter. But there are two obstacles in the way even to exploration. There is one class of patients who will decline any form of operation, and there is another class in which the general condition is such that operation is not advisable. You are facing what will eventually be a fatal disease, the patient meanwhile being liable to suffering and blindness which may be prevented by early exploration and decompression. We should not rely on hard and fast rules, but in suitable cases explore and be guided by what is found.

**The Importance of Birth Registration.**—It certainly does not comport with the dignity, intelligence and might of our nation to have it practically the only civilized country in the world which, in much of its extent, takes less account of the increase of its citizens than it does of the birth of blooded stock and poultry. If birth registration is important in the older countries where the conditions of life are comparatively settled, how much more useful would it be in this new and vigorous commonwealth made up of so many different races and containing within its borders such a variety of climatic and industrial conditions. Is it not of the first importance for the United States to have on record the birth rate prevalent in all sections of the country, in the larger cities, among miners, among factory workers, and among the dwellers in the mountains as compared to those on the plains? This information would be invaluable not only for the statistician, physician and statesman, but also for the prospective settler. If the injunction to "know thyself" is fundamental to the best efficiency of the individual, is it not equally true of the nation, and where could this knowledge better begin than in the proper recording of the birth of its citizens?

—J. H. Mason Knox, The Importance of Birth Registration to Determine Infant Mortality, *Journal of the American Public Health Association*.

## Clinical Notes, Suggestions, and New Instruments

### CALIPER EXTENSION IN THE TREATMENT OF FRACTURES OF THE FEMUR

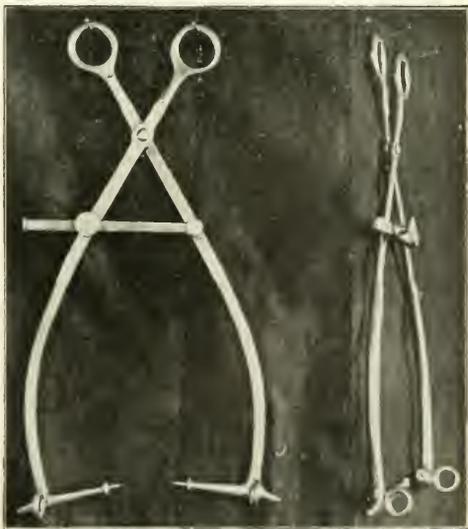
JOHN E. CANNADAY, M.D. (CHARLESTON, W. VA.)

Major, M. C., U. S. Army; Chief of Surgical Service, Base Hospital CAMP SHERMAN, CHILLICOTHE, OHIO

A good many years ago Ransohoff introduced the use of ice tongs to secure proper traction in certain cases of fractures of the femur. This treatment stood the test of time, and has been widely adopted. Later, Besley, and also St. Clair, introduced a modification of the ice tong—the caliper which has been extensively used during the world war. This caliper, as ordinarily used, has quite sharp and slender points, which may penetrate the bone cortex too deeply and enter the spongy bone, giving rise to the possibility of osteomyelitis; or, one point may become loosened, while the other penetrates deeply into the soft bone. And, in event of the constancy of the traction being disturbed, the caliper points may become altogether detached from the bone.

The traction as it is ordinarily made, with the caliper handles in line with the femur, prevents the full extension of the leg at the knee and thus interferes with both passive and voluntary motion.

Having in mind some of these defects, I have had made a pair of calipers intended to be used in a vertical position. The points are blunted and slant toward the front, so as to give the proper pulling angle. Each is equipped with a guard ring which is an effective substitute for the tubular guard used by Hurley.<sup>2</sup> It allows only one-fourth inch of the point to enter the bone. At the angle formed by the junction of the base of the caliper point and the handle, a traction ring



Calipers for use in vertical position

has been attached, and above, on the handles, a locking device in the shape of a hinged cross bar with a set screw. This not only holds the caliper points securely in contact with the bone, but also precludes the possibility of their becoming loosened from their hold on the condyles of the femur.

1. Crile, D. W.: Employment of Calipers in Fractures of the Femur, *J. A. M. A.* 72: 789 (March 15) 1912.  
2. Hurley, Victor: *Brit. J. Surg.* 4: 371 (Jan.) 1919.

A NEW STANDARD SOLUTION FOR SAHLI'S MODIFICATION  
OF GOWER'S HEMOGLOBINOMETER\*

VICTOR C. JACOBSON, M.D., BOSTON

The clinical estimation of hemoglobin, judging by the variety of instruments made and used for that purpose, is still a source of dissatisfaction, especially in a general hospital where such determinations are made in large numbers daily.

The criteria for any instrument to be used in the clinical laboratory are, first, sufficient accuracy, and, second, simple and expeditious operation. To be perfectly satisfactory for clinical purposes, an instrument need not be absolutely accurate. But simplicity of operation is the sine qua non of any apparatus destined to become of routine use in a busy clinic.

Various methods of measuring hemoglobin have their adherents, but the Sahlí modification of Gower's instrument, in spite of its shortcomings, is probably the most widely used. The principle involved in Sahlí's method is simple: A measured quantity of blood is treated in a calibrated tube with tenth-normal hydrochloric acid, in order to change its hemoglobin into brown acid hematin. It is then diluted with water until its color corresponds to that of a standard solution of acid hematin, the latter representing a 1 per cent. solution of normal blood.

The standard solution, as Sahlí states, is only a suspension and not a true solution. A sediment forms after long use or in a shorter time if the tube is not filled aseptically, and the clouthing, of course, detracts from its accuracy. Sahlí apparently had a fair degree of success in keeping the solution without a change in shade over two years, though the solution was kept in the dark most of the time. However, the standard tubes which have been available in this country during the past three or four years either were not made according to Sahlí's directions or else the inevitable simply happened, for they faded. In a busy laboratory the apparatus is bound to be left in the light, in the aggregate, over long periods of time. Consequently, in a hospital where many are used, scarcely any two are of the same shade. A solution, of course, can be restandardized by comparing it with a group of normal bloods, but with a constantly changing color intensity in the standard tube it is, to say the least, time consuming to keep up with the color changes.

It is my purpose here to suggest the substitution for a standard hematin hydrochlorate solution of a solution of

greater color-fastness. Gallic acid,  $C_6H_2$   $\begin{matrix} \text{COOH} \\ | \\ \text{OH} \\ | \\ \text{OH} \\ | \\ \text{OH} \end{matrix}$ , when

treated with sulphuric acid assumes a deep brown color. Tannic acid,  $C_{14}H_{10}O_5$ , which is 2 molecules of gallic acid minus 1 molecule of water, when dissolved in water and exposed to the action of oxidizing agents or molds is changed to a similar brown color. These solutions, compared with one of acid hematin, are of identical color, both to the naked eye and in the chambers of a Duboscq colorimeter. While kept in a clean, stoppered container (not primarily sterile), with a drop of 95 per cent. phenol for each 20 c.c., the color intensity has not changed during a period of ten months' exposure in a sunlit window, while one of Sahlí's tubes faded markedly in three days and was colorless in a week.

One hundred c.c. of a 20 per cent. aqueous solution of tannic acid or a 1 per cent. solution of gallic acid, to each of which have been added from 5 to 10 drops of concentrated sulphuric acid, on gentle heating for a minute gives a deep brown color which reaches maximal intensity after about two hours. This solution can be diluted to any desired strength.

The chemistry of tannic acid and gallic acid is little understood and doubtless is very complicated. Dr. Louis E. Levi of Milwaukee has kindly given me his opinion of the reactions involved in obtaining the brown color: "Gallic acid treated

with sulphuric acid produces rufigallic acid (hexa-oxyanthrachinon) of a brown color. Tannic acid in the presence of dilute acids, both organic and inorganic, produces gallic acid. This gallic acid, or the gallic acid which always is present in tannic acid, is changed by sunlight and dilute organic acids to rufigallic acid. Therefore, I conclude that the color (brown) in tannic acid is due to the formation of rufigallic acid."

Utilizing this similarity of color, I have prepared standard tubes of "rufigallic acid" which are in use on the medical wards of the Peter Bent Brigham Hospital. There are various methods of making a "standard" solution: A 1 per cent. solution of blood from each of a group of normal individuals can be mixed together and the composite sample called "average normal"; or, a 1 per cent. solution of blood from a robust young adult with a high normal erythrocyte count can be called "high normal," and the readings of other normal persons being from ten to twenty points lower, an "average normal" for that solution can be estimated, such a figure being the one always used in computing the color index. Comparison with Palmer's carbon monoxid method is probably the best way to standardize the solution.

I suggest, therefore, the use of a solution of rufigallic acid as a standard for the Sahlí-Gower instrument, in place of the rapidly fading suspension of hematin hydrochlorate.

## HEAD RESTS FOR NEUROLOGIC OPERATIONS\*

A. W. ADSON, M.D., AND G. G. LITTLE, M.E., ROCHESTER, MINN.

## THE CEREBELLAR HEAD REST

The cerebellar head rest serves two distinct purposes: First, it holds the head in a prone position so that it can be tilted at all angles, thus giving good exposure of the cere-



Fig. 1.—Cerebellar head rest, illustrating head piece and ether mask.

bellum and cervical spine. Second, it is arranged so that the jaw can be moved freely, the nose and mouth are exposed, and an adjustable ether mask can be attached to the frame to enable the administration of ether by the inhalation method without difficulty. The administration of intrapharyngeal or intratracheal anesthesia is also made possible by

\* From the Pathological Laboratory of the Peter Bent Brigham Hospital.

1. Sahlí, 11: Treatise on Diagnostic Methods of Examinations, Philadelphia, W. B. Saunders Company, 1911.

\* From the Mayo clinic.

removing the mask and inserting the intrapharyngeal or intratracheal catheter and attaching it to the anesthetic machine.

The ether mask (Fig. 1 *d*) is easily adjusted; it is secured in position by the curved edges, *J*. A short tube permanently fixed to the mask provides a means of attaching the ether tube, *k*. It also directs the flow of ether toward the center of the mask.



Fig. 2.—Cerebellar head rest: head in position, with ether masks removed, exposing the nose, mouth and chin.

The headpiece (Fig. 2 *c*) is secured to a ball pivot and may be tipped at any angle. It may also be moved toward or away from the table along the supporting frame, *a*, by loosening the threaded collars, *h*, which, when tightened, hold the headpiece at the required height. The headpiece is locked to the standard, *b*, by tightening the collar, *e*, by means of the handle, *f*.

The supporting frame, *a*, is attached to the Balfour operating table; it is secured by a clamp, *i*; the swing leaf, *x*, of the table is lowered. The headpiece, having been formed to fit the forehead and cheeks, provides a comfortable rest for the patient's head, and leaves the nose and mouth uncovered

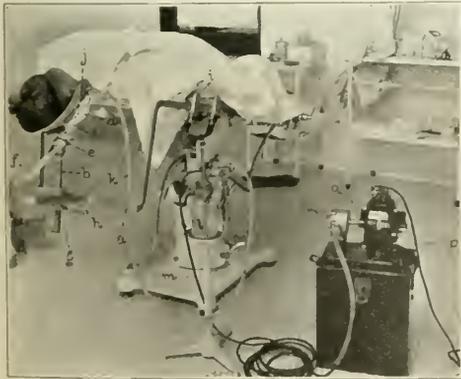


Fig. 3.—Cerebellar head rest: head in position, and ether mask attached and connected with the anesthetic machine and blower.

except for the detachable ether mask; the anesthetist is thus permitted free access to the patient's mouth.

The head rest and frame are attached to the operating table and connected by a flexible tube to the etherizing apparatus (Fig. 3 *l*); this is supplied with air from the motor-driven pump, *n*, through the flexible tube, *m*; the motor cord, *p*, plugs into a standard lamp socket.

THE GANGLION HEAD REST

The ganglion head rest is arranged to prevent the head from wobbling from side to side during operation. The head is held in the erect position and may be raised or lowered or turned from side to side by the use of the adjustable frame and universal joints. The base plate (Fig. 4 *a*) is secured to the swing leaf, *j*, of the Balfour operating table by a



Fig. 4.—Ganglion head rest, illustrating its attachment to the swing leaf of the Balfour table, with the various adjustments.

clamp, *i*. The swing leaf may be adjusted by the ratchet bar, *k*. The headpiece, *b*, has a spherical surface adjustment in the cup, *c*; it is secured in position by the thumb nut, *f*. The spring fingers, *g*, are adjustable and hold the patient's head in position. The upright, *d*, is hinged on *a* and supports *c*, which may be adjusted for height and angle positions through the rod, *e*; it is secured by fingers, *g*, to the headpiece, *b*. By adjusting the table, the swing leaf *j*, rod *e*, members *c* and *d*, swiveling piece *b*, and the fingers *g*, the surgeon may hold the head in any position desired.

**Open Safety Pin in Gastro-Intestinal Tract.**—The account of an open safety pin passing through a baby's intestinal tract, in *THE JOURNAL*, July 5, prompts me to suggest treatment I have used for years; when a child has swallowed a fish hook, open safety pin, pins, pennies, or any material that is apt to lodge in the intestinal tract, I put it on a milk, brain and mucilaginous diet. Twice daily, I give a large dose of olive oil followed with the official Seidlitz powder—the size of the dose in proportion to the size of the child. If the stool is watched carefully for a few days, one will see results. Most of the time, the foreign substance is incorporated within a soap ball; and in any event, I can imagine that the little soap balls are just the right shape to bear the foreign substance on and out of the many folds of the mucosa of the intestinal tract. Let it be called a ball-bearing method. I have removed articles by this method that have had points protruding in such a way that it would not seem possible for them to pass along without their penetrating and lodging in the intestinal wall.—R. C. FAUST, M.D., Deary, Idaho.

## THE QUEST OF A HEART FUNCTION TEST

H. B. CONRAD, M.A., M.D., WINSTON SALEM, N. C.  
Lieutenant, M. C., U. S. Navy

Early in the war, Sir James Mackenzie<sup>1</sup> proposed that in the examination of the hearts of applicants for military service more stress be laid on how the heart responds to effort. He says that if the applicant can undergo severe bodily exertion without distress, it is fairly safe to assume that any irregularity or systolic murmur present is without significance. This is not new, but it lends great emphasis to the examination of the circulatory apparatus as a whole and to judging a heart by the circulation it can maintain. Heretofore, cardiac examination has concerned itself principally with detecting imperfect valves, sclerotic arteries, and dilated or hypertrophied myocardium. The function tests were developed to detect inefficiency of the heart in maintaining the circulation and impending heart failure.

In 1915, Swan<sup>2</sup> reviewed the heart function tests proposed up to that time. Tigerstedt, Stone, Goodman and Howell, and many others have sought to arrive at a formula from the interrelation of different phases of the blood pressure reading that would give an index of the cardiac efficiency.

The tests that seem to offer most promise are those based on the reaction of the heart to bodily exertion. Exertion in the presence of a markedly inefficient heart brings on palpitation, dyspnea and distress. The search has been for any sign or signs brought out on exertion which would indicate minor degrees of cardiac inefficiency. According to Circular 21 of the Surgeon-General's Office, the rapidity of the pulse and respiration persisting two minutes after hopping a hundred times on one foot should be viewed with suspicion. However, according to Mackenzie<sup>3</sup> and the observations of Barringer,<sup>4</sup> it is only in an extremely limited number of cases that the pulse rate after exercise is of value in determining cardiac efficiency. Following Graepner,<sup>5</sup> Barringer<sup>6</sup> has sought from the blood pressure curve following exertion to determine what he calls the "cardiac reserve." The rise of blood pressure after exercise normally takes place in thirty seconds. If the heart's capacity has been exceeded during the exercise, the height of the blood pressure is not reached for sixty or seventy seconds. The amount of exercise measured in foot pounds that can be undergone without this delayed rise is the index of cardiac reserve. It seems to make no difference which group of muscles is employed in the exercise. The work which the average man between 20 and 30 years can perform without showing a delayed rise is from 6,000 to 12,000 foot pounds. In inefficient hearts it frequently drops to 1,000 foot pounds or less.

Kahn<sup>7</sup> has recently applied such function tests as deal with pulse rate and blood pressure following exercise to over 200 cases, including the normal, tachycardias, bradycardias, neurocirculatory asthenias, etc. His results appear definite. But before such function tests can be of significance in these diseases, the relation of the test to cardiac failure must be more firmly established. Hence the most urgent need just now is a function test with an established relation with heart failure. This will require observation over long periods. It may be that prolonged observation will establish the delayed rise of blood pressure after exercise as a test of definite diagnostic and prognostic value. It may be that some other evidence of a weakened circulation will be discovered and made use of. But whatever test develops, its diagnostic value will be in the insight it gives us into the heart's ability to maintain the circulation, and its prognostic value in the foresight it gives us of heart failure. It will deal with the circulatory apparatus as a whole and not as made up of nerves, arteries, muscle and valves.

## A NEW ASPIRATOR

H. B. PHILIPS, M.D., NEW YORK

This aspirator, designed principally for thoracentesis of the pleura, consists of a bottle, a suction pump, a dial manometer, a needle holder with different sized needles, and connecting rubber tubing. It is an extension in usage of the Philips emphyema apparatus for simple thoracentesis of the pleura. It incorporates in the usage of the apparatus the advantages offered in the original emphyema apparatus.<sup>1</sup>

## OPERATION

The needles, needle holder and connected rubber tubing, up to the first glass connecting rod, are sterilized. The selected needle is now forced firmly on the needle holder, and the tubing of the holder connected to that of the bottle. The clamp just distal to the needle holder is shut, and a negative pressure of 40 mm. of mercury is produced in the closed system, by means of the suction pump. The needle is now very slowly introduced into the skin, and when the orifice of the needle is entirely beneath the superficial layers of the skin, the clamp next to the needle holder is released. The needle is now forced, very slowly, into the tissues. Emphasis is placed on the words "very slowly," for it is



Aspirator for thoracentesis of pleura.

possible, by so doing, to stop the needle when the orifice is almost flush with the parietal pleura, which will be indicated by the appearance of the aspirated fluid, in the glass connecting rod, next to the needle holder. In this way the danger of traumatizing the lung by the aspirator needle is made minimal. The pleural fluid will now flow into the bottle under the previously established negative pressure. The lung will expand gradually. As it expands, naturally the negative pressure will diminish. It can be increased, at will, by aid of the suction pump. The desired amount of fluid is aspirated, and the desired negative pressure produced in the system, which now includes the pleural sac, before the needle is withdrawn. Thus an expanded lung, in a pleura with a measured negative pressure, is assured at the end of the procedure.

2178 Broadway.

1. Philips, H. B.: A New Method of Continuous Drainage for Emphyema, *Surg. Gynec. & Obst.* **24**: 236 (Feb.) 1917. Philips, H. B.; Laugmann, A. G., and Mix, C. L.: Emphyema at Camp Mills, L. I., *J. A. M. A.* **72**: 1274 (May 3) 1919.

Care of the Eyes.—The adjustment of the frames of glasses is as important as the correct strength of the lenses. Many a time properly prescribed glasses fail to remove eye strain because of faulty adjustment of the frames.—W. M. Carhart, *Pub. Health*, Michigan, September, 1919.

1. Mackenzie, Sir James: *Brit. M. J.* **2**: 563 (Oct. 16) 1915.  
2. Swan, J. M.: How Shall We Tell Whether or Not the Myocardium is Competent? *Arch. Int. Med.* **15**: 269, 1915.

3. Mackenzie, Sir James: *Diseases of the Heart*, Ed. 3, New York, Oxford University Press, 1918, p. 4.

4. Barringer, T. B., Jr.: *Am. J. M. Sc.*, **155**: 864 (June) 1918.

5. Graepner: *Deutsch. med. Wochenschr.* **20**: 1028, 1906; *Ztschr. f. exper. Path. u. Therap.* **2**: 113, 1916.

6. Barringer, T. B., Jr.: *Cardiac Function*, *Arch. Int. M.* **17**: 363 (March) 1916; *ibid.* **17**: 670 (May) 1916; *ibid.* **20**: 829 (Dec.) 1917.

7. Kahn, Morris H.: *Am. J. M. Sc.* **157**: 634 (May) 1919.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY,  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### SUGGESTION

Suggestion is not only a potency in treatment, but also a potent cause for error in therapeutics. In originating and perpetuating mistaken ideas in therapeutics, suggestion acts in two ways: Working on the patient's mind it endows any remedy, no matter how inert, with curative powers; and, by affecting the mind of the physician, it makes him see therapeutic success where he confidently looks for it. Furthermore, the *vis medicatrix naturae* keeps alive not only our patients, but also therapeutic fallacies and panaceas. Any remedy, even though it be worthless, that a physician uses frequently in his practice, appears to him highly successful because of the fact that most patients have the natural tendency to get well. The Frenchman's saying, "The extremes touch each other," finds a good illustration in the fact that, in therapeutics, optimism is as bad as pessimism, if not worse. The former engenders the latter. What we need is an open minded yet critical attitude, an abiding hope and unconquerable enthusiasm, accompanied by the perpetual question mark: Is it true?

### THERAPEUTIC TECHNIC

As there is always a best way of doing things, there must be a best way of obtaining a certain therapeutic result. Most of us use remedies in a particular manner, because we happened to get into the habit of doing so, and without reflecting whether our accustomed way is the best way. It has well been said that, if surgeons paid as little attention to their technic as physicians do, surgery would be much less popular and less successful.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1215)

#### CATHARSIS AS A CAUSE OF CONSTIPATION

##### CONTRAINDICATION OF CATHARSIS IN ACUTE PAINFUL CONSTIPATION

In acute constipation, accompanied by severe abdominal pain, surgeons are agreed that purgatives are pernicious.<sup>9</sup> In this condition, the patient is not in danger because his bowels do not move; a person may have no bowel movement for a week without danger. The patient's danger lies in the condition that produces the pain as well as the obstipation. If the bowels can move, they will do so without recourse to drastic measures; if they cannot move, drastics will do great harm. When there is a complete mechanical closure of the lumen of the bowel, no cathartic, however strong, is capable of overcoming the obstruction. Instead of producing a bowel movement in these cases, the increased peristalsis forces intestinal contents back into the stomach, increasing the foul vomiting so

characteristic of the condition; while at the same time the driving of the intestinal contents against the obstruction aggravates the damage existing at that point, leading to dilatation, sloughing, hemorrhages, and even perforation. If the obstruction is due to paralysis of the bowel from localized inflammation of the intestine, especially if the infection involves the peritoneum, the patient's comfort and safety depend on diminution of peristalsis; for not only is rest required for cure, but also the danger of general dissemination of the infection throughout the peritoneal cavity is lessened. Should the obstruction be due to spasm, increasing the peristaltic activity by means of cathartics merely serves to increase the spasm and the obstruction. We may, therefore, formulate this therapeutic axiom: Violent abdominal pain unattended by diarrhea contraindicates the administration of a purge.

What, then, the practitioner may ask, is to be done in cases of acute painful constipation? The proper treatment is outlined by M. L. Harris<sup>9</sup> as follows:

Wash out the stomach with warm physiologic salt solution or dilute soda solution and keep it empty. Then empty the lower bowel by means of enemas, so that the entire intestinal tract may be placed as nearly at rest as possible. It is unnecessary to feed these patients for a time, for they never die of starvation; but they do need water, and this should be administered subcutaneously in the form of physiologic salt solution, from 1,000 to 2,000 c.c. in the twenty-four hours. This treatment places the patient under most favorable circumstances to aid nature in bringing about a cure; and, if operation is found necessary, he is in the best possible condition for it.

#### ROUTINE USE OF CATHARTICS

The routine administration of cathartics before operation has of late been attacked, most especially by Alvarez,<sup>10</sup> on the following grounds:

1. Danger of dissemination of infection throughout the peritoneal cavity, in case localized infection exists.

2. Increased absorption of toxins and greater bacterial activity by reason of the fact that undigested food has been carried down into the colon to serve as pabulum for bacteria, and that liquid feces form a better culture medium than solid feces.

3. Increased distention of the intestine with gas and fluid, when it should empty. This is especially true when magnesium sulphate is used, as Alvarez and Taylor<sup>11</sup> have shown by experiments on rabbits. The danger of soiling the intestine is greater than with solid feces.<sup>12</sup> The small intestine is practically always empty twelve or more hours after a meal; hence an operation in the morning surely does not require purgation to clear the small intestine. The colon in which feces may stagnate can easily be cleared by enemas; and these need be given only to those who are definitely constipated, or who are to undergo an operation on the lower colon or on the pelvic organs.

4. Psychic and physical weakness produced by dehydration of the body, disturbance in the salt balance of the system, and the loss of sleep occasioned by the frequent purging during the night preceding the operation. As Oliver Wendell Holmes<sup>13</sup> says:

<sup>10</sup> Alvarez, W. C.: Is the Purgation of Patients before Operation Justified? *Surg., Gynec. & Obst.* **26**: 651 (June) 1918.

<sup>11</sup> Alvarez, W. C., and Taylor, J. B.: Changes in Rhythm, Irritability and Time in the Purged Intestine. *J. Pharmacol. & Exper. Therap.* **10**: 365 (Nov.) 1917.

<sup>12</sup> Mayo, W. J.: Radical Operations for the Cure of Cancer of the Second Half of the Large Intestine. *J. A. M. A.* **47**: 1107 (Oct. 19) 1916.

<sup>13</sup> Holmes, O. W.: *Currents and Counter Currents in Medicine*, Boston, 1861, p. 37.

\* This is the second of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

<sup>9</sup> Harris, M. L.: Dangers from Indiscriminate Use of Cathartics in Acute Intestinal Conditions. *J. A. M. A.* **44**: 622 (Feb. 15) 1905.  
Quain, E. P.: Some Observations on Catharsis. *J. A. M. A.* **59**: 27 (July 6) 1912.

If it were known that a prize fighter were to have a drastic purgative administered two or three days before a contest, no one will question that it would affect the betting on his side unfavorably. If this be true for a powerful man in perfect health, how much more true must it be of the sick man battling for life.

5. Increase in postoperative distress and danger: thirst, gas pains, and even ileus. The widespread postoperative use of saline infusion, in its various forms, testifies to the body's need of fluid immediately after operation. How much greater must this need be when, by means of liquid bowel movements a few hours previously, much fluid was abstracted. The weakening of some parts of the bowel, and making others more irritable, in other words, the upsetting of the gradient of intestinal muscular forces,<sup>14</sup> predisposes to flatulent distention, and gas pains. The changes described, as well as the absence of solid matter in the bowel, makes resumption of colonic activity much more difficult; and this favors the development of ileus. The purged bowel is notoriously irresponsive to further purgation, and hence, in emergency, might not respond to an appeal by cathartics, when without previous exertion it would have done so.

6. After all, however, the most important and conclusive objection is contained in the sentence used by nearly all who write against preoperative purgation. "Every surgeon has noticed that the emergency patient who comes to the hospital in need of immediate operation has as good postoperative recovery and as uneventful a convalescence as the patient who is, so-called, properly prepared. It makes little difference whether it is a case of acute appendicitis or a crushed limb requiring immediate amputation."<sup>15</sup> If this is true, and the evidence is so strong that those who believe otherwise would have to bring proof to the contrary, then routine preoperative purgation must be relegated to our professional sins of the past.

Henry T. Byford<sup>16</sup> agrees, in the main, with advocating the discontinuance of routine preoperative purgation and dieting. He would, however, empty the bowel in those who are habitually constipated. Regarding postoperative purging, he believes that early purgation is required in those cases in which sufficient intraperitoneal traumatism has occurred to give rise to danger of subsequent adhesion, as peristalsis actually helps to maintain a permeable canal until the adhesions have formed and the danger of obstruction is past. When, on the other hand, there has been resection or extensive repair of the intestine, purging should not be employed until a certain amount of intestinal exudate has had time to seal up the intestinal suture line.

Regarding the utility of using cathartics in postoperative ileus, we might quote Alonzo Clark:<sup>17</sup>

When purgatives succeed, they simply show that peritonitis, if present, was not extensive enough to preclude recovery. If the intoxication is severe enough, the bowels will never move again and the patient will die, no matter what is done.

14. Alvarez (J. A. M. A. 65:388 [July 31] 1915) has shown by means of experiments on excised intestinal segments, that the intestinal contents move from the more active and more irritable regions of the intestine above to the more sluggish, less irritable regions below. This he calls the intestinal gradient. The regular uninterrupted progress of material in the bowel depends on the smoothness of this gradient.

15. Peet, M. M.: Rational Preoperative Treatment with Special Reference to Purgation, J. A. M. A. 71:175 (July 20) 1918.

16. Byford, H. T.: Purgating Before and After Abdominal Section, J. A. M. A. 72:474 (Feb. 15) 1919.

17. Clark, Alonzo: Pepper's System of Medicine, Philadelphia, 2:114, 1885.

Perhaps nowhere is the routine use of cathartics more firmly entrenched than in obstetrics. The dicta, "The bowels should be opened on the second day," and "When fever occurs, the bowels should be opened immediately," form the basis of orthodox precept and practice. That this custom should be abandoned is advocated by McPherson,<sup>18</sup> who showed that routine purgation after confinement is not only useless but harmful. Of 322 women who were not purged, only three had fever (and one of them had a mammary abscess); most of them had normal bowel movement; and those who did not were given an enema every third day. Of 322 women who were delivered by the same technic and the same operators but were purged in the usual routine manner, twenty-eight had some fever. He concludes that low grade fever of the puerperium may be due to catharsis, to the stirring up of colonic bacteria, and to the spreading about the mother's soft parts of loose diarrhetic movements. He also finds that, when fever develops in the puerperium, purgation does not help matters much, and occasionally makes them worse. While there may be occasional need for cathartics in the puerperium, McPherson condemns their routine administration.

For the abstraction of fluid from the system, cathartics still form a part of the time-honored routine treatment of dropsy. Drink restriction, however, seems more rational than drastics for diminishing the amount of fluid in the system; furthermore, to produce an artificial diarrhea in a waterlogged patient, who is moved about in bed with much difficulty, is a veritable torture,<sup>19</sup> and quite unjustifiable in view of the poor results obtained. Thus Gee<sup>20</sup> says: "Purgatives in dropsy are not of much use. The practice is a survival. If we cannot act upon the kidney, we should do nothing to add to the patient's discomfort."

Routine detoxication by way of the bowel has almost universal endorsement in the treatment of uremia. Still, even here it should not be used in a thoughtless manner. Many of these patients are afflicted with vomiting and purging. In such, cathartics would obviously be contraindicated. Drastic catharsis may set up an exhausting diarrhea.

From the foregoing discussion it may seem that the day for the use of cathartics is past. This is by no means the case. A measure like this, used from time immemorial, must have some intrinsic value, and everyday medical experience has established it indisputably. One thing is certain, however, the day for routine purgation has passed. When mixed (like artists' colors) with brains, cathartics still form one of our most important means of diagnosis and treatment.

#### TYPES OF CONSTIPATION IN WHICH CATHARTICS ARE USEFUL

For bed patients, to antagonize the natural tendency to constipation engendered by recumbency, cathartics are probably desirable. They generally do no harm, as, with convalescence, the normal condition of the bowel returns spontaneously. When a person previously in robust health is suddenly taken with severe illness, evacuation seems to be especially indicated. The change in the patient's condition is bound to inter-

18. McPherson, R.: The Routine Use of Cathartics during the Puerperium, Bull. Lying-In Hosp., New York, 11:118 (May) 1917.

19. Hirsch and Wagner, in Krause-Garré: Lehrbuch der Therapie Innerer Krankheiten, 2:522.  
20. Gee, S. J.: Medical Lectures and Aphorisms, Oxford Univ. Press, 1908, p. 268.

fer with the proper digestion of the food ingested a short time previously. Here, our forefathers in medicine employed emetics as well as cathartics. We may at least feel justified in hurrying through the intestine the material, whose proper digestion has become impossible by the change in digestive functions. Cathartics, even castor oil, should be avoided in typhoid fever and in measles. In these conditions, if evacuation is insufficient, enemas will have to suffice, as the production of diarrhea has been found to be distinctly detrimental.

We should, of course, avoid the routine use of cathartics, even in bed patients. Let us use them only when we must. The traditional use of calomel as the "initial purge" is probably unnecessary, and that of salines undesirable. When a cathartic is indicated in a bed patient it is generally because of deficiency in peristalsis, produced by lack of bodily movement. Hence, agents that stimulate peristalsis, as, for instance, cascara sagrada, should be employed rather than the salines, which are notoriously unreliable in bed patients, because they merely increase the bulk and fluidity of bowel contents without having much effect on peristalsis.

#### SYMPTOMATIC CONSTIPATION

There are patients suffering from symptomatic constipation rather than from the essential form, such as those with minor degrees of chronic intestinal obstruction, and those whose bowels do not functionate properly because of chronic appendical or gallbladder disease,<sup>21</sup> who can keep themselves comfortable for an indefinite time by more or less habitual use of cathartics. In such patients the constipation usually begins later in life. They generally suffer from abdominal discomfort, frequently pain, and at times from violent attacks of indigestion. They occasionally have diarrhea alternating with constipation. We must also add to this category sufferers from carcinoma of the bowel, as well as those afflicted with inflamed hemorrhoids or other painful anorectal diseases. Of course, in all of these, etiotropic therapy should be resorted to whenever possible, and surgery or massage may in appropriate cases rescue the sufferer from becoming a slave to the purge. Yet there are many who will not resort to radical treatment, or cannot have it, who can, by submitting to such enslavement, make themselves comfortable. Among those who cannot have radical treatment must be classed cases too obscure to enable one to advocate operative measures. With many a physician it is a rule of practice to prescribe to patients suffering from a chronic tendency to abdominal pain a course of laxative treatment. This procedure is not only of therapeutic but also of diagnostic value. The most useful drugs for this class of cases are either salines or oils. For painful anorectal conditions, sulphur probably also deserves consideration. We can very well understand how the liquid, or very soft bowel contents, resulting from the administration of these agents, may slip by or through a narrowing, or an adherent or otherwise disabled portion of the intestine, with less difficulty than more consistent matter would. This lessens the violence of peristalsis required from the proximal segment of the bowel, and, with it, colic or other distresses resulting therefrom.

<sup>21</sup> These may produce constipation by causing stenosis, or else by upsetting the intestinal "gradient" (Alvarez), a lower portion of the intestine having become more irritable than the portion above it.

It may also be that we reestablish a disturbed intestinal gradient by increasing the irritability of the bowel above an abnormally irritable segment. As various cathartics have special action on certain intestinal segments, for example, podophyllum on the duodenum and aloë on the colon, we can understand why, with certain patients, one cathartic, and with other patients another one, acts best. More detailed knowledge of these specific effects of purgatives on special portions of the intestine is desirable, especially as we now can localize, by means of roentgen rays, the seat of disturbance in the patient's intestine. Had we this knowledge we could predict with scientific precision which cathartic will act better in a certain patient.

The constipation of those crippled by age, incurable infirmity, or chronic systemic disease, such as kidney, liver, heart or lung affections, likewise requires habitual catharsis. The constipation, generally produced in these cases by the abnormal mode of living forced on them by their disease or debility, is liable to aggravate the underlying disturbance, thereby resulting in a vicious circle, which may be broken in on and prevented by maintaining sufficient evacuation of the bowel.

Sufferers from a weak or diseased intestine, or a weak constitution, who need habitual catharsis—just as a person with weak ciliary muscles needs eyeglasses, or a person with a weak leg needs a crutch—should have such cathartic prescribed for them with at least as much care to fit them properly as is taken in refracting a patient's eye. For habitual use, whenever possible, pill form should be preferred because of its convenience. This form of administration is, of course, impossible for those who need oils or salines; but for those who do not require softening of the stools the purgative pill must be considered ideal. The study of the best composition of such pills will be taken up later. One thing may, however, be emphasized here, namely, that a habitual pill generally needs not to be given daily. In the interest of economy, not only financial but functional as well, we should lay down the rule that the dose be taken only in the evening of those days on which no bowel movement occurred. This secures a bowel movement at least every second day, which is commonly sufficient, and saves many a dose of drug.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

**ANTISTREPTOCOCCUS SERUM** (see New and Nonofficial Remedies, 1919, p. 272).

The Gilliland Laboratories, Inc., Ambler, Pa.

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SATURDAY, OCTOBER 25, 1919

## TUBERCULOSIS IN HEALTH RESORTS FOR THE TUBERCULOUS

The fear of infection from contact with tuberculous patients is still widely prevalent among the laity. This phthisiophobia has often presented an obstacle to the institution of desired relief measures in the management of the tuberculous. The "fear born of ignorance" is not directed to these unfortunates alone. Even today it is frequently a difficult task to secure a suitable site for any contagious disease hospital in the vicinity of human habitations. The dread with which such an institution is still contemplated cannot be dispelled by exhortations or governmental edicts. The absence of special dangers in the environment of hygienically managed sick persons must be demonstrated in ways that will bring conviction to those capable of independent reasoning.

The experience of a community frequented by tuberculous individuals who live with and among other residents, with no attempt at segregation of the sick from the well, ought to contribute convincing data. A survey recently made of the indigenous incidence of tuberculosis at Saranac Lake in the Adirondacks affords a striking illustration.<sup>1</sup>

This settlement has grown from small beginnings in the pioneer days of the late Dr. E. L. Trudeau into a health resort of prominence for patients afflicted with tuberculosis, especially of the pulmonary type. About one fifth of the total population of several thousand persons is made up of individuals who went to live at Saranac Lake for their health. According to the statistics gathered in 1917 by Ames<sup>1</sup> under a fellowship grant of the Trudeau Foundation, the indigenous morbidity and mortality from tuberculosis were low, only 0.3 per cent. of living cases being found among the native born and 0.9 per cent. among previously healthy residents. The few facts on record for European health resorts likewise indicate that tuberculosis does not increase among the native population after tuberculous patients reside in a community, despite the assump-

tion that a concentration of infectious foci might increase the occurrence of clinical manifestations of the disease even in the presence of better hygienic surroundings. The health resorts of Colorado are not regarded as a menace to the residents. From the consensus of evidence, Ames ventures the logical conclusion that there is a minimum of danger of infection of healthy adult residents of resorts frequented by tuberculous patients. In harmony with this finding is the attitude of the inhabitants. Fear is absent. Education through observation and experience has dispelled phthisiophobia. The tuberculous person in such enlightened communities is free from the stigma that so often is a barrier to his progress, even after health has been restored.

## SCURVY IN ANIMALS

Much of the recent progress in the science of nutrition is directly attributable to the results of experiments on the lower animals. More recently, the dog, cat and rabbit, long classic subjects of feeding trials, have been replaced by smaller species, including the mouse, rat, guinea-pig and pigeon. How large a part these animals have played in establishing the rôle of vitamins in the diet, readers of THE JOURNAL have had repeated occasion to learn. Yet whenever a research, concluded through the use of some single species for investigation, brings some striking new fact of nutrition, one almost instinctively asks whether the finding is of more general application, particularly in the case of the human animal.

Lately scurvy has been the subject of lively interest among investigators. Definite symptoms, resembling in several details those found in infantile scorbutus, can be induced in the guinea-pig by dietary deficiencies. Most striking thus far are the predisposing effects of exclusive cereal diets, the curative or antiscorbutic potency of fresh fruits and vegetables, and the loss of this valuable property of foods through certain methods used in their conservation, notably heat and desiccation. It is reported that in the recent campaigns in Mesopotamia the British forces in some places were afflicted with scurvy as the result of the constant and exclusive use of dried foods.<sup>1</sup> Since the dehydration of vegetables gives promise of possibilities of conservation of crops and economy in transportation, considerable interest has been focused on the use of products thus preserved. Of course, as Prescott argues, the bearing of the animal experiments on the use of dried vegetables in the army or elsewhere is of secondary matter, since it is only under most unusual conditions that a diet would be made up entirely of dried foods, and then only for limited periods. It is more than likely that, even so, improved methods of drying may succeed in preserving the antiscorbutic potency of fresh vegetables.

1. Ames, Forrest B.: A Tuberculosis Survey of the Residents of Saranac Lake, New York, *Am. Rev. Tuberc.* 2: 37 (June) 1918; reprinted in the thirty-fourth Annual Report of the Trudeau Sanatorium for 1918.

1. Prescott, S. C.: Dried Vegetables for Army Use, *Am. J. Physiol.* 19: 573 (Sept. 1) 1919.

So long, however, as the guinea-pig experiments confront us, the danger of scurvy is an important academic question, even if not a national or regional menace. Can the more recent observations on guinea-pig scurvy be repeated in the same way in other species? It has long been known that scurvy can develop in the monkey, the analogue of man in various physiologic reactions. At the Lister Institute of Preventive Medicine in London, Harden and Zilva<sup>2</sup> have duplicated, by the exclusive use of heated foods in monkeys, the untoward scorbutic symptoms so easily developed in guinea-pigs in a comparable way. Furthermore, orange juice has again proved its antiscorbutic potency in this species also. It seems demonstrated, therefore, that scurvy in the guinea-pig, monkey and man alike is occasioned by the lack of a specific vitamin that is not stable toward heat. Added confidence is accordingly acquired in the informational value of the animal experiments.

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#### THE FATE OF SALICYLATES IN THE BODY

One of the fundamental requisites in the rational, as contrasted with the purely empiric, use of drugs is a knowledge of precisely what happens to them in the organism, as well as of what pharmacologic effects they exert. In the long run, the influence of a potent substance may depend not only on its immediate manifestations but also on delayed reactions due to accumulations of an active compound. Some foreign substances are very promptly excreted; others tend to be stored to a greater or less extent, so that they can manifest cumulative effects; still others are in some measure destroyed within the organism. Scientific therapy must be based on a knowledge of the fate of the drugs that it employs.

The older literature on the salicylates, one of the most widely used groups of therapeutic agents, gives the impression that the salicyl radical leaves the body virtually unchanged.<sup>3</sup> According to the more recent investigations of Hanzlik<sup>4</sup> and his collaborators at the Western Reserve University School of Medicine, however, about 20 per cent. of salicylate administered to normal human individuals is destroyed, since the loss cannot be accounted for in sweat and feces, or by retention in the body. According to the view of Hanzlik and Wetzel,<sup>5</sup> this destruction is not associated with any special organs, but appears rather to be dependent on the general functions of metabolism. It goes on in excised organs and apparently in tissue pulp. The power to destroy salicylates is by no means limited to the organs of the higher animals; for Hanzlik and

Wetzel have recently ascertained that weak solutions of sodium salicylate gradually deteriorate unless they are protected from microbiotic forms by means of efficient antiseptics. Yeasts and fungi can destroy the drug.

If the destruction of the salicyl group is a function of metabolic activity in general, it might be expected that the disappearance of salicylates will be facilitated wherever metabolism itself is augmented. In harmony with such a hypothesis, Hanzlik and Wetzel note increased loss of administered salicylate in fevers, principally in rheumatism and tuberculosis. In nephritis, in which the retention of the drug because of diminished renal excretory capacity might expose it to a greater chance of destruction by the tissues, the theory seems to be confirmed by the observed facts. Drug habitués addicted to the use of alcohol and morphia were found to excrete much less salicyl than normal persons, owing perhaps to an acquired power of their organisms for increased destruction of drugs.

It is a fact familiar to therapeutists that a low concentration of salicyl in the blood and tissues, which must be the result of smaller doses of salicylates and related compounds, is not an effective antiseptic within the body. The destruction of the drug may afford the reason for this and also indicate why large doses are required to secure therapeutic effects.

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#### REACTIONS TO CHILLING OF THE BODY SURFACE

There can be little doubt that chilling of body surfaces may become a contributory factor, if nothing more, in the etiology of pharyngitis, tonsillitis, rhinitis, etc. Although popular writers on health topics tend to decry the fear of drafts as something unworthy of a present-day adult, it will not be easy to convince an unprejudiced observer that the dread of danger from exceptional exposures belongs to the category of hygienic superstitions. Pathogenic bacteria undoubtedly exist on the mucous membranes of the nasopharynx frequently if not continually; yet it is only at certain times that they unfold an undesirable activity.

What makes the mucosa more susceptible to microbial activities after undue exposure of the exterior of the body? One of the familiar explanations of the reaction to cutaneous chilling is that the blood, being driven away from the surface of the body, is directed inwardly so that congestion of the internal parts and organs results. The assumed vasodilatation with its stasis of the vessels in the mucous membranes is thereupon supposed to alter the resistance of the latter to bacterial invaders. Strangely enough, this hypothesis fails to conform with certain facts that have lately been discovered by Mudd and Grant<sup>6</sup> at the Washington

<sup>2</sup> Harden, A., and Zilva, S. S.: Experimental Scurvy in Monkeys, *J. Path. & Bacteriol.* **22**: 246, 1919.

<sup>3</sup> Nordski, M.: Arch. f. exper. Path. u. Pharmacol. **20**: 367, 1886.

Messo: *Ibid.* **26**: 267, 1889.

<sup>4</sup> Hanzlik, P. J., Scott, R. W., and Thoburn, T. W.: *J. Pharmacol. & Exper. Therap.* **9**: 247 (Feb.) 1917.

<sup>5</sup> Hanzlik, P. J., and Wetzel, N. C.: The Salicylates, XI, The Stability and Destruction of the Salicyl Group under Biological Conditions, *J. Pharmacol. & Exper. Therap.* **11**: 25 (Sept.) 1919.

<sup>6</sup> Mudd, S., and Grant, S. B.: Reactions to Chilling of the Body Surface, Experimental Study of a Possible Mechanism for the Estimation of Temperature of the Pharynx and Trachea, *J. M. Res.* **40**: 31 (May) 1919.

University School of Medicine. They have shown ingeniously by direct measurement of the temperature of the skin and of oral and pharyngeal mucous membranes that it actually falls with chilling of distant areas of the body surface and rises again when the person is warmed externally. There is no congestion such as one has been led to expect from much of the current literature on the subject. On the contrary, to quote the St. Louis investigators, their experiments show that chilling of the body causes reflex vasoconstriction and ischemia in the mucous membranes of the palate, faucial tonsils, oropharynx and nasopharynx.

These unexpected findings call for new assumptions to explain the genesis of the "sore throat." We can only reiterate the latest hypothesis presented by Mudd and Grant for criticism. It seems not improbable, they say, that the ischemia incident on cutaneous chilling, by decreasing cell respiration, or by retarding removal of the products of cell metabolism, or by increasing the permeability of the epithelial cell surfaces to bacterial products, or by decreasing the local supply of antibodies, or by altering the media of the tonsillar crypts and folds of pharyngeal mucosa in which bacteria are living, or by a combination of such factors, so disturbs the equilibrium between the host and the micro-organisms as to excite infection. The fact that ischemia occurs where congestion has been assumed heretofore to arise is an important contribution; the discussion which has followed this fact must still be regarded as nothing more than a working hypothesis.

## Current Comment

### ADMITTING OUR LIMITATIONS

Ecclesiasticism in medicine, fortunately, is practically a thing of the past. Mystery is left to the quack and the "patent medicine" maker. Modern medicine is not sacro-sanct. There are still, however, some physicians who seem to think that, in medicine at least, open confession is not good for the soul. At fairly regular intervals THE JOURNAL receives protests from correspondents against the misuse by some of the cults and "pathies" of the published statements of well-known physicians. A few days ago a physician sent in a booklet that is sold by a chiropractic concern for the use of the followers of that trade. The booklet, of course, eulogizes chiropractic and damns scientific medicine. The peroration contains a quotation credited to Dr. Richard C. Cabot and said to be taken from his "Layman's Handbook of Medicine." It is to the effect, briefly, that the number of specific drugs is limited and that, in most cases, nature, with some help from the physician, accomplishes the cure. Our correspondent was disturbed because he thinks statements similar to that credited to Cabot will break down the public's confidence in scientific medicine. He says, further, that Osler is another man whose public statements have the same tendency. He even inquires, facetiously of course, "Do you suppose Cabot is

employed by the chiropractors to write such literature?" Some of us are likely to forget that scientific medicine does not suffer from a frank admission of its limitations. Such admissions in any science mean progress. Incidentally, one of the greatest indictments against proprietaryship in medicine is the fact that such proprietaryship stifles medical progress because all alleged successes are played up and all failures ignored. Supposing we do admit the limitations of modern medicine. What of it? These limitations exist and it is not only foolish but dishonest to pretend they do not. Yet, in spite of these limitations modern scientific medicine has more to offer the human race in the prevention and cure of disease than all the cults "pathies and fads in existence, and deep down in its inner consciousness the public knows it. Of course, fakers will glibly quote any statement made by reputable physicians that can be twisted into a depreciation of scientific medicine. So, too, will the devil continue to quote Holy Writ.

### LEPTOSPIRA ICTEROIDES AND YELLOW FEVER

In the course of the interesting studies of Noguchi of the Rockefeller Institute of Medical Research on the etiology of yellow fever, it has been demonstrated that the micro-organism *Leptospira icteroides*, which he regards as responsible for the disease, conforms with the well known characteristics of the yellow fever virus in respect to transmission by mosquitoes. Symptoms and lesions closely resembling those of yellow fever in man may be induced in guinea-pigs by the bite of female stegomyia mosquitoes that have previously sucked the blood of animals experimentally infected with *Leptospira*.<sup>1</sup> Noguchi has confirmed older observations that even under natural conditions the percentage of mosquitoes that become infected with the organism of yellow fever by sucking the blood may be very small. He estimates that a single female stegomyia may take up not more than 0.01 c.c. of blood, whereas it requires from 0.1 to 2 c.c. of blood from a patient at the height of the disease to transmit the infection to a nonimmune person. In other words, according to Noguchi,<sup>1</sup> a mosquito occasionally becomes infectious by taking up the one or two micro-organisms that happen to be circulating in the peripheral blood of man, and it is these occasionally infected few that carry the disease. Noguchi has secured further information of value in regard to the behavior of *Leptospira icteroides*. This organism is associated in its development with blood serum, which is supplied by the blood-sucking insect. It cannot survive the concurrence of other "less fastidious organisms, such as bacteria." For this reason, the comparatively aseptic body cavity of the stegomyia furnishes a secure shelter for the parasite which, owing to its capacity to penetrate bacteria-proof filters, probably soon pierces the tissues of the alimentary tract after it enters the mosquito and reaches a spot favorable to its maintenance. The temperature range favorable for the multiplication of *Leptospira icteroides* is from 18

1. Noguchi, Hideo: Etiology of Yellow Fever, IX, Mosquitoes in Relation to Yellow Fever, J. Exper. Med. 30: 401 (Oct.) 1919.

to 37 C. (64.4 to 98.6 F.), with an optimum of 26 C. (78.8 F.), at which it remains viable for a long time. Accordingly, Noguchi points out, the climate in most tropical countries, where yellow fever flourishes, offers optimum conditions both for *Leptospira icteroides* and for the mosquito that harbors and nourishes it.

#### THE EFFICACY OF ANTIRABIC TREATMENT

In the warfare that modern medicine still is called on to wage against the studied hygienic agnosticism of a variety of cults of nonmedical "healers," the statistics of the elimination of disease by vaccination and other modes of sanitary prophylaxis are always a weapon of strength. There is a never-failing source of satisfaction to medical men in the continued demonstration of the blessing conferred on humanity by Pasteur's discoveries. Year after year the records of the success of the antirabic treatment inaugurated by him bring evidences of the indisputable efficacy of therapy based on science rather than on occult phenomena and mysterious personal potencies. During 1918 no less than 784 persons received antirabic treatment at the bacteriologic institute in Lyons, France. More than half of them had been bitten by animals actually demonstrated to have been suffering from rabies. There was not a single death among the patients treated. Since 1900 more than 11,000 persons from the vicinity of Lyons have received antirabic treatment. Only ten persons have failed to be protected, representing a mortality of 0.08 per cent.<sup>1</sup> Of course, those who still proclaim disease to be a myth and who deny the menace of micro-organisms will find nothing remarkable in this record. Fortunately for mankind, those who are so unlucky as to be victims of attacks from mad animals are rarely content to make a trial of "absent treatment" or allied methods.

#### SOME FEATURES OF INTESTINAL PARASITIC INFECTIONS IN CHILDHOOD

So long as an adequate inspection of the children in a group of public institutions can show an incidence of intestinal parasites ranging from 18 to as high as 90 per cent. of the juvenile population in such places, the problem of these infections demands careful study. The figures just quoted were the result of an examination made by De Buys and Dwyer<sup>2</sup> of the stools of nearly 600 persons in seven institutions. The observations indicate that the symptoms commonly regarded as indicative of the presence of "worms" are by no means dependable for purposes of accurate diagnosis. Thus, grinding of the teeth, scratching of the nose, disturbed sleep, ravenous appetite and lassitude were observed in noninfected as well as in infected children. Consequently we are ready to agree with the investigators who established these facts that a necessity exists of emphasizing the importance of a tenable diagnosis

before subjecting any person, and particularly small children, to the ordeal of unnecessary medication to eliminate intestinal parasites. Either the parasites or their ova should be searched for and found prior to the enforcement of anthelmintic therapy. The eosinophilia, valuable though it may undoubtedly be as an indication toward the diagnosis of infection with intestinal parasites, is of course not pathognomonic. None of the more familiar parasites seem to have a definite eosinophilia; and infection with each of them has been demonstrated to occur in the absence of eosinophil increments in the blood. In the group of cases examined by Du Buys and Dwyer, *Trichuris trichiura* was the parasite most frequently found. The other species were, in the order of frequency, *Ascaris lumbricoides*, *Hymenolepis nana*, *Oxyuris vermicularis*, *Strongyloides stercoralis*, *Necator americanus* and *Hymenolepis diminuta*. It is reported that the personal habits and environment of the children seemed to have a direct bearing on the frequency of intestinal parasitic infections. It is significant that, of the institutions studied, they were the most prevalent in those in which systematic medical inspections were never made. From the standpoint of the public health, such facts call for prompt recognition and corresponding official action.

#### NEWSPAPER PROMOTION OF MERCURIC CHLORID POISONING

At regular intervals, to use an ancient metaphor, medical science is butchered to make a newspaper holiday. Few poisons have been so thoroughly investigated as has mercuric chlorid. No other poison has been so popularized by the lay press as has this particular drug, beginning with the case of the Georgia banker of several years ago and, today, concerning the Detroit children dramatically poisoned by a mentally deficient mother with dramatic aspirations. It may be well to recall that no one has contradicted the statement of Sansum<sup>3</sup> based on good experimental evidence—utilizing Carter's and other known methods of treatment—that "it would appear . . . that when 4 mg. or more of mercuric chlorid per kilogram of body weight has entered the tissues at large, death regularly occurs, and that we have no adequate grounds for believing that death is preventable by any known form of treatment." A moment's reflection concerning the recent cases will suggest to the intelligent physician what the facts and the possibilities were. He needs but to bear in mind that the actual amount of mercury received and retained by each child is unknown; that it was several days before any treatment at all was administered, and that almost two weeks had elapsed before the children were brought to Chicago to receive such ministrations as the sensationally advertised specialist might have given them.

1. Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, *J. A. M. A.* 70:821 (March 23) 1918.

2. Spreading Plague.—Many purple bacilli become attached to the mouth parts (the epipharynx, mandibles, labium and maxillae) of the flea, but myriads of them are sucked into the stomach, from which they are finally liberated when the flea is feeding again.—R. W. Doane, *Insects and Disease*, p. 152.

1. The statistics are taken from Roehais, A.: Le traitement antirabique dans la région lyonnaise (1918), *J. de physiol.* 18: 332 (June) 1919.

2. De Buys, I. R., and Dwyer, H. L.: Study of the Stools in Children's Institutions Showing the Incidence of Intestinal Parasitic Infections, *Am. J. Dis. Child.* 18: 269 (Oct.) 1919.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### COLORADO

**New Officers.**—At the forty-ninth annual session of the Colorado State Medical Society, held in Denver, October 7-9, under the presidency of Dr. Francis H. McNaught, Denver, the following officers were elected: president elect, Dr. Frank R. Spencer, Boulder; vice presidents, Drs. Walter S. Chapman, Walsenburg, Josephine N. Dunlop, Pueblo, Guy C. Cary, Grand Junction, and Burgett Woodcock, Greeley; secretary, Dr. Crum Epler, Pueblo (hold over); treasurer, Dr. William A. Sedwick (hold over); delegate to the American Medical Association, Gerald B. Webb, Colorado Springs, and alternate, Dr. Horace G. Wetherill, Denver. The 1920 meeting will be the golden anniversary of the society. The meeting will be held at Glenwood Springs, in September, at a date to be fixed later.

### DISTRICT OF COLUMBIA

**Medical Society Makes Drive for Building Fund.**—The District of Columbia Medical Society is making a drive to raise \$35,000 during October, this amount being the balance needed to complete the society's building fund of \$75,000. The building is to be located on a downtown site which has been purchased. The first floor will be composed of an auditorium seating 600, two committee rooms, two offices and cloakrooms. The second floor will have a library and banquet hall. An important feature will be facilities for registering visiting physicians so that they may obtain their mail at the building.

### FLORIDA

**Examination of Schoolchildren.**—The work of examining the 200,000 schoolchildren of Florida started, October 1, under direction of the child welfare department of the state board of health. Each child will be given a thorough examination, and through a careful follow-up system parents will be notified of any defects to be corrected, with suggestions looking to the physical welfare of the child.

**In Registration Area.**—Efforts of Dr. Stewart G. Thompson, vital statistician of the state board of health, to place Florida in the death registration area were successful last week, when Dr. Ralph N. Greene, Chattahoochee, state health officer, received notification from the U. S. Bureau of Census that the recently completed check showed that more than 90 per cent. of the deaths in this state are registered.

**Personal.**—Col. Raymond C. Turck, Jacksonville, will retire from active practice when he returns from France, according to statements in letters to friends. Colonel Turck was twice gassed, and was awarded the Croix de Guerre, a citation from Marshal Pétain, and the Distinguished Service Cross for gallantry in action.—Dr. W. A. Klaxton, who saw several years' service at the front with the Canadian forces, has lately received his discharge and is now laboratory man of the state board of health at Tallahassee.—Lieut.-Col. William J. Bue, Gainesville, in charge of the base hospital at LeMans, France, during the war, has been discharged from service and has accepted the appointment of assistant state health officer of the state board of health.

**Florida Opposes Leper Colony.**—Acting under the authority of an act of Congress, the U. S. Public Health Service has been seeking an appropriate place in which to establish a national leper colony. After a long, exhaustive survey of the whole country it has finally selected two islands off the coast of Florida. Now the governor and many citizens of Florida are making a strenuous fight against the proposition, claiming that it will injure the good name of Florida as a health and pleasure resort. The islands in question have been pronounced most ideal for a leprosarium. Cedar Key, opposite which the islands are located, was at one time quite a prosperous center on account of the fishing industry. It is reported, however, that this industry has fallen off considerably and that the town is favorable to the dedication of these islands for this humanitarian purpose.

### ILLINOIS

**Conference of Charities.**—The State Conference of Charities and Corrections will be held in Decatur, October 24 to 26, with headquarters at the Orlando Hotel. Among the chief topics of discussion will be family, rural social service, conference extension, the child, correctional program, a plea for mental clinics for schools, and community service.

**Personal.**—Capt. Bellenden S. Hutchinson, V. C., Canadian A. M. C., medical officer of the 75th infantry, a practitioner of Mound City and Chicago, who served for four years with the Canadian Forces and is said to be the only American born officer to receive the Victoria Cross, the highest award for bravery in England, is on leave and visiting friends in Chicago and in Mound City.—Dr. Joseph De Silva, Rock Island, is reported to be seriously ill at St. Anthony's Hospital, Rock Island, suffering from septicaemia.

**Banquet to Pana Physician.**—Members of the staff of the Juber Memorial Hospital, Pana, and ladies were guests, October 3, at the supper served at the hospital, at which Sister Marie, the new sister superior, delivered an address on the general betterment of the hospital. The banquet also marked the organization of the staff of the hospital, the present officers of which are: president, Dr. John H. Miller; vice president, Dr. Roscoe C. Danford, and secretary, Dr. Frederick J. Eberspacher.

### Chicago

**Personal.**—Dr. Arthur W. Stillians has been appointed head of the department of dermatology in Northwestern University Medical School.—In the suit brought by Mrs. Dell Nichols against Dr. Daniel A. K. Steele, in which \$50,000 damages was claimed because of alleged loss of voice, said to have been due to a surgical operation by Dr. Steele, the jury in the superior court, October 11, brought in a verdict in favor of Dr. Steele.

**Resignations from the Faculty of Loyola University School of Medicine.**—The following physicians have resigned from the faculty of the Loyola University School of Medicine: Dr. Lawrence Ryan, dean and professor of surgery; Dr. William J. Butler, professor of medicine; Dr. John S. Nagel, professor of genito-urinary diseases; Dr. George W. Funck, professor of pharmacology, Dr. Arthur W. Stillians, professor of dermatology, and Dr. William D. Zoethout, professor of physiology.

### MARYLAND

**Personal.**—Lieut.-Col. William J. Coleman has returned to Baltimore after twenty-eight months in hospitals in France and Germany as a member of the Medical Corps. Dr. Coleman went overseas with the 116th Field Hospital and served in Alsace at Evacuation Hospital No. 8, near Verdun, at Coblenz, and later at Neunahr, Germany, where he had charge of an American Hospital.—Dr. Charles L. Mattfeldt, Catonsville, health officer of the First District, is seriously ill at St. Agnes Hospital, suffering from a carbuncle.

**New Clinic at the Johns Hopkins Hospital.**—Dr. Winifred H. Smith, Baltimore, has announced that work will be begun in the spring on a woman's clinic at the Johns Hopkins Hospital, which will offer facilities for study and observation in obstetrics and gynecology. The clinic will have a large staff in charge of Dr. J. Whitridge Williams. A one-story and two-story building connected by a corridor will be remodeled into a large five-story structure. The work is to cost approximately \$400,000. The greatest expansion will be in the obstetric department, in which in addition to accommodations for 150 patients, extensive facilities for research and experiment, with laboratory equipment, will be provided. A new nursery will be equipped. These plans also contemplate a building which, if constructed at present prices, would cost at least \$1,500,000, and would be seven stories high. Such a building would enable all departments of the dispensary to be in operation simultaneously.

**Women Physicians Visit Johns Hopkins.**—During a recess in sessions of the International Conference of Women Physicians in New York, thirty-five distinguished women physicians from foreign countries visited the Johns Hopkins Hospital recently and studied facilities at the institution. The general program for the day was arranged by Dr. Florence R. Sabin, Baltimore, who received the delegates. The first inspection was of the gynecologic department, where Drs. Howard A. Kelly, Guy L. R. Lunnner and Thomas S. Cullen acted as pilots. At the Harriet Lane Home, an exhibition of children's diseases was prepared. Dr. John J. Abel, Woodlawn, gave a short address on the general subject of physiology, followed by a talk on dietetics by E. V. McCollum. Dr.

George L. Streeter gave a talk on embryology. Luncheon was served at 1 o'clock, after which Dr. Adolf Meyer, Baltimore, head of the Henry Phipps Psychiatric Clinic, lectured on the work of his department. The remainder of the afternoon was devoted to a study of the obstetric department.

#### MICHIGAN

**Full Time Health Officer Elected.**—Dr. David Littlejohn, St. Joseph, has been elected full time health officer of Flint, succeeding Dr. J. S. Craig, who declined to qualify for the position.

**In the Hands of the Law.**—John F. Roehl, chief inspector of the state health department, is said to have arrested three men of Detroit, September 10, suspected of practicing medicine without a license. They are John W. Wood, Paul Lewis and Tom Kresanthopolis.

**Typhoid at Muskegon.**—An investigation just completed at Muskegon by the engineering department of the state board of health, at the request of the city physician, shows that there have been twenty-five cases of typhoid fever in the city since February 3. The source of the disease is believed to be the water supply.

**Serum Tests at Kiefer Hospital.**—Dr. Henry F. Vaughan, health commissioner of Detroit, announces that twelve beds in the Herman Kiefer Hospital will be placed at the disposal of the Wayne County Cancer Committee, of which Dr. J. Henry Carstens is chairman, that a thorough test may be made of the Koch cancer serum.

**The Passing of Oak Grove Hospital.**—The directors of the Oak Grove Hospital, Flint, announce the contemplated retirement of the institution from the field of psychiatry at the expiration of its corporate life, April 28, 1920. It is hoped that the building and grounds may be kept as a city park in the possession of the public in perpetuity, otherwise the property will be sold as a high school site.

#### MINNESOTA

**Personal.**—Drs. Herman W. Froehlich, Oscar F. Melloy, Andrew J. Paulson and Lawrence F. Fisher, all of Thief River Falls, have associated in practice, and the entire east end of the second floor of the Citizens State Bank Building is being remodeled for their accommodation. A total of twelve rooms will be devoted to the various lines of work of these physicians.—Dr. Robinson Bosworth, St. Paul, has been elected president of the Mississippi Valley Sanatorium Association.

**New State Officers.**—At the fifty-first annual meeting of the Minnesota State Medical Association, held in Minneapolis, October 1-3, under the presidency of Dr. George Douglas Head, Minneapolis, for the following officers were elected: president, Dr. John H. Adair, Owatonna; vice presidents, Drs. Edward M. Clay, Renville, Claude B. Lewis, St. Cloud, and Henry C. Cooney, Princeton; secretary, Dr. Earle K. Hare, Minneapolis (reelected); treasurer, Dr. Frederick L. Beckley, St. Paul; delegate to the American Medical Association, Dr. John W. Bell, Minneapolis, and alternate, Dr. Alfred E. Spalding, Luverne.

**Society Loses Charter.**—Cancellation of the charter of the Brown-Kedwood Medical Society was announced by the Minnesota State Medical Association at its recent meeting in Minneapolis, on account of its failure to try Dr. Louis A. Fritsche, New Ulm, who was removed from the office of mayor by Governor Burnquist on charges brought by the public safety commission. After this action the state medical association passed a resolution giving the society three months in which to bring Dr. Fritsche to trial. As this was not done, the council recommended charter revocation, and this was supported by all excepting two member of the House of Delegates.

#### MISSOURI

**Negro Physician Fined.** September 12, Judge Ralph S. Latschaw is said to have affirmed the fine of Dr. B. B. Paekson, Kansas City, for writing prescriptions for habit-forming drugs in violation of the federal antinarcotic law.

**Ex-Service Physicians Organize.** At a meeting held in Kansas City, September 29, physicians who were formerly in the military service organized, and Dr. George E. Bellows was elected temporary chairman, and Dr. Ernest G. Stark, temporary secretary.

**Few Take Tuberculosis Treatment.**—Although under a recently enacted state law, it is possible for persons suffering from incipient tuberculosis to obtain free treatment at

the State Sanatorium, Mount Vernon, the average number treated at that institution is only 198 while it has a capacity of 300. In the children's building with a capacity of eighty patients, only thirty-five are under treatment.

**Personal.**—Dr. John C. Murphy, formerly gynecologist in the St. Louis City Hospital, has been honorably discharged from the Army and will reside in New York.—Dr. Fred W. Bailey, St. Louis, has been elected post commander of Walter Reed Post No. 136, American Legion.—Dr. Edward L. Cooley, St. Louis, announces that the appearance of his name in the catalogue of the St. Louis College of Physicians and Surgeons is unauthorized as he has no connection whatever with that institution.

#### NEBRASKA

**Announces Medical Examiners.**—The secretary of the department of public welfare has announced the following board of medical examiners: Drs. H. J. Lechnoff, Lincoln, E. T. McGuire, Mead, and J. E. Pratt, Fairfield.

#### NEW MEXICO

**State Society Meeting.**—At the annual meeting of the New Mexico Medical Society held in Albuquerque, October 3 and 4, the following officers were elected: president elect, Dr. Hugh V. Fall, Roswell; president, Dr. Charles A. Frank, Albuquerque; vice presidents, Drs. Chester Russell, Artesia, Frank E. Mera, Santa Fe, and Franklin H. Crail, East Las Vegas; secretary, Dr. Frank E. Tull, Albuquerque; treasurer, Dr. John W. Elder, Albuquerque; delegate to the American Medical Association, Dr. William T. Joyner, Roswell; alternate, Dr. Charles H. Churchill, Madrid. Roswell was selected as the next place of meeting.

#### NEW YORK

**Personal.**—Dr. William A. Holla, Tompkins Corners, has been appointed coroner of Putnam County, succeeding Dr. Parker, deceased.

**Central State Physicians to Meet.**—The annual meeting of the Medical Association of Central New York will be held in Syracuse, October 30.

**Conference on Child Welfare Legislation.**—The regents of the state of New York held a two day conference on child welfare legislation in Albany, October 17 and 18. Among those present at the conference were representatives of labor, health agencies, manufacturers and merchants.

**New State Hospitals.**—The governor of New York, September 13, dedicated the site, and broke ground for the new state hospital for the insane, about 6 miles from Utica. The building when constructed will house more than 3,000 patients, and for this construction the expenditure of \$2,000,000 has been authorized.—Plans are being developed by the hospital development commission for a state psychopathic hospital for New York City, which will be the research department of the state hospitals for scientific studies into the cause and treatment of insanity.

**Establishment of a Dental Clinic in Public Schools.**—A determined effort is being made by the committee on oral hygiene in the First District Dental Society in the City of New York for the establishment and operation of a free dental clinic in every public school in the city of New York. The adoption of the plan of procedure was followed by the adoption of the same plan by the second district society. Letters have been sent to every minister, every principal of a public school and every teacher, asking them to promote the signing of petitions for this purpose and themselves to work for the establishment of the clinics in oral hygiene.

#### New York City

**Personal.**—Dr. Charles Gluck has returned from service in the army and has resumed his practice in Manhattan.—Dr. William A. P. Garrigus has been appointed consulting neurologist and psychiatrist to the Manhattan State Hospital for the Insane, Ward's Island.—Dr. Samuel Lloyd has returned from service in France and has resumed the practice of medicine in this city.

**Permanent International Exposition of Municipal Equipment.**—In connection with the opening of a permanent exposition of municipal equipment in Grand Central Palace, a convention was held during the week of October 20, at which a demonstration was given of the pasteurization of milk and the testing of clinical thermometers. The permanent features of the exposition include a model hospital section, a health center and other exhibits having to do with public health administration.

**Nonmunicipal Hospitals Report Large Shortage of Funds.**

The annual report of the nonmunicipal hospitals of this city shows that these institutions face a deficit of more than \$3,000,000. This deficit is due to the increased cost of hospital operation. The daily cost of maintaining nonpaying patients has risen from \$2.02 in 1914 to \$3.13 in 1919, an increase of 58 per cent. For 1919 the per capita cost is estimated at \$3.50. Last year these hospitals gave free care to 147,422 patients, aggregating 1,202,078 free days. The cost of maintenance for the forty-six hospitals belonging to the association in 1918 was \$9,073,065.

**NORTH CAROLINA**

**Typhoid Develops After Negro Camp Meeting.**—A negro camp meeting was held at Tucker's Grove, Lincoln County, the latter part of August, and more than fifty cases of severe typhoid fever has developed among the negroes in attendance as the result of drinking from a local water supply of questionable character. Two deaths had resulted up to September 20.

**District Physicians Meet.**—At the annual meeting of the Eighth District Medical Society, held in Greensboro under the presidency of Dr. John A. Williams, Greensboro, Winston-Salem was selected as the next place of meeting, and Dr. Frederic M. Hanes and Dr. Wingate M. Johnson, both of Winston-Salem, were elected president and vice president, respectively.

**Personal.**—Drs. Lester C. Todd and Hamilton W. McKay have been added to the staff of the Crowell Urological Clinic, Charlotte.—Dr. R. G. Keiger, Statesville, who has been in charge of the North Carolina bureau for the treatment and prevention of venereal disease, has resigned and has been succeeded by Dr. Millard Knowlton, who has recently been doing work in the United States Public Health Service in Montana.—Dr. James R. Gordon, Raleigh, for six years chief of the bureau of vital statistics of the state board of health, has resigned to engage in stock farming. The bureau will be coordinated with the bureau of epidemiology, and both will be under the charge of Dr. Frank M. Register, Jackson, who recently succeeded Dr. Auley M. Crouch, Raleigh, as state epidemiologist.—Dr. Thomas Stringfield, Waynesville, has been appointed inspector-general, N. C., X. G., with the rank of colonel.—Dr. J. A. Moore has been appointed instructor in histology at the University of North Carolina.

**OHIO**

**Appropriation for Influenza.**—At the meeting of the Cleveland City Council, October 6, an appropriation of \$12,000 was authorized to be used in influenza prevention work.

**Crile Endows Chair at Western Reserve.**—It is reported that Dr. George W. Crile has given \$100,000 for the endowment of a chair of surgery in Western Reserve University Medical School.

**Academy Reopens.**—The fall session of the Cincinnati Academy of Medicine was inaugurated, September 29. Dr. Charles A. L. Reed, delivered an address advocating a wider co-operation of medical men in political affairs of the nation, state and municipality.

**An Industrial Medicine Department Announced.**—It is announced by the president of the University of Cincinnati that \$30,000 of the \$100,000 to be raised by the Ohio business men for support of the Department of Industrial Medicine in process of affiliation with the University of Cincinnati has been raised. Under the auspices of the department, a series of lectures on housing was begun on Thursday evening, October 2.

**Personal.**—Dr. Jonathan Forman, who recently resigned from the position of assistant professor of pathology in the Ohio State University College of Medicine, Columbus, has been appointed teaching professor of physiology in the Medical School of Harvard University.—Dr. Thomas H. Kelly, Cincinnati, was operated on for appendicitis, October 2.—William H. Peters has been reappointed health officer of Cincinnati.—Dr. Phillips A. Jacobs, Cleveland, has been elected coroner of Cuyahoga County.

**Exceed Requirements of Hughes Act.**—The counties of the state, almost without exception, are going beyond minimum of the Hughes act in establishing the new district health department, which will begin operation, January 1. Almost all counties have provided for more workers than the health commissioner, nurse and clerk required by the law. Many of the counties have provided for a salary of from \$3,000 to

\$4,000 a year for health commissioners, and staffs of three or more nurses, and a deputy and sanitary inspectors as may be required by local conditions.

**PENNSYLVANIA**

**New Hospital Plans.**—Following the convention of the National Tuberculosis Association held at the Bellevue-Stratford, October 9 and 10, a movement is on foot to have the city appropriate \$500,000 for a municipal tuberculosis hospital with 500 beds.

**University Hospital Gets Many More Subscriptions.**—Subscriptions received since the close of the University Hospital, October 15, have brought the total up to the \$558,292 mark. The belated subscriptions are being received so rapidly that campaign managers believe the drive may reach its \$1,000,000 goal.

**Personal.**—Dr. B. Franklin Royer, Harrisburg, for ten years associated with the Pennsylvania State Department of Health and acting commissioner of health for one year following the death of Dr. Samuel G. Dixon, has recently been elected chief executive officer of the Massachusetts-Halifax Health Commission which was recently incorporated under an act of the provincial legislature of Nova Scotia.

**Street Crossing Campaign.**—As a result of statistics given to the Rotary Club by Capt. W. B. Mills, assistant superintendent of police, that organization has started a "cross at crossings" campaign and 30,000 posters will be distributed throughout the city. According to Captain Mills, 53,000 persons were injured at street accidents, last year. Of these, 253 were killed outright, 960 were run down by trucks, 2,298 by touring cars, and 1,408 by trolley cars. Of the total number, 2,250 persons were injured because they did not use street crossings.

**RHODE ISLAND**

**New Hospital for Washington County.**—Washington County is to have a hospital at Wakefield, under a charter just issued by the secretary of state. The institution will care for all citizens in the southern part of the state. The South County Hospital Association is the name of the corporation, which will establish and maintain the institution with the aid of voluntary support.

**CANADA**

**Personal.**—Dr. Robert M. Mitchell, superintendent of the Weyburn Mental Hospital, Saskatchewan, has been on a tour of inspection of mental hospitals in the United States and Canada. Among other places visited in Canada were Toronto, Coburg, Whitby, Kingston and Brockville; in the United States, New York and a branch of the Rockefeller Institute in Baltimore.

**Medicolegal Case.**—An unusual case is being tried in the supreme court of Nova Scotia. The plaintiff is suing three doctors of Sydney Mines for damages, alleging negligence and malpractice on the part of the defending physicians for the death of one of his children. The death of the child took place in September from diphtheria, and no antitoxin was administered. One of the defendants is the medical officer of health of Sydney Mines.

**Expenditure on Venereal Diseases.**—The federal government of Canada has set apart \$200,000 for the venereal diseases campaign. Of this amount \$10,000 is to go to the National Council for the Suppression of Venereal Diseases; \$10,000 for the Dominion Department of Health; the balance of \$180,000 is to be distributed among the various provinces of Canada in ratio of population, provided the provinces are willing to devote an equal amount for the same purpose.

**Advisory Board on "Patent Medicines."**—An order in council has been approved at Ottawa, appointing the following members as an advisory board to the department of health on proprietary medicines: Dr. Alexander D. Blackader, Montreal, professor of pharmacology, McGill University; Dr. Robert D. Rudolf, professor of therapeutics in the University of Toronto; Dr. A. McGill, chief analyst for the federal government at Ottawa; Dr. E. W. J. E. W. Lecours, professor of pharmacy, Laval University; Dr. Charles F. Hebbner, dean of the College of Pharmacy, Toronto.

**GENERAL**

**Division of Medicine, National Research Council.**—Dr. Henry A. Christian, Boston, has been appointed chairman of the division of medicine of the National Research Council. This will make it necessary for Dr. Christian temporarily to

move to Washington, D. C. He has been granted a year's leave of absence from his position at the Peter Bent Brigham Hospital and Harvard Medical School.

**Southwest Physicians Elect Officers.**—At the annual meeting of the Medical Association of the Southwest, held at Oklahoma City, October 6 to 8, the following officers were elected: president, Dr. Ernest F. Day, Arkansas City, Kan.; vice presidents, Drs. Horace Reed, Oklahoma City, G. H. West Robinson, Kansas City, Mo., William H. Denderick, Hilt Springs, Ark., and Walter T. Wilson, Navasota, Texas, and secretary, Dr. Fred H. Clark, El Reno, Okla., for the sixteenth consecutive term.

**Military Surgeons Elect Officers.**—At the annual meeting of the Association of Military Surgeons of the United States, which was held in St. Louis, October 13 to 15, under the presidency of Col. Henry P. Birmingham, M. C., U. S. Army, New Orleans was selected as the place of meeting for next year, the time set being three days immediately preceding the meeting of the American Medical Association. The following officers were elected: president, Lieut.-Col. Joseph A. Hall, M. C., O. N. G., Cincinnati; vice presidents, Asst. Surg.-Gen. John W. Kerr, U. S. P. H. S., Washington, D. C., Capt. Frank L. Pleadwell, M. C., U. S. Navy, Washington, D. C., and Brig.-Gen. Francis A. Winter, M. C., U. S. Army, Washington, D. C., and secretary-treasurer-editor, Col. James Robb Church, M. C., U. S. Army, Washington, D. C., reelected.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

New York Society for Ruptured and Crippled, and Nursery and Child's Hospital, New York City, each \$50,000; St. Luke's Hospital, New York City, and Tarrytown, N. Y., Hospital, each \$25,000 by the will of Mrs. Mary J. Kingsland.

Woman's, Lyngby, St. Luke's, Sydenham, Presbyterian and Children's Hospitals, New York City, and three additional hospitals, to be named by the testator's son, \$300,000 each by the will of Solomon Schwasi. A large part of the estate of the testator is to be used in the establishment of the Solomon Schwasi Memorial Hospital.

For a city hospital at Monticello, Ill., to be known as the John and Mary E. Kirby Hospital, a bequest of \$100,000 and the residence property of the late John Kirby.

Fund for the restoration of the San Diego Mission, a donation of \$1,000 from Dr. Marshall O. Terry, New York City.

**Legislation for Instruction in Hygiene.**—A bill to encourage instruction in the hygiene of maternity and infancy and for the promotion of instruction and care in maternity through state cooperation has been introduced in the United States Senate by Senator Morris Sheppard of Texas. The bill provides for an appropriation of \$480,000 to be divided among the states which meet the requirements of the measure. For the next fiscal year, ending June 30, 1921, \$1,000,000 is appropriated with increased amounts for the subsequent five years, after which the annual appropriation is to be \$2,000,000. The administration work is placed with the children's bureau of the U. S. Department of Labor and the various states are required to appoint commissions to conduct the work. The circulation of information on this and allied subjects is the principal purpose of the act. Aid also is provided for colleges and universities for extension courses. A similar measure recently was introduced in the House. The measure has been referred to the Senate Committee on Public Health for consideration.

## FOREIGN

**Deaths in the Profession Abroad.**—Dr. R. Rodríguez Méndez, expofessor of hygiene at the University of Barcelona, director of the *Gaceta Médica Catalana* and member of the editorial staff of the *Revista de Medicina y Cirujía Prácticas* of Madrid since its foundation in 1877. His pupils and other friends recently published an important *libro de honor* in homage to this eminent Spanish hygienist.—Dr R. E. Bion of Zurich succumbed to chronic nephritis assuming a fulminating course, probably the result of infection of the finger on two occasions, compelling amputation, aged 52.

**Graduate Courses on Pulmonary Tuberculosis at Paris.**—It is announced from Paris that a course on pulmonary tuberculosis has been arranged at Paris to be given three times during the year 1919-1920, by specialists, including Drs. Bezançon, E. Rist, G. Kuss, E. Sergent, P. Teissier and L. Bourgeois. Each course is to cover six weeks, commencing October 15, April 15 and June 15. The courses will be eminently practical and will include physical diagnosis, pathologic anatomy, social hygiene, and the technical administration of dispensaries. The lectures will be held in the afternoon and the mornings will be devoted to individual

work in hospitals or dispensaries in the services of the physicians giving the course. The courses are open to all physicians of France or the allied nations or friends of France. For further details address Dr. E. Rist, 5 rue de Magdebourg, Paris. The Rockefeller Commission for the Prevention of Tuberculosis in France has recently announced that it has a limited number of stipends at the disposal of French physicians in charge of the medical service in a preventorium in France, or officially designated by the provincial or municipal authorities or local committees to take charge of such a dispensary.

## LATIN AMERICA

**Gorgas Honored by Academy of Medicine.**—The newspapers of Lima describe the session held at the National Academy of Medicine at which Major-Gen. W. C. Gorgas was made an honorary member of the association.

**New Sanitary Improvements in Peru.**—The government of Peru is about to submit to congress a contract made with American firms for putting in sewers and water supplies in twenty-four of the most important towns of that country.

**Clinical Yearbook of Chilean Hospital.**—The physicians of the Hospital del Salvador of Santiago de Chile have recently organized and have published the "Anuario Clínico de la Asociación Médica del Hospital del Salvador," a well printed volume of 164 pages. Nineteen authors describe interesting cases encountered or discuss the early diagnosis of pregnancy, etc. Dr. Alvaro Covarrubias P. describes his trip to the surgical centers of the United States and his visit to the headquarters of the American Medical Association in Chicago.

**Organization of the Profession in Colombia.**—The *Repertorio de Medicina y Cirujía* of Bogotá has long been preaching the necessity for organization of the entire profession in the Republic of Colombia, and the Sociedad de Pediatría recently took the lead in drawing up a constitution and by-laws which were presented at the Fourth National Medical Congress, in August, with the hope of concrete action. They are published in full for discussion in the latest issue of the *Repertorio*, which in its preceding number reproduced the proposed code of medical ethics. (It was reviewed in these columns at the time, page 1170).

**Ninelieth Anniversary of Founding of the Brazilian Academy of Medicine.**—The Academia Nacional de Medicina de Brazil held a special meeting recently to celebrate its ninetieth anniversary. The Durocher gold medal was awarded on that occasion to Dr. Raul Pacheco for his work on "Eclampsism." In his address on receiving the prize he emphasized the high minimal pressure which he found constant in fifty cases of what he calls eclampsia, a condition which, if prompt measures had not been taken, would almost certainly have developed into typical eclampsia. He insisted that the usual examination of a pregnant woman is not adequate. Besides testing for albuminuria and the Wassermann reaction, the physician should determine the arterial pressure, and particularly the rise in the minimal pressure which is a premonitory sign of eclampsia. The fluctuations in the maximal pressure are inconstant and unreliable from this point of view. The address of the president, Dr. M. Couto, was on illiteracy, which he deplored as so prevalent in Brazil and told how it is a potent factor in the morbidity and mortality of the country, and is proving a serious obstacle to diffusion of enlightenment in matters of preventive hygiene.

**Veneral Disease in Panama and the Canal Zone.**—August 25, there was opened by Major Polgar A. Boreck, M. C., U. S. Army, a venereal clinic at Santo Tomas Hospital, Panama. This clinic will be run on the same general plans as institutions of similar nature in certain sections of the United States, giving modern examination and treatment free to all infected persons who present themselves. So far as is known this is the first free clinic for the treatment of venereal disease to be opened south of the United States, but it is believed that the marked success which is attending this one will shortly warrant the establishment of a second one in the city of Colon.—A meeting of representative and influential citizens of the Republic of Panama and the Canal Zone, was held, September 25, at the National Institute, under the auspices of the Panama Canal Health Department, over which Colonel Fisher presided. The object of the meeting was to consider a program prepared by a committee for minimizing the spread of prostitution and the reducing to its possible limit the spread of venereal disease in the Canal Zone and the cities of Colon and Panama. Colonel Fisher read the program agreed on, which, after being adopted, was ordered to be printed and circulated among the gentlemen present.

## Government Services

### Resolutions for Investigation of Walter Reed Hospital

Further efforts are being made by the House of Representatives for the investigation of Walter Reed Hospital and St. Elizabeth's Hospital, both in the District of Columbia. Two resolutions for this investigation are now pending. Charges of mistreatment of soldier-patients have been made.

### Appropriation for Medical Department

An Act making appropriations for sundry civil expenses of the government for the fiscal year ending June 30, 1920, and for other purposes includes for the Medical Department:

**Artificial Limbs:** For furnishing artificial limbs and apparatus or commutation therefor, and necessary transportation, \$50,000.

**Appliances for Disabled Soldiers:** For furnishing surgical appliances to persons disabled in the military or naval service of the United States prior to Oct. 6, 1917, and not entitled to artificial limbs or trusses for the same disabilities, \$1,000.

**Trusses for Disabled Soldiers:** For trusses for persons entitled thereto under Section 1176, Revised Statutes of the United States, and the act amendatory thereof, approved March 3, 1879, \$1,500.

### Awards for Bravery

The British Military Cross has been awarded to Raymond H. George, Captain, R. A. M. C., Chicago, for bravery in action, with the following citation:

The work done by this officer throughout the operations east of Néppe forest was invaluable. His aid post was constantly subjected to heavy shelling, but by his coolness and splendid example to his staff he succeeded rapidly in evacuating large numbers of wounded. By leaving his aid post and moving about in the open with complete disregard for his personal danger, he enabled the wounded to be gotten away at a time when heavy shell fire was endangering the lives of many of his patients.

Maurice L. Allen, Cleveland, who served with the British Forces has received word that the Military Medal of Great Britain has been conferred on him by King George for conspicuous bravery during the drive in 1918.

The Legion of Honor has been awarded by the French government to Dr. William G. French, Washington, D. C., in appreciation of his work in the children's bureau which he established in Paris, as a war relief measure.

Egbert M. Townsend, Lieut., M. C., U. S. Army, Tilton, Ga., has received the following citation:

An officer of exceptional courage and devotion to duty, showing great disregard of personal safety went about on the battlefield and gave first aid to soldiers who were wounded and unable to reach the first aid station; this being done in the face of violent enemy shell fire. After being severely gassed in the Verdun sector, Lieutenant Townsend requested that he be not evacuated, although his condition necessitated same. As soon as he had slightly recovered from the effects of gas, Lieutenant Townsend requested that he be sent back to his post. The devotion to duty and courage shown by this officer is meritorious of the highest praise.

Malone Duggan, Major, M. C., U. S. Army, San Antonio, Texas, has been cited for courageous and meritorious service at the front.

While on duty with the 6th Division, Major Durgan displayed great courage as regimental surgeon in that he advanced with the unit and made possible the evacuation of wounded to well-prepared stations in the rear.

Harold E. Clark, Captain, M. C., U. S. Army, Detroit, has been cited in orders for distinguished conduct in action.

Captain Clark, at that time attached to 1st Battalion, 60th Infantry, did, at Ponta Mousson, France, on September 25 and 26, 1918, render valuable services and show great devotion to duty and disregard for personal safety by establishing and maintaining a First Aid Station, which was constantly under heavy shell fire for about eighteen hours. At Sadeline Farm, from Oct. 14 to 17, 1918, Captain Clark again showed the same devotion to duty by remaining at the First Aid Station and attending to the wounded without rest or sleep for over seventy-two hours, and from Oct. 26, 1918, to the date of signing of the Armistice, he continually kept his First Aid Station in advanced position much of the time under heavy shell fire.

William H. Bishop, Lieut.-Col., M. C., U. S. Army, New York, who was appointed a chevalier of the Legion of Honor,

was invested with the honor in Washington, D. C., the ceremony being performed by General Colardet, Military Attaché of the French Embassy. The citation states that the proposition for the Legion of Honor is based on "exceptionally meritorious and conspicuous service with the base hospital at Orleans, France."

### HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

#### ALABAMA

Ahnona—Kehatrick, L. A. (L.)  
Birmingham—Harris, C. S. (L.)  
Wilson, I. E. (M.)  
Winn, L. M. (C.)  
Camp Hill—Langer, W. T. (C.)  
D'Alton—Chaudron, P. O. (L. C.)  
Fitzpatrick—McLaurine, H. F. (L.)  
Fulton—Adams, B. F. (C.)  
Janson—Davis, J. H. (L.)  
Mobile—Jones, C. T. (L.)  
Perdue Hill—Broughton, W. E. (L.)

Toledo—Hatchett, W. C. (L.)  
Woodville—Hodges, R. (C.)

#### ARKANSAS

Bauks—Smith, S. (L.)  
Denville—Pool, T. J. (L.)  
Heber Springs—Matthews, J. T. (L.)

Little Rock—Bledsoe, E. P. (C.)  
Day, E. O. (L.)  
Gardiner, H. L. (C.)  
Jobe, A. L. (C.)  
Jine Bluff—Seales, J. W. (C.)  
Tevsams—Dale, R. (L.)  
Walcott—Majors, W. M. (L.)

#### CALIFORNIA

Berkeley—Bull, E. C. (C.)  
Do—Dowling, S. R. (C.)  
Colfax—Robney, H. T. (C.)  
Los Angeles—Carter, R. A. (L.)  
Crak, C. W. (C.)  
Oakdale—Smith, C. E. (M.)  
Oakland—Kergan, J. T. (L.)  
Pomeroy, G. T. (C.)  
Pasadena—McMillan, E. H. (L.)  
San Francisco—Bell, J. L. (M.)  
Eaves, J. M. (L.)  
Gedney, F. M. (C.)  
Jones, R. A. (L.)  
Parkinson, R. H. (C.)  
Richland—G. H. (L.)  
San Gabriel—Chamley, O. D. (L.)  
Santa Cruz—Parker, C. H. (M.)

#### COLORADO

Denver—Dewey, A. W. (C.)  
Metz, C. W. (C.)  
Talbot, R. E. (M.)  
Van Meter, L. M. (M.)  
Fort Morgan—Clarke, E. R. (L.)  
Grand Junction—Stiles, F. N. (C.)  
Pueblo—Adams, E. S. (C.)  
Hein, G. E. (L.)

#### CONNECTICUT

Hartford—McManus, J. P. (L.)  
Therrien, E. J. (C.)  
Verlund, C. F. (L.)  
Middletown—Burg, H. L. (C.)  
Naugatuck—Claffey, M. F. (L.)  
Woodford, C. N. (L.)  
New Haven—O'Shansky, A. L. (C.)  
New Milford—Day, R. S. (L.)  
Norwich—Donohue, J. D. (L.)  
Waterbury—Smith, E. L. (C.)

#### DISTRICT OF COLUMBIA

Washington—Bolton, B. R. (C.)  
Cousins, S. C. (L.)  
Ecker, L. C. (M.)  
Hall, C. L. (M.)  
Herschman, M. J. (L.)  
Ong, H. A. (L.)  
Parker, E. M. (M.)  
Fatten, W. F. (M.)  
Mariana—Campbell, D. C. (C.)  
Rice, E. F. (C.)

#### FLORIDA

Bethlehem—McCallister, A. (C.)  
Plus Creek—Dwyer, G. W. (M.)  
Jacksonville—Schlers, E. T. (C.)  
Lake City—Rivers, D. G. (C.)  
Leesburg—Randolph, T. L. (C.)  
Mariana—Campbell, D. C. (C.)  
Pensacola—Hixon, F. P. (C.)  
Tampa—Andrews, C. A. (L.)

#### GEORGIA

Agricola—Gibson, W. A., Jr. (L.)  
Athens—Swofford, J. H. (C.)  
Aulata—Dillard, J. A. (C.)  
Augusta—Oertel, T. E. (M.)  
Crawford—Deal, D. L. (C.)  
Lumpkin—Walton, M. C.  
New Holland—Maudlin, J. D. (C.)  
Pelham—Hill, R. A. (L.)  
Senosis—Tridley, J. A. (L.)  
Stapleton—Turner, J. P. (L.)  
Temple—Farmer, J. R. (L.)

#### IDAHO

Lewistown—Harris, F. T. (M.)  
Pocetello—Smith, C. T. (M.)  
Richfield, Fitz, G. G. (C.)  
Troy—McCull, J. M. (L.)

#### ILLINOIS

Argyle—Farney, W. P. (C.)  
Arrowsmith—Haugh, H. A. (L.)  
Aurora—Sherman, A. E. (L. C.)  
Bridgeport—Mangum, W. R. (M.)  
Camp Point—Alarphy, W. W. (L.)  
Channahon—Buckner, F. A. (L.)  
Chicago—Abel, J. A. (L.)  
Bagley, H. P. (C.)  
Baranick, H. (L.)  
Bowman, L. F. (L.)  
Carberry, F. V. (L.)  
Clark, J. F. (C.)  
Clark, W. A. (M.)  
Collins, J. C. (M.)  
Connor, C. H. (L.)  
Conrad, A. C. (L.)  
Culver, H. B. (L.)  
Dalwig, L. F. (L.)  
Elmer, R. H. (L.)  
Dombrowski, E. F. (L.)  
Eckstein, J. W. (L.)  
Edison, H. S. (L.)  
Ellmer, R. H. (L.)  
Falls, F. H. (L.)  
Frost, K. P. (C.)  
Gammage, A. E. (C.)  
Gerstley, J. R. (L.)  
Greig, R. S. (M.)  
Hanchett, W. M. (M.)  
Herrold, R. D. (C.)  
Hunter, J. E. (L.)  
Hyslop, G. W. (L.)  
Israelson, W. (L.)  
Jacobs, F. C. (L.)  
Keenan, T. P. (C.)  
Kelson, G. A. (M.)  
Levinthal, D. H. (C.)  
Luczak, J. H. (L.)  
Luse, H. D. (L.)  
Lusk, F. B. (C.)  
Metzger, J. C. (L.)  
Mielke, E. F. (L.)  
Musselwhite, B. J. (L.)  
Peschman, R. G. (L.)  
Pizan, L. W. (L.)  
Pollock, L. J. (M.)  
Pomeroy, P. G. (L.)  
Pruner, A. C. (L.)  
Remington, S. (L.)  
Rest, O. W. (L.)  
Rosenblatt, S. (C.)  
Rupert, W. H. (C.)  
Kupp, W. A. (L.)  
Sanders, G. E. (C.)  
Sandler, A. S. (L.)  
Sered, H. H. (L.)  
Sharp, C. E. (C.)  
Sloan, L. L. (L.)  
Stern, J. (L.)  
Washburn, J. M. (M.)  
Wolff, H. D. (L.)

Cincinnati—Bridges, J. N. (L.)  
Cowan—Cherry, T. E. (C.)  
Deator—Yarnell, O. (M.)  
East St. Louis—Dowdall, W. T. (L.)  
J...  
Manting, G. (L.)  
Elkville—Chamness, C. J. (C.)  
Exeter—Day, H. L. (L.)  
Forsyth—Lindsay, L. N. (C.)  
Greenfield—Brookings, J. C. (C.)  
Hilltopis—Mayes, C. S. (M.)  
Joliet—Mitchell, J. M. (L.)

Landscape—Lumley, Z. D. (C.)  
 Kamm-Moffett, R. A. (L.)  
 Murphy-Shore—Hiltsik, J. H. (C.)  
 Oak Forest—Campbell, A. S. (L.)  
 Oak Park—Harris, C. P. (L.)  
 Peotom—Hilgenberg, J. F. (C.)  
 Pontiac—Daly, A. M. (C.)  
 Rockford—Rokers, H. R. (L.)  
 Rock Island—Comegys, J. P. (C.)  
 O'Farrell, P. F. (C.)  
 South Chicago—Hilgenberg, J. F. (C.)  
 Springfield—Conlin, G. C. (L.)  
 St. Charles—Carpenter, R. M. (L.)  
 Sterling—Wahl, E. W. (C.)

INDIANA

Albion—Hiatt, H. S. (L.)  
 Angola—Gundrum, M. D. (C.)  
 Bedford—Alexander, G. (L.)  
 Bluffton—Meach, C. H. (L.)  
 Burlington—Quinn, C. E. (L.)  
 Butlerville—Daubenbeyer, M. F. (C.)  
 Clinton—Beeler, F. M. (C.)  
 Covington—Aldridge, J. W. (C.)  
 Crawfordsville—Hloward, C. W. (C.)  
 Delphi—Chuser, A. C. (L.)  
 Fort Wayne—Metzall, D. D. (C.)  
 Ft. Van Sweringen, B. M. (L.)  
 Franceeville—Kupke, E. H. W. (C.)  
 Glenwood—Osborne, H. S. (L.)  
 Grand View—Biedenkopf, C. J. (L.)  
 Indianapolis—Falk, F. (C.)  
 Irwin, H. W. (M.)  
 Jackson, G. B. (M.)  
 Jones, G. B. (L.)  
 Kessler, V. D. (L.)  
 Lumburg, O. D. (L.)  
 Mayfield, C. H. (C.)  
 Tinney, W. E. (C.)  
 Underwood, C. A. (C.)  
 La Porte—Marshall, J. H. (M.)  
 Ross, W. W. (M.)  
 Peru—Newell, G. W. (M.)  
 Pine Village—MacGillivray, D. D. (C.)  
 Rosedale—White, C. S. (L.)  
 Tula Haute—Freligh, W. P. (L.)  
 Shaffer, J. S. W. (C.)  
 Vincennes—Harris, B. W. (C.)  
 Vincennes—McGee, J. (M.)  
 Warsaw—Quillin, L. J. (C.)

IOWA

Arnamos—Van Patten, C. L. (C.)  
 Barnes City—Watts, A. F. (L.)  
 Britt—Couper, E. A. (C.)  
 Burlington—Strong, A. C. (L.)  
 Cedar Rapids—Baird, C. G. (L.)  
 Decorah—Dahl, J. (C.)  
 Denison—Mensch, F. R. (L.)  
 Des Moines—Dawning, J. A. (C.)  
 Wells, C. W. (C.)  
 Williams, E. L. (C.)  
 Diagonal—Talley, F. (L.)  
 Grinnell—Buck, S. C. (C.)  
 Ha Grove—Parker, E. S. (M.)  
 Manly—Westly, G. S. (L.)  
 Marshalltown—Conaway, A. C. (M.)  
 Miles—McFaul, W. D. (C.)  
 Oklawaha—Shine, D. W. (C.)  
 Oskaloosa—McGowan, E. D. (C.)  
 Morgan, J. E. (M.)  
 Roland—Smith, R. W. (L.)  
 Sioux City—Katherman, C. A. (C.)  
 St. Charles—Kas, T. D. (L.)  
 Washington—Edington, J. E. (L.)  
 Webster City—Hannah, W. J. (L.)  
 Wellman—Foster, W. J. (L.)

KANSAS

Amo—Beverly, G. W. R. (C.)  
 Cherokee—Hays, A. D. (C.)  
 Ellsworth—Dunnell, H. S. (C.)  
 Enterprise—Wright, H. W. (L.)  
 Garden City—Troup, R. M. (L.)  
 Kansas City—Forbes, D. M. (L.)  
 Leavenworth—Matz, P. B. (C.)  
 McPherson—Parrish, W. A. (C.)  
 Newton—Spear, J. W. (L.)  
 Ottawa—Stephens, R. C. (C.)  
 Spearville—Brown, L. T. (L.)  
 Turkey—Allen, G. H. (L.)  
 Wichita—Lund—Austin, F. J. (L.)  
 Wichita—Jones, A. D. (C.)

KENTUCKY

Anchorage—Berryman, H. D. (C.)  
 Bowling Green—Kane, E. (C.)  
 Campbell—Flowers, W. J. (L.)  
 Evansville—Anderson, S. (L.)  
 Bates, E. W. (L.)  
 Board, M. (M.)  
 Brzozowski, G. S. (L.)  
 Cornwell, D. L. (C.)  
 Doherty, W. B., Jr. (C.)

Louisville—Hume, W. I. (C.)  
 Petty, C. R. (L.)  
 Ray, E. L. (L.)  
 Walton, K. D. (C.)  
 Maceo—Taylor, R. M. (M.)  
 Manchester—Bentley, J. G. (C.)  
 Mount Olive—Luville, E. E. (L.)  
 Shepherdsville—Bates, S. W. (C.)  
 Winchester—Cockrell, B. A. (C.)  
 Feld, N. (L.)

LOUISIANA

Acy—Martin, D. T. (C.)  
 Burwood—Trepagnier, D. H. (M.)  
 Colfax—Phillips, C. W. (M.)  
 Ferriday—Maxwell, V. W. (L.)  
 New Orleans—Aiken, W. H. (L.)  
 Hopkins, R. C. (L.)  
 Mallieus, R. J. (L.)  
 Sharp, C. H. (L.)  
 Simon, H. T. (L.)  
 Weis, J. D. (L.)

MAINE

Hallowell—Hall, H. W. (L.)  
 Island Falls—Schneider, G. A. (L.)  
 Norway—Traufant, I. H. (L.)  
 Portland—White, A. W. (C.)  
 Rockland—Bradford, L. B. (C.)  
 Searsport—Pate, S. C. (L.)  
 Springvale—Tonjian, J. J. (L.)

MARYLAND

Baltimore—Brusau, W. L., Jr. (L.)  
 Chisholm, J. J. (L.)  
 Christian, P. W. (C.)  
 Egan, M. J., Jr. (L.)  
 Fayerweather, R. (M.)  
 Friedenwald, E. B. (M.)  
 Jacolis, L. L. (L.)  
 Kelly, C. C. (L.)  
 Mason, F. E. (L.)  
 Mayor, E. E. (L.)  
 McQueen, C. V. (L.)  
 Merkel, H. A. (L.)  
 Raskin, M. (L.)  
 Spear, J. J. (C.)  
 Stewart, G. A. (M.)  
 Bowie—Truit, J. H. (C.)  
 \*Cambridge—Foswell, R. K. (L.)  
 \*Cambridge—Burns, W. L. (L.)  
 Hagersstown—Kiser, R. E. (M.)  
 Stauffer, E. S. (C.)  
 Rneckville—Lewis, G. E. (L.)

MASSACHUSETTS

Boston—Banquer, J. E. (L.)  
 Dean, A. L., Jr. (L.)  
 Duffy, E. A. (L.)  
 Jackson, S. W. (C.)  
 MacMillan, A. (L.)  
 Mann, H. L. (C.)  
 Meserve, E. A. (C.)  
 Olin, H. (C.)  
 Packard, G. B., Jr. (C.)  
 Place, P. W. (C.)  
 Brockton—Lupien, H. J. (L.)  
 Brookline—Hale, F. S. (L.)  
 Cambridge—Gady, F. B. M. (L.)  
 Haysen, L. C. (L.)  
 Everett—Keane, H. J. (C.)  
 Fairhaven—Thompson, C. E. P. (C.)  
 Fall River—Lindsay, J. H. (M.)  
 Paron, G. G. (C.)  
 Gloucester—Mooring, S. W. (M.)  
 Haverhill—Cargen, T. J. (M.)  
 Kingston—Cromb, J. (M.)  
 Malden—McMichael, E. H. (L.)  
 Methuen—Norris, R. C. (L.)  
 Milford—Alldreit, F. S. (L.)  
 New Bedford—Wheeler, L. B. (C.)  
 Newton—Fiske, E. W. (C.)  
 Norwood—Johnson, I. E. (L.)  
 Revere—Skirball, L. J. (L.)  
 Salem—Hymon, A. H. (C.)  
 Somerville—Moros, F. L. (L.)  
 Springfield—Cort, P. M. (M.)  
 Uther, R. B. (M.)  
 Waltham—Kaver, J. T. (C.)  
 Weymouth—Rood, D. (C.)  
 Worcester—Beland, D. J. (L.)  
 Emery, G. E. (C.)  
 Farnon, W. (L.)  
 Lamson, M. (M.)

MICHIGAN

Ann Arbor—Barrett, T. M. (C.)  
 Okemos, R. A. (L.)  
 Bath Creek—Ross, A. H. (C.)  
 Benton Harbor—Morrill, W. P. (L.)  
 Berth—Miller, J. J. (L.)  
 Blanchard—Vander Zelm, I. P. (L.)  
 Comins—Parker, W. T. (C.)  
 Detroit—Bernan, H. S. (L.)  
 Clements—Clements, W. (C.)  
 Collins, H. G. (L.)

Detroit—Craig, S. H. (L.)  
 Font, A. (L.)  
 Fraser, H. E. (C.)  
 Leibinger, H. R. (L.)  
 Pulford, F. S., Jr. (L.)  
 Schwanz, M. J. (C.)  
 Sladen, F. J. (M.)  
 Vreeland, C. E. (L.)  
 Flint—Murtha, A. V. (L.)  
 Flint—Kron—Anderson, W. B. (C.)  
 Iwrence—Crunkshaw, D. W. (C.)  
 Sogniaw—Passmore, J. L. (C.)  
 St. Johns—Silsby, D. H. (M.)

MINNESOTA

Aden—Davis, F. W. (L.)  
 Beacom—Anderson, A. R. (L.)  
 Emmons—Arneson, A. I. (L.)  
 Fairbault—Kobillard, C. M. (L.)  
 Fergus Falls—Martin, W. B. (L.)  
 Thurlow, R. M. (C.)  
 Mankato—Pratt, C. C. (C.)  
 Minneapolis—McCormick, T. F. (L.)  
 Rochester—Irwin, H. C. (L.)  
 Squires, C. D. (C.)  
 St. Paul—Hullarum, W. H. (L.)  
 Schons, E. (C.)  
 Willmar—Canfield, H. E. (L.)

MISSISSIPPI

Agricultural College—Marshall, B. J. (M.)  
 Cocheville—Hentz, R. P. (C.)  
 Jackson—Britt, W. L. (M.)  
 Louisville—Pearson, W. C. (C.)  
 Philadelphia—Sawyer, W. C. (L.)  
 Pienzi—Robertson, M. W. (L.)  
 Slaw—McDill, J. E. (C.)

MISSOURI

Carrollton—Sovern, H. B. (C.)  
 Hamilton—Booth, H. R. (L.)  
 Independence—Harrington, G. L. (L.)  
 Jefferson City—Enloe, L. D. (L.)  
 Kansas City—Harrison, E. L. (L.)  
 Hunt, C. J. (C.)  
 Klein, W. (L.)  
 Schorer, E. H. (L.)  
 Joseph—Smith, H. L. (C.)  
 St. Louis—Clark, I. R. (M.)  
 Coleman, S. R. (L.)  
 Edwards, E. D. (L.)  
 Foster, H. M. (L.)  
 Keiffer, V. B. (C.)  
 Schafer, J. C. (C.)  
 Washington, L. G. (L.)

MONTANA

Missoula—Meister, E. E. (L.)  
 Wibaux—Ashley, P. L. (C.)

NEBRASKA

Anselmo—Wills, C. L. (M.)  
 Broken Bow—Lundis, H. B. (C.)  
 Hendley—Moraw, W. C. (L.)  
 Ingelside—Hedlund, W. W. (L.)  
 Newman Grove—Meyer, C. A. (C.)  
 Omaha—Boler, T. D. (L.)  
 Cummings, C. A. (C.)  
 Phillips, G. S. (L.)  
 Pugsley, G. W. (M.)  
 Whitcomb, G. D. (C.)  
 Steward—Bernecker, E. M. (L.)  
 Wayne—Eskine, E. B. (C.)

NEW HAMPSHIRE

Manchester—Flanders, R. (L.)  
 Wagon, G. M. (M.)  
 Pittsfield—Carr, B. W. (C.)

NEW HAVEN

Amory Park—Rowland, W. D. (C.)  
 Bayonne—Hunt, J. J. (L.)  
 Bellevue—Lee, A. E. (L.)  
 Bantion—Hance, B. M. (L.)  
 Cambridge—Strandale, J. W. (L.)  
 Carnes Point—Cox, H. E. (C.)  
 East Orange—Hunt, R. H. (L.)  
 Elizabeth—Ock, A. E. (L.)  
 Frechbill—Brim, J. (M.)  
 Gertrude—Widley—Mose, W. (C.)  
 Jersey City—Rosenberg, J. (C.)  
 Street, D. B. (C.)  
 Milledale—Frdman, S. (M.)  
 Hartford—Hart, H. (L.)  
 Newark—Av-Lan, M. S. (C.)  
 Foss, F. A. (L.)  
 Fels, A. J. (C.)  
 Hanning—R. K. (C.)  
 Hill, E. W. (L.)  
 Mikels, B. M. (L.)  
 Primmington—Little, W. R. (C.)  
 Perth Amboy—L'Amore, A. (L.)  
 Roselle Park—Wor, H. S. (L.)

NEW JERSEY

Manalapan—McIntyre, M. (C.)  
 Santa Rosa—Van Horn, J. B. (C.)

NEW YORK

Albany—Rabner, A. M. (L.)  
 Amsterdam—MacCordy, E. C. (L.)  
 Binghamton—Bell, R. G. (C.)  
 Brooklyn—Asher, G. A. (C.)  
 Baitin, R. (L.)  
 Fisher, H. A. (M.)  
 Green, E. E. (C.)  
 Grullin, M. (L.)  
 Horton, G. W. (C.)  
 Jervis, K. W. (C.)  
 Kraushar, S. (L.)  
 Rosenber, M. (L.)  
 Lee, C. A. (L.)  
 Linn, J. L. (L.)  
 Long, J. F. (C.)  
 McRusick, E. D. (C.)  
 McNeely, H. E. (C.)  
 Raim, W. (L.)  
 Richman, A. A. (L.)  
 Thomson, E. A. (M.)  
 Buffalo—Belzer, L. M. (L.)  
 Brady, J. C. (L.)  
 Levy, S. H. (L.)  
 Nahr, R. C. (C.)  
 Oberkircher, O. J. (C.)  
 Taylor, R. S. (C.)  
 Traver, H. R. (L.)  
 Watson, J. H. (C.)  
 Clifton Springs—Thomas, W. S. (M.)  
 Clinton—Dudley, R. B. (C.)  
 Elmira—Lund, M. D. (M.)  
 Davolville—Fairbanks, C. M. (M.)  
 Dunkirk—Vosburg, W. H. (M.)  
 Elmira—Glover, A. C. (L.)  
 Hall, M. F. (L.)  
 Fonda—Bouton, L. A. (L.)  
 Gowanda—Livermore, J. W. (M.)  
 Great Neck—Parsons, A. H. (M.)  
 Hempstead—Oram, J. C. (L.)  
 Hudson Falls—Crosby, J. L. (L.)  
 Ithaca—Bontecou, R. B. (M.)  
 Jamaica—Hiland, E. J. (L.)  
 Smerhoff, L. S. (L.)  
 Jamestown—Hyslop, E. L. (C.)  
 Middletown—Everett, E. A. (L.)  
 Minerva—Jacobsohn, V. J. (L.)  
 Monticello—Brooks, S. R. (L.)  
 New York—Alber, F. H. (L. C.)  
 Alofsin, H. (L.)  
 Bailey, T. (C.)  
 Bullen, H. J. (L.)  
 Binghamton, J. A. (L.)  
 Bostaman, K. N. (L.)  
 Power, J. (L.)  
 Brewer, C. (M.)  
 Broadwin, I. T. (L.)  
 Brons, W. C. (L.)  
 Brown, S., 2d (L. C.)  
 Brownlee, E. A. (L.)  
 Bryson, J. L., Jr. (C.)  
 Bullen, B. C. (L.)  
 Carroll, J. H. (M.)  
 Cohen, J. (C.)  
 Conely, E. M. (C.)  
 Conterno, G. W. (C.)  
 Craip, S. L. (C.)  
 Cunningham, J. J. (M.)  
 Dennis, W. S. (L.)  
 Fuhberg, J. N. (L.)  
 Festerien, H. B. (L.)  
 Fischman, M. C. (L.)  
 Geysler, F. R. (C.)  
 Golan, C. B. (L.)  
 Gollman, E. (L.)  
 Gorman, J. R. (L.)  
 Grabenstein, J. (L.)  
 Griffith, C. M. (L.)  
 Harton, S. (M.)  
 Hatzel, G. G. (L.)  
 Haunman, L. (L.)  
 Hawkins, W. H. (C.)  
 Hoelblum, G. H. (L.)  
 Kitzburg, E. A. (L.)  
 Kesting, G. A. (M.)  
 Lane, E. V. (L.)  
 Lem, M. (L.)  
 Lewis, J. F. (L.)  
 Linnett, J. M. (L.)  
 Mark-Gary, D. M. (L.)  
 McKelvey, J. H. (L.)  
 McKnight, M. G. (M.)  
 McSwegen, G. W. (L.)  
 Murphy, A. T. (L.)  
 Orth, A. F. (L.)  
 Pyle, G. D. (L.)  
 Prudden, J. T. (C.)  
 R. W. P. S. (M.)  
 Reed, I. B. (L.)  
 Reiche, L. D. (L.)  
 F. R. K. (L.)  
 Sands, J. J. (L.)  
 Scherck, G. W. (C.)  
 Schun, S. S. (L.)  
 Schiller, C. (L.)  
 Smith, G. B. (C.)  
 Sletsky, M. (L.)  
 Solomon, H. A. (L.)

New York—Stearns, R. P. (C)  
 Stenrich, R. M. (L)  
 Tashler, A. L. (C)  
 Wheeler, J. M. (C)  
 W. S. C. E. (C)  
 Oneida—Crockett, R. L. (M)  
 Pine Bush—Davis, A. T. (M)  
 Pikesville—Bick, W. S. (C)  
 P. L. Harvey—Darlen, S. (C)  
 P. D. Keck, J. T. (C)  
 Rensselaer—De J. B. (L)  
 Rockledge—Hick, H. G. (L)  
 P. W. A. F. C. (C)  
 Rom—M. J. Perry, M. C. (C)  
 Rush—B. K. Pitt, M. (L)  
 Silesia—Fletcher, E. C. (C)  
 Staten Island—Koppe, J. E. (C)  
 Syracuse—Pritchard, H. B. (C)  
 Tarrytown—Park—Morrison, H. F. (L)  
 White Plains—C. M. Jones, R. H. (M)  
 Yonkers—C. J. Lucas, M. J. (L)  
 Frischnan, L. (L)

NORTH CAROLINA

Albemarle—Shepard, F. C. (L)  
 Asheville—Barr, E. S. (L)  
 Frazier, H. T. (M)  
 Beaufort—Latham, J. R. (L)  
 Charlotte—Hill, W. L. H. (C)  
 Charlotte—Mare, R. A. (C)  
 Concord—Bacon, S. E. (C)  
 Concord—Ogburn, H. H. (M)  
 Raleigh—Burrill, E. M. (C)  
 Salisbury—Van Pelt, C. M. (L)  
 Wake Forest—Carstaphen, W. T. (L)  
 West Durham—Kerns, T. C. (L)  
 Wilmington—Hunter, W. B. (C)  
 Wategate—L. vol, R. J. (L)

NORTH DAKOTA

Bismarck—Dunlap, L. G. (L)  
 Stanley—Brigham, F. O. J. (C)

OHIO

Arcus—Crawley, J. R. (L)  
 Bucyrus—Irish, C. W. (C)  
 Cincinnati—Erick, C. K. (L)  
 Handley, D. C. (C)  
 Johns, B. H. (L)  
 Kunk, E. C. (C)  
 Meigs, G. T. (C)  
 Maketta, F. H. (L)  
 Painesville—Dinsgar, R. S. (L)  
 Drach, A. E. (L)  
 La Roche, C. G. (C)  
 Warren, J. T. (M)  
 Rice, K. S. (C)  
 Sprinze, P. M. (L)  
 Tiffin—Beck, H. P. (L)  
 Columbus—Shantz, J. W. M. (L)  
 Dayton—Lauerbach, W. F. (C)  
 La Rue—Jackson, E. D. (L)  
 Findlay—Lannan, J. L. (C)  
 Findlay—Coyne, J. P. (L)  
 Massillon—Marr, J. H. (C)  
 Newark—Killer, C. S. (L)  
 New Concord—Martin, J. G. (L)  
 New Marshall—Pedigo, S. E. G. (C)  
 Newark—Neel, C. A. (L)  
 Strader—Rosen, G. E. (L)  
 Sylvania—Hansen, V. B. (C)  
 Toledo—Beck, W. (L)  
 T. Lawess, R. E. (C)  
 West Toledo—Strathmann, W. H. (L)  
 Wadsworth—Harrel, M. E. (L)  
 Westwood—Koch, J. E. (L)  
 Wadsworth—Koch, C. J. (L)

OKLAHOMA

Fort L. Force, H. A. (L)  
 E. C. Purman, C. E. (L)  
 E. C. Purman, D. E. (L)  
 Norman—R. Gers, L. W. (L)  
 Norman—W. M. P. W. (W. C.)  
 Norman—Coyne, J. M. C. (C)  
 Norman—Davis, E. F. (L)  
 Oklahoma—C. M. A. (C)  
 Norman—A. V. W. C. (H. C.)  
 Tulsa—A. V. W. C. (H. C.)  
 Tulsa—C. M. A. (C)  
 Tulsa—M. C. R. L. (C)  
 Tulsa—C. M. A. (C)  
 Tulsa—Freerit, E. D. (C)  
 Tulsa—B. R. C. (M)  
 Tulsa—W. S. F. (L)  
 Tulsa—L. W. S. (L)  
 Tulsa—L. W. S. (L)  
 Tulsa—L. W. S. (L)

PENNSYLVANIA

Altoona—Bumhardt, S. I. (C)  
 Butler, D. M. (L)  
 Ashland—Leiter, W. H. (C)  
 Allentown—Dougherty, J. P. (L)  
 Bethlehem—McMinn, J. P. (C)  
 Easton—Kern, T. B. (C)

Brooklyn—Williams, T. O. (C)  
 Clark's Summit—Sinrell, H. E. (C)  
 Crafton—Hayes, J. N. (L)  
 Erie—Dengler, C. R. (L)  
 Fountain Springs—Menahan, J. J. (C)  
 Freeland—Truckengelder, R. (C)  
 Gettysburg—Steele, J. G. (L)  
 Gettysburg—Moanahan, W. J. (L)  
 Greensburg—Hamm, H. H. (L)  
 Ober, I. J. (C)  
 Harrisburg—Mackay, W. H. (L)  
 J. H. Stinson—Conrad, G. W. (L)  
 Keffeler—Feltens, R. O. (L)  
 Kellport—Evers, R. C. (C)  
 Kellport—Harsberger, J. W. (L)  
 Lancaster—Schwartz, G. C. (C)  
 S. Stier, F. T. (C)  
 Leaning—Hamil, J. H. (L)  
 Loyalburg—Shaffer, J. A. (L)  
 Mount Airy—Safritz, N. G. (C)  
 New Kensington—Nolan, W. P. (L)

North Wales—Allen, F. B. (C)  
 Oil City—Sheridan, P. J. (C)  
 Philadelphia—Babcock, W. W. (L)  
 C. (L)  
 Bartholomew—F. F. (C)  
 Beck, A. F. (L)  
 Bedford, J. W. (M)  
 Brady, W. R. (C)  
 Brann, S. A. (C)  
 Burby, B. F. (C)  
 Casey, H. K. (C)  
 Carey, A. E. S. (L)  
 Cannoll, J. M. (L)  
 Cank, W. E. (C)  
 Dillon, E. S. (L)  
 Given, E. W. (L)  
 Greaves, H. A. (L)  
 Jacobs, E. M. (M)  
 Joyce, W. M. (L)  
 Kleinstuber, W. O. (L)  
 Leamy, L. J. (C)  
 Livingston, L. D. (L)  
 McKenna, J. J. (M)  
 Nae, W. G. (L)  
 Prepst, W. W. (C)  
 Reynolds, R. B. (M)  
 Ruberg, J. J. (M)  
 Smith, A. D. (C)  
 Spiers, I. J. (L)  
 Wagers, A. J. (C)  
 Watson, C. Jr. (C)  
 Weiss, E. (L)  
 Wood, W. A. (M)

Pittsburgh—Rinshon, W. H. (M)  
 Pitsville—Wallace, H. G. (C)  
 Reading—Fredrick, L. W. (L)  
 Scituate—Gray, S. B. (L)  
 Scranton—Killeen, T. G. (C)  
 Semmler—C. R. (L)  
 Semmler—Longwell, B. J. (M)  
 Sham kin—Malone, C. M. (L)  
 Sharon—Hyde, A. P. (C)  
 Shippensburg—McCrea, J. B. (C)  
 Tidewater—Brices, E. S. (C)  
 Trenton—W. W. (M)  
 Wren—Schuler, F. G. (L)  
 Wolfboro—Fried, E. A. (C)  
 Wilkes-Barre—Alevatis, F. L. (L)  
 W. M. Erdinger—Shoenaker, W. R. (C)  
 Wynewood—Lucas, W. S. (M)

RHODE ISLAND

Providence—Blanchard, H. E. (C)  
 Dyer, W. H. (C)  
 Kelley, J. S. (M)  
 Lynch, C. I. (L)  
 Potter, E. M. (C)

SOUTH CAROLINA

Columbia—Peters, L. (C)  
 Greenville—Daise, J. E. (L. C.)

SOUTH DAKOTA

Britton—S. J. Van, D. W. (C)  
 Clinton—S. C. R. F. (C)  
 Deadwood—P. J. Bert, M. O. (C)  
 Reliance—Chester, J. G. (C)  
 S. J. Van—Van Demers, G. E. (C)  
 Sisseton—Dyson, J. E. (L)  
 White Lake—R. Gers, J. C. (C)

TEXAS

Chapel Hill—M. J. C. (D. D. L)  
 Chhatta—Lawell, S. (L)  
 R. Gers, G. M. (C)  
 Eads—Anderson, J. C. (L)  
 Jackson—Grenier, J. D. (L)  
 Memphis—Gle, B. L. (C)  
 Newville—Brown, G. L. (C)  
 Evans, S. S. (C)  
 Hall, E. R. (C)

Wentworth—Richardson, C. T. (C)  
 Stanford, J. B. (M)  
 Ward, C. F. (L)  
 Nashville—Binkley, F. F. (L)  
 Bowen, W. P. (C)  
 Francisco, H. M. (M)  
 James, A. L. (C)  
 Maxwell, F. S. (L)  
 Morr, W. C. S. (C)  
 Shoullers, H. H. (C)  
 Ward, W. B. (C)  
 Riesel—Cannon, M. E. (L)  
 Trenton—Bryant, K. A. (L)

TEXAS

Alice—Atkinson, N. W. (C)  
 Amarillo—Vineyard, R. L. (L)  
 Austin—Glass, T. W. (C)  
 Belton—Giles, R. G. (C)  
 Brown—W. S. (M)  
 Brown—Hester, W. J. (C)  
 Bryan—Mondrick, A. L. (L)  
 Caldwell—Goulding, T. L. (C)  
 Cameron—Denson, J. L. (M)  
 Menroe, D. E. (M)  
 Castro—Henry—Burns, E. J. (L)  
 Cleburn—Sung, E. V. (L)  
 Corpus Christi—Bernard, W. C. (C)  
 Crosbyton—Cagle, T. J. (L)  
 Dallas—Brittain, E. G. (L)  
 Cookery, V. (C)  
 Jackson, W. L. (L)  
 Kindley, G. W. (C)  
 Loomis, E. C. (M)  
 Parrish, E. M. (C)  
 Smith, H. (C)  
 Tomkins, J. S. (L)  
 Denson—Jones, H. O. (L)  
 El Paso—Darnall, H. O. (M)  
 Fort Stockton—Turney, M. L. (C)  
 Fort Worth—Badi, M. B. (L)  
 White, E. (C)  
 Galveston—Welmeyer, W. C. (L)  
 Georgetown—McHenry, R. K. (L)  
 Groom—Kesters, N. W. J. (M)  
 Hamilton—Cleveland, C. C. (L)  
 Hereford—Gabbert, W. F. (C)  
 Houston—Gibbs, J. P. (C)  
 Greer, V. D. (C)  
 Moore, S. H. (L)  
 Stokes, M. B. (C)  
 Jasper—Chambers, K. J. (L)  
 Kingsville—Robertson, J. I. (L)  
 Liberty Hill—Fowler, W. D. (M)  
 Marfa—Fuller, M. L. (L)  
 Marshall—Dickson, J. R. (L)  
 Maxwell—Reid, J. W. Jr. (L)  
 Mettregger—Graham, E. L. (C)  
 Moulton—Guenther, G. C. (C)  
 Palacios—Harrison, J. W. (C)  
 Palestine—McLeod, R. H. (M)  
 Plains—Clawater, E. W. (L)  
 Roame—Wood, J. L. (L)  
 Rosenberg—Nichter, A. G. (C)  
 San Antonio—Duggan, M. (M)  
 Sweetwater—Burk, W. E. (L)  
 Taylor—Henschen, G. E. (L)  
 Temple—McKee, W. E. (L)  
 Starves, M. H. (L)  
 Thurber—Rowley, E. A. (L)  
 Tivoli—Gunn, W. B. (C)  
 Waco—Wood, R. S. K. (L)  
 Wheat Springs—Barnett, J. H. (L)  
 Wizard Wells—Bauch, V. I. (C)

UTAH

Provo—Potter, L. C. (L)  
 Salt Lake City—Nivall, C. A. (C)

VERMONT

Burlington—Bunker, S. M. (M)  
 Plowden—Thomas, J. D. (L)  
 Vergennes—Caisse, J. M. (C)

VIRGINIA

Airport—Sears, C. E. (C)  
 Cumberland—Varn, W. L. (L)  
 J. Watt, R. G. (C)  
 Norfolk—Donohoe, S. R. (C)  
 G. J. N. J. (L)  
 Parkersburg—Hurst, J. C. (C)  
 Petersburg—McIlwaine, W. B. (L)  
 Shelburne, J. T. (C)  
 Rectortown—Noland, E. B. (C)  
 Richmond—Martin, J. W. (L)  
 South Boston—Seal, J. J. (L)  
 Stonegap—Rhody, G. G. (C)  
 University—Howard, K. W. (L)  
 Wright, J. L. (L)

WASHINGTON

Almira—Knox, J. F. (C)  
 Black Diamond—Bowles, J. A. (L)  
 Colville—Jones, W. J. (M)  
 Elma—Whitty, J. T. (C)  
 Napavine—Cullen, F. J. (M)  
 Port Angeles—Eide, F. T. (C)  
 Seattle—Benedict, C. C. (C)  
 Cunningham, W. F. (C)  
 Kelton, W. (M)  
 Monroe, D. H. (M)  
 Penacook, A. H. (M)  
 Saver, J. H. (M)  
 Spokane—Gray, G. A. (C)  
 Miller, F. S. (L)

WEST VIRGINIA

Charleston—Covington, L. C. (M)  
 Hill, D. H. (L)  
 Point, W. W. (M)  
 Hansford—Butler, L. J. (C)  
 Hinton—Hubbard, J. E. (C)  
 Inwood—Glover, V. L. (L)  
 Leon—Whiteside, C. T. (C)  
 Moorhead—Brooks, O. V. (L)  
 Shirley—Baker, J. A. (L)  
 Tunnetton—Rarkin, B. S. (C)  
 Wheeling—Wilmore, J. W. (L)

WISCONSIN

Beloit—Hennig, E. L. (C)  
 Brodhead—Zuercher, J. C. (L)  
 Elroy—Doughty, J. W. (L)  
 Horicon—Nelson, R. N. (L)  
 Humbird—Schwarz, S. G. (C)  
 Janesville—Koch, V. W. (L)  
 Kenosha—Ripley, H. M. (L)  
 Lomira—Flanher, C. H. (C)  
 Madison—Elson, J. C. (C)  
 Harper, C. S. (C)  
 Merrill—Saylor, H. B. (M)  
 Milwaukee—Meyer, C. M. (C)  
 Milwaukee—Dunbar, W. S. (C)  
 Harrington, T. L. (C)  
 Korthals, F. J. (L)  
 Roushkauf, L. F. (L)  
 New Lisbon—Starnes, R. C. (L)  
 Oshkosh—Meyer, H. C. (C)  
 Racine—Anderson, J. L. (L)  
 Cibelus, C. A. (L)  
 Rice Lake—McEachern, W. A. (C)  
 Superior—McEachern, W. A. (C)  
 Waupun—Wedge, A. H. (L)  
 Waupun—Kradwell, W. T. (C)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Montgomery, H. B. (L)  
 San Diego—Pounds, T. G. (L)

ILLINOIS

Chicago—Visher, J. W. (L)

INDIANA

Algiers—Whitehead, J. M.  
 Morgantown—Murphy, H. E.  
 N. Karas—Eicher, O. E.

LOUISIANA

New Orleans—Kerlin, W. S. (L)

MAINE

Rockland—O'Connor, M. J.

MASSACHUSETTS

Lynn—Eastman, G. W.

MICHIGAN

Detroit—Dance, C. L.

NEW YORK

Brooklyn—Zahler, I. L.  
 Buffalo—Hoffman, C. C.  
 Jonesville—Cunning, D. S.  
 New York—Frasella, W. A.  
 Risenrue, M.

OHIO

Lima—Parent, W. V.

OKLAHOMA

Connersville—Rogers, W. J.

OREGON

Portland—Story, G. B.

PENNSYLVANIA

Philadelphia—Jones, L. L.

SOUTH CAROLINA

Beaufort—Hughes, R. W.  
 Florence—Pendergrass, E. P.

VIRGINIA

Onancock—Doughty, J. C.

## Foreign Correspondence

### LONDON LETTER

LONDON, Sept. 24, 1919.

#### Racial Types of Man

At the annual meeting of the British Association for the Advancement of Science, Arthur Keith, president of the anthropologic section, gave an address on the "Differentiation of Mankind into Racial Types." The evolutionary machine as it is commonly understood, he said, does not supply a clue to the origin of the European, the Chinese and the negro. But nature has at her command a secret mechanism by which she works out the new patterns in the bodies of man and beast, a mechanism of which we were almost ignorant in Darwin's day, but which we are now beginning to perceive and to understand dimly. This is the internal secretions of the endocrine glands. The growth of the body may be accelerated, retarded or altered if one or more of five glands (pituitary, pineal, thyroid, suprarenal and interstitial glands embedded in the testis or ovary) become the seat of a functional disorder. The thyroid acts directly on the skin and hair, just the structures employed in the classification of human races. Abnormality, tumor, or disordered action of the pituitary gland, is associated with acromegaly, gigantism, eunuchoid condition of the body, or dwarfism. The pituitary is one of the main parts in the machinery of regulation of growth, and is directly concerned in determining stature, cast of features, texture of skin, and character of hair, all of which are marks of race. The Caucasian type shows the greatest predominance of the pituitary; the sharp face, strong superciliary ridges, prominent chin, hulk of body, and height of stature can best be explained in terms of hypophysial function. The interstitial gland of the testicles evidently plays a part in bringing about the robust manifestations of the male characters, and this sexual differentiation is more emphatic in the Caucasian than in the Mongol or negro types. The evidence of loss of suprarenal gland function, as shown in Addison's disease, leads to the inference that at least part of the function of these glands is concerned with the clearing away of pigment, and to their action may be attributed the fairness of skin in the European. Malignant growth of the suprarenals in children produces a premature sexual maturity with all its bodily characteristics, and a similar result follows disease of the pineal gland. Anthropologically the thyroid gland is perhaps the most important of all the organs of internal secretion. Apart from its immediate function in regulating the rate of combustion of the tissues which can be correlated with the selection and survival of human races, it has remoter morphogenic effects on growth and the shaping of racial characters. Cretinism, myxœdema, achondroplasia and mongolism are evidences of characters induced by the thyroid gland changes of disease, and the racial characteristics normally corresponding are dependent on the physiologic action of thyroid secretion. The endocrine glands thus possess a growth-controlling mechanism, and the respective parts played by each in its relation to the rest of the economy are dominated by hormones, which, according to the nature of the recipients on which they act, bring about the endless variety in the relative development of racial and individual features.

#### Germans Round-Headed

Dr. F. G. Parsons introduced a discussion in the anthropologic section on the "Racial Characters of the Modern Briton." He pointed out that there is still much difference of opinion as to whether or not the cranial index is a valuable clue to racial origin. There is a great weight of opinion in favor of the belief that there are three major racial types in the population of modern Europe, the Nordic, the Mediterranean and the Alpine. The latter is distinguished from the former two by a higher cranial index, that is to say, by the possession of a rounder head. The value of this distinction, as well as of others, such as the orbital index, which has been used to distinguish the Nordic from the Mediterranean, the value of stature, of eye color, and of hair and skin color, are all more or less in dispute. He believed that the cranial index was the most satisfactory test. He insisted on the contrast between the typical German population and that of the British Islands. Although there are pockets of round-headedness in Great Britain, the modern Briton has, on the average, the lowest cranial index in Europe. The Germans are typically round-headed. This

fact has long been suspected, but the Germans, in association with their pan-German views, refused to collect or to publish the evidence which showed the real facts. Methodical examination of German prisoners of war which he had been allowed to make revealed that even in Schleswig-Holstein the Germans were round-headed. As far as psychologic characters could be associated with cranial characters, he believed that the round head was slow, methodical and unwilling to take risks, and that the long head was adventurous, enterprising and imaginative.

#### A New Theory of Vision

Sir Oliver Lodge, at the Mathematical and Physical Science Section of the British Association for the Advancement of Science, outlined a possible theory of vision. A great deal, he said, is known about the ear, but little about the retina. Acoustic vibrations are of reasonable frequency, and the mechanism can respond to them; but no mechanism can respond to the ethereal vibrations at the rate of 500 million million a second. Something electrical or chemical is necessary. He suggested that, in the retina—perhaps in the black pigment—there are certain atoms which are stimulated into radioactivity by impact with waves of light of luminous frequency, and that those atoms, when they receive waves, accumulate energy of the right frequency, and stimulate the nerve. The eye is exceedingly sensitive to light, but not to any other kind of vibration. What he would like to do would be to take some of the pigment of the retina—though whether a dead eye would do or whether it would have to be a living eye he did not know—and put it on the electroscope, and illuminate it with red, green and violet light, and see whether it shoots off electrons which will stimulate the electroscope. It would be a very delicate experiment, but there are very delicate electrical instruments. If the electroscope should be stimulated, it would tend to show that the eye is an electrical organ making use of atomic energy.

#### Pearls in Tripe

In the report of the Liverpool Port Sanitary Authority, the medical officer of health (E. W. Hope) describes the discovery of small pearls in a consignment of frozen tripe from the United States. The tripe was being examined for unsoundness, and there were found scattered over the surface of the mucous membrane of some of the stomachs certain pearl-like bodies of small size; these in certain cases were very numerous, and the impression was formed that they were the result of some parasitic infection. Specimens were forwarded to Prof. Johnstone, D.Sc., of Liverpool University, and the following is his report: "The material sent to me was imported tripe which had been cleaned, prepared and frozen. The pieces I examined contained hundreds of small, iridescent, pearl-like bodies about  $\frac{1}{2}$  to  $\frac{1}{4}$  inch in diameter. Sections were made, and these were seen to be true pearls or concretions of soft material (elastic connective tissue) with a very regular lamellar structure. Because of the distortion of the tissues caused by the boiling and freezing, it was difficult to make out much detail. The medical officer of health, however, was able to get fresh material (cow's stomach) showing similar bodies. These were true soft pearls embedded in the submucous coat. Each was surrounded by a cyst wall which consisted of flattened epithelial cells, and which appears to be the formative layer. No nucleus could be seen in these pearl-like bodies. I do not doubt, however, that they originated from very small parasitic organisms which may have been sarcosporidia, or perhaps eggs of some worm parasite. These intrusive bodies were probably carried in the blood stream, and became arrested in the capillaries of the submucosa of the alimentary canal. Irritation set up a fibrosis round them, which resulted in the establishment of a formative capsule depositing concentric lamellae of connective tissue round the irritant. The latter, whatever it may have been, is quite destroyed and unrecognizable in the specimens sent. No doubt the condition is the result of an infection. I have seen somewhat similar structures in fish, where the nucleus of the pearl-like body was recognizable as the egg or larva of a cestode parasite."

#### Marriage Pronounced Null on the Ground of Insanity

Wills are often disputed on the ground of insanity, but marriages scarcely ever. This case is therefore of interest. A gentleman had been certified as insane on and off for about ten years, and was detained in a private lunatic hospital. He became enamored of a housemaid there, who was dismissed for undue familiarity with him. He contrived to escape, and married the housemaid. He was then brought

an action, as guardian of his father, for the nullification of the marriage. A lunatic is not disqualified as such from entering into contracts. In order to upset a contract on the ground of insanity it is necessary that the madness should be of such a nature as would influence his mind in entering into it. In this case the judge held that the madness was of that character. He considered that the man "was suffering from erotic mania which influenced him and that he had not the judgment of a sane man when he went through the ceremony of marriage, nor did he recognize and appreciate the responsibilities of that particular marriage." There appears to be only one other case in which a marriage was pronounced null in recent years on the ground of insanity. It is more remarkable than the present case in that the husband was not recognized as being insane until some time after the marriage and, moreover, there was a child of the marriage at the time of the trial. The husband was a paranoiac. It was proved that his insanity existed at the time of the marriage and was of such a character as to disqualify him from entering into the contract.

### PARIS LETTER

PARIS, Oct. 2, 1919.

#### Homage to Laënnec

September 12, the centenary of the first edition of the epoch-marking work, "Traité de l'auscultation médiate," by René-Théophile Hyacinthe Laënnec, the inventor of the stethoscope, was celebrated at Quimper (department of Finistère). On this occasion, a palm wreath was placed at the foot of the statue of the celebrated physician which stands in Saint-Corentin Place, and a commemorative tablet was affixed to the house where he was born. On his burial vault at Kerlouarnec, near Ploaré, another tablet was added in the presence of delegations of the medical corps and the Société archéologique de Bretagne.

In reality, we are more than a year late in celebrating the memory of one of the greatest men of which France can boast. The fact is, it was May 1, 1818, that the first work of Laënnec on auscultation was published, and it was during the course of the same year that the two volumes of the *Traité* appeared.

#### Regulation in Regard to the Employing of Civilian Physicians by Military Authorities

The regulations affecting the army medical department of the interior provide for the eventuality of the requisition by generals in command of army corps, at the instigation of regional directors of the army medical corps, of civilian physicians, in order to assure proper service among the bodies of troops and in the military hospitals, in case there should be a lack of regular army physicians or of complement of assistants.

The necessities of the situation created in the army medical department by the demobilization of the front ranks of the medical corps have made it necessary to have recourse to the cooperation of civilian physicians, and, in this connection, the impropriety of the term "requisition" has been recognized and also the fact that the foregoing regulations are out of date; accordingly, the following order has been issued in their place:

In case of an insufficiency of medical, pharmaceutical or administrative personnel, resulting in the army medical department of the interior, physicians, pharmacists, dentists and administrative officers of the reserve or of the territorial army may be temporarily enlisted to meet the emergency. Provided military personnel and the necessary complement of assistants cannot be secured, appeal may be made, under such conditions as the minister of war shall establish, to civilian physicians, pharmacists and dentists. This appeal shall not be regarded as mandatory in principle, for requisition cannot be employed except in time of mobilization and in case of absolute necessity.

#### Remuneration of Civilian Physicians

Dr. Louis Mourier, undersecretary of state for the army medical department, has decided that civilian physicians employed as medicolegal experts in connection with applications for the granting of disability claims or retiring pensions are entitled to remuneration. A compensation of 5 francs for each man examined has been allowed such consultants, no matter whether the work performed was done at a special center established for that purpose or whether the preliminary examinations and consultations took place elsewhere. This sum pays for the physician's examination and likewise for the physician's assistance in drawing up the certificate or report that is made out following the consultation.

#### Advanced Courses in Pulmonary Tuberculosis

Three advanced courses in pulmonary tuberculosis will be given in Paris during the course of the present school year (1919-1920). Each of these courses will occupy six weeks. The first will begin, October 15; the second, April 15, 1920, and the third, June 15, 1920. The instruction given will be of an essentially practical nature and will include bacteriology, pathologic anatomy, physical diagnosis, laryngology, social hygiene and the administrative technique of dispensaries. The lectures and the work in the laboratory will come in the afternoon, and the mornings will be spent by the students at individual tasks in the hospital or in the dispensary in the services of the physicians conducting the courses.

The courses will be open to French doctors of medicine and to citizens of allied and friendly nations.

The Rockefeller Commission for the Prevention of Tuberculosis in France holds a limited number of scholarships, which are at the disposal of French physicians in charge of a medical service in an antituberculosis dispensary in France or who may be officially designated by the departmental or municipal authorities or local committees to take up the management of a dispensary.

#### Personal

A clinical chair of otorhinolaryngology has been created in the Faculté de médecine de Paris. Dr. Pierre Schileau, hospital surgeon and agrégé professor at the Faculté de médecine de Paris, has been chosen as the first occupant.

#### Preferential Milk Tickets

With a view to preventing the possibility of young children and the sick being curtailed in their milk supply, the coming winter, the prefect of the department of the Seine has decided to put in force again the system of preferential milk tickets, which was in force for a period of two years during the war and which, taking it all in all, gave satisfactory results. The representatives of the wholesale milkdealers, of the milk producers' associations and the retail milkdealers have expressed a readiness to take up again with the system. Posters will be put out indicating the formalities to be complied with in order to secure preferential milk tickets, which will entitle the holders to be supplied first in case there is ever a milk shortage.

#### The Transportation of Food Supplies

The committee appointed to study the question of ways and means in connection with the transportation of food supplies gave recently an outline of the plan decided on to secure the importation to France of 400,000 tons annually of frozen meat from foreign countries and 50,000 tons from the French colonies. Certain measures have been adopted, in accordance with the regulations of the national shipbuilding board, in order that the program of the shipbuilders may be in harmony with eventual needs.

#### Death of Prof. Louis Chevrel

The death of Dr. Louis Chevrel, professor of histology in the Ecole de Plein exercice de médecine et de pharmacie de Rennes, at the age of 70, has been announced.

#### Death of Dr. Galtier-Boissière

Dr. Galtier-Boissière, director of the *Larousse médical*, died recently at Barbizon (department of the Seine-et-Marne), at the age of 63. He is the author of numerous books, chiefly on hygiene and the diseases of the respiratory passages.

## Marriages

JACOB THORKELOSON, Anaconda, Mont., to Miss Frances Higbee of Deer Lodge, Mont., at Great Falls, Mont., October 1.

BENJAMIN MERRILL RICKETS, Cincinnati, to Miss Mary Elizabeth Holliday of Knoxville, Tenn., October 1.

FRANK LAMONT MELENEY, New York City, to Miss Helen Seelye Clark of St. George, N. B., September 17.

DELON RICHARD NOTBOHM, Warren, Ill., to Miss Matilda Heller Horn of Coplay, Pa., October 2.

ALTON BOWIE REDBICK, Sylvania, Ga., to Miss Lillian Causy of Savannah, Ga., September 21.

JULIUS ALBERT ROSSEN to Miss Florence Freund, both of St. Louis, recently.

## Deaths

**Edward Grahame Parker** ♦ Capt. (Med. Dir.) U. S. Navy, Harvard University, Medical School, 1898; aged 48; who was appointed in the Navy, Jan. 10, 1899, and whose sea service included tours of duty on the U. S. S. *Pensacola, Florida, Adams, H'cheeling and Buffalo*, and whose shore duty, Tutuila, Samoa, Annapolis, Md., and the U. S. Naval Hospital, New York; and who was then placed in charge of the Dispensary in the Washington Navy Yard; died suddenly in Washington, October 24, from cerebral hemorrhage.

**Max Feldman** ♦ Newark, N. J.; University of Pennsylvania, Philadelphia, 1898; aged 47; also a graduate in pharmacy; assistant to the supervisor of medical inspection in the public schools of Newark, and head of the medical department of the school clinic; physician in charge of the Elizabeth Avenue Open Air School and the open window classes; a member of the medical staff of Beth Israel Hospital; died at his home, October 8, from meningitis.

**Ira W. Porter**, Omaha, Neb.; University of Alabama, Mobile, 1892; aged 49; a member of the Nebraska State Medical Association; sovereign physician for the Woodmen of the World, since 1898; at one time acting assistant surgeon, United States Public Health and Marine Hospital Service; professor of hygiene, and lecturer on life insurance examinations in the John A. Creighton Medical College; died at his home, October 6, from heart disease.

**Charles Sanford Allen**, Rensselaer, N. Y.; Vermont Medical College, Woodstock, 1849; aged 95; during the Civil War, assistant surgeon of One Hundred and Twenty-Fifth New York Volunteer Infantry; coroner of Rensselaer County for nine years; president of the village of Greenbush, and first mayor of the city of Rensselaer; for eighteen years, school trustee, and at one time state commissioner in lunacy; died at his home, October 5, from senile debility.

**James Burry** ♦ Chicago; Northwestern University Medical School, Chicago, 1879; aged 66; for many years, chief surgeon of the Illinois Steel Company; and surgeon of the Elgin, Joliet and Eastern Railroad; who served as Captain in the Medical Reserve Corps, U. S. Army, and was honorably discharged, March 27, 1918; one of the pioneers in roentgen-ray work in the Middle West; was found dead, October 16, on the Illinois Central tracks.

**Thomas J. McCoy** ♦ Los Angeles, Calif.; Kentucky School of Medicine, Louisville, 1880; professor of ophthalmology in the College of Physicians and Surgeons in the University of Southern California; eye and ear surgeon to a number of railways; well known as a specialist on the eye, ear, nose and throat; died at his home, October 1, from angina pectoris.

**Stephen Olin Richey**, Washington, D. C.; Northwestern University Medical School, Chicago, 1886; aged 70; a specialist on diseases of the eye and ear; a member of the American Ophthalmological Society, American Otolological Society, and Congress of American Physicians and Surgeons; died at his home, October 8, from cerebral hemorrhage.

**Joseph Edwin Harris**, Marshall, Mo.; University of Missouri, Columbia, 1881; University of Maryland, Baltimore, 1883; aged 59; a member of the Missouri State Medical Association; assistant physician of the Missouri Colony of Feeble-Minded and Epileptics, Marshall; died in the Colony, October 11.

**Garvin Gilmore Weld**, Oldtown, Me.; Dartmouth Medical College, Hanover, N. H., 1889; aged 63; for three terms mayor of Oldtown; representative of Oldtown and Penobscot in both branches of the Maine legislature; died at his home, September 28.

**Cynthia A. Skinner**, Los Angeles, Northwestern University, Woman's Medical School, Chicago, 1890; aged 68; a member of the Medical Society of the State of California; was instantly killed, October 4, when her automobile was struck by a street car in Los Angeles, October 3.

**Charles Joseph Langlois**, Pittsfield, Mass.; Maryland Medical College, Baltimore, 1911; aged 31; for three years a member of the board of health of Pittsfield, and for a time its chairman; died at his home, September 30, from acute dilatation of the heart.

**Lafayette Hansen**, Galena, Mo.; Missouri Medical College, St. Louis, 1883; aged 61; a member of the Missouri State Medical Association; local surgeon of the St. Louis, Iron

Mountain and Southern system; vice president of the Southwest Missouri Medical Society; died at his home, October 2.

**George Leonard Wakefield**, Manchester, N. H. (license, New Hampshire State Board of Medical Examiners, 1897); a practitioner since 1882; aged 72; a veteran of the civil war; died in the Eliot Hospital, Manchester, October 3.

**Charles Clifton Brown**, Coker, Ala.; University of the South, Sewanee, Tenn., 1905; aged 40; a member of the Medical Association of the State of Alabama; died at his home, about September 16.

**William Adams Seibert**, Easton, Pa.; Boston University, 1885; aged 60; trustee of the State Homeopathic Hospital, Rittersville, Pa., and of the Allentown State Hospital; died at his home, October 7.

**William S. Thomas**, Woden, Tex. (license, Texas State Board of Medical Examiners, April, 1907); a practitioner since 1868; aged 69; died in a hospital in Naacogdoches, Texas, October 2.

**Robert Morton Wolfe**, Port Carbon, Pa.; Jefferson Medical College, 1913; aged 31; a member of the Medical Society of the State of Pennsylvania; died at his home, October 7, from influenza.

**Charles H. Anderson** ♦ Grand Rapids, Mich.; Detroit College of Medicine and Surgery, 1894; aged 42; died in Blodgett Hospital, Grand Rapids, October 6, after a surgical operation.

**Lewis George Smith**, Buffalo, N. Y.; University of Victoria College, Cobourg, Ont., 1885; aged 62; a member of the Medical Society of the State of New York; died at his home, October 4.

**Julius W. Alford**, Inverness, Miss. (license, Mississippi, 1890); aged 51; a member of the Mississippi State Medical Association; died in the Greenville, Miss., Sanitarium, September 17, from nephritis.

**James F. Aydelott**, McKenzie, Minn.; University of Louisville, Ky., 1878; aged 64; a member of the Tennessee State Medical Association; died at his home, September 16, from valvular heart disease.

**Sarah Catherine Martineau**, Brooklyn, N. Y.; New York Medical College and Hospital for Women, Homeopathic, New York City, 1884; died at her home, about October 9.

**John M. Toney** ♦ Vanburen, Ind.; Medical College of Indiana, Indianapolis, 1900; aged 48; while on his way to Marion, September 30, died from heart disease.

**Alonzo Thomas Park**, Gratis, Ga.; University of Nashville, Tenn., 1859; Southern Medical College, Atlanta, Ga., 1880; aged 86; died at his home, September 15.

**Henry August Dodin** ♦ New York City; Bellevue Hospital Medical College, 1882; aged 61; died at his home, September 29, from chronic interstitial nephritis.

**Samuel B. Wood**, Roan Mountain, Tenn.; Cincinnati College of Medicine and Surgery, 1891; aged 58; died at his home, September 17, from nephritis.

**Martin L. Dorman**, Taylorville, Ill.; Kentucky School of Medicine, Louisville, 1875; aged 79; died at his home, July 10, from inflammatory rheumatism.

**Thomas Irving Deacon**, Boston; Tufts College Medical School, Boston, 1906; aged 40; died at the home of his father in Cambridge, September 20.

**Charles E. Lamont**, Fairmount, Ill.; Rush Medical College, 1865; aged 82; for thirty years a druggist of Fairmount; died at his home, September 29.

**Edwin Mussina**, Austin, Tex.; Hahnemann Medical College, Chicago, 1872; aged 79; died in a sanitarium in Waco, Tex., September 30.

**P. N. Blackerby**, Falmouth, Ky.; Cincinnati College of Medicine and Surgery, 1876; aged 74; died at his home, July 12, from nephritis.

**Jeptha D. Knott**, Monticello, Ill.; Hahnemann Medical College, Chicago, 1883; aged 58; died at his home, September 12, from diabetes.

**Samuel E. Strother**, Salem, W. Va.; University of Maryland, Baltimore, 1892; aged 54; died at his home, September 25, from neuritis.

**Frank Ezra May**, Edwardsburg, Mich.; Rush Medical College, 1887; aged 53; died at his home, October 4, from cerebral hemorrhage.

**Nicholas Re**, Chicago (license, Illinois, 1889); aged 68; died at his home, October 13, from valvular heart disease.

**Albert Clemans Rhiel**, Lowell, Ill.; University of Illinois, Chicago, 1894; died at his home, September 28.

♦ Indicates "Fellow" of the American Medical Association.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### P. PRESTO COMPANY

#### The Government Stops an Oregon Fraud

"P. Presto Company," also known as "The Presto Manufacturing Company" and "The Presto Company" was a mail-order concern operated from Albany, Oregon, by one Edward F. Lee. Lee is now in the penitentiary and the Presto Company has been debarred from the United States mails.

Lee's business was that of selling on the mail-order plan what he termed his "New Method Treatment for Sexual Weakness and Varicocele in Men." As a side-line he also sold through the mail certain remedies intended for women and sold "formulas" for making beer, whisky, ice and substitutes for meat and eggs! Under the name of "P. Presto Company" or "Presto Manufacturing Company" Lee got in touch with his victims by ways common to the medical mail-order faker, *viz.*, that of purchasing "sucker lists" from firms that make a business of selling names and addresses and by advertising in certain not-too-particular newspapers and magazines. A typical advertisement follows:

MEN OF ALL AGES — STOP GROWING OLD. You can recover and retain your youthful vigor and vitality without dangerous drugs and appliances. One New Mexico tells how. Send for free letter. The P. Presto Company, Albany, Oregon.

Those who answered these advertisements or those whose names Lee had purchased received a form letter in which Lee pointed out that his "treatment" was entirely unlike any other. Said he:

"Safe and sane and scientific, it is what every young, middle aged or old man should know, as our system will enlarge, lengthen and strengthen the organs, making the weak strong and the strong stronger and bring back the firmness of youth unlike any other method."

Lee further claimed that no matter what the cause of impotency nor how long the condition had existed, his "cure" was "rational, quick and lasting" and "would positively cure or benefit any case of weakness or loss of vigor." If the first letter failed to bring a response, a second letter was sent urging the recipient to take quick action and declaring that the price of the treatment was \$2.00 and would not be offered for any less. The letter concluded, however, with the statement that if \$1.00 was sent the "copyrighted new method" would be mailed and at the end of two months the recipient, if satisfied, could send in the other dollar.

Those who swallowed Lee's bait received a form letter containing his "copyrighted new method." The essential part of this letter read:

"So, to build up, to strengthen and increase the blood and nerve supply to the testicles, they should be stretched by placing one hand on each side of the scrotum (bag) above the testicles, and stretch them one centimeter away from the body, moving the hands from side to side in a swaying position while pulling.

"The above treatment frees the circulation in the many feet of arteries, veins, etc., and causes a strong flow of blood and nerve force to the parts. Stretch the penis the same way. Also stretch the skin of the scrotum strongly with the tips of the fingers. Above treatment should also be used for varicocele, but should be given quite gently 40, 1751.

"Should the impotency have been caused by prostate gland enlargement, insert the first (index) finger in vaseline or mild oil, and inserting the finger in the rectum, manipulate well the prostate gland, which lies right in front of the rectum and behind lower portion of the bladder."

The Government instituted action against this fraud and, on March 1, 1919, the United States grand jury at Portland,

Oregon, returned a true bill against Edward F. Lee charging him with using the mails to defraud in connection with the operation of this business. In June Lee was found guilty and sentenced to eighteen months in the United States Penitentiary at McNeil's Island, Washington, which sentence he is now serving. On Sept. 30, 1919, Judge W. H. Lamar, Solicitor for the Postoffice Department, recommended to the Postmaster-General that a fraud order be issued against the "P. Presto Company" and other names under which Lee did business debarring them from the use of the United States mail. The order was issued Oct. 8, 1919.

## Correspondence

### LIPOVACCINES AS INFLUENZA PROPHYLACTIC

Correction of Erroneous Statements in the Chicago Daily Tribune

To the Editor:—In the "How to Keep Well" section of the Chicago Tribune for Oct. 6, 1919, there appeared an article carrying the caption "Would Avert 'Flu' Attacks." This article is in some respects so misleading and reflects so seriously on the U. S. Public Health Service that I would request you to give this letter space in your columns.

The portions referred to read as follows (italics are mine):

There is considerable diversity of opinion as to whether vaccines need to be made from the local strains of bacteria. Since very few communities can get vaccines from local strains, they will have to use the standard strains or do without. Some state boards of health will furnish vaccines as they did last winter.

The question about lipovaccines is a difficult one to answer. The Public Health Service has refused to allow the commercial houses to sell lipovaccines. Some city and some state health departments will doubtless manufacture them and distribute them to their citizens.

The citizens who live in such communities are lucky. It looks as though other citizens will have to go without. The Army is supplying lipovaccines for the soldiers. They offer it to employees of the War Department. They have issued two favorable reports on lipovaccines as protective agents against pneumonia, one based upon thousands of vaccinations done at Camp Upton, and the other upon thousands of vaccinations done at Camp Wheeler. Not only are they behind it with their reports, but they are supplying it for the use of those for whose health they are responsible.

In civil life vaccination must be done at one sitting, or it will not be done at all. The people will not come three times at week intervals for injection. Therefore vaccination to be done at three sittings is not practicable. A great many people want to be vaccinated with lipovaccine. The commercial houses are willing and able to supply them with the vaccine. The Public Health Service will not let them.

The physicians who are dependent upon the commercial houses for their supplies will have to get along without lipovaccines. They can get the three injection vaccines. Some health departments will equip their physicians with the other kind.

The first statement objected to as inaccurate is the reference to the use of lipovaccines in the Army, the statement reading "The Army is supplying lipovaccines for the soldiers." The fact is that the Army discontinued distributing lipovaccine some months ago, and withdrew that which was outstanding.

It is also stated that the Army issued a favorable report on lipovaccines "based on thousands of vaccinations done at Camp Upton." This is incorrect. The fact is, as may be ascertained by a glance at the Camp Upton report (Cecil and Austin: *J. Exper. Med.* 28:21 [July] 1918), that a saline suspension vaccine was used. The reference to lipovaccine at Camp Wheeler is correct, so far as the preparation used is concerned.

The chief objection raised is to the coupling of the refusal of the U. S. Public Health Service to license lipovaccines with statements which imply that for this reason people are being deprived of a valuable prophylactic agent. The facts are that the U. S. Public Health Service has been and is conducting extensive clinical and experimental investigations of lipovaccines and is of the opinion that they are not now on a footing which makes them desirable for general use.

The lack at present of satisfactory potency and sterility tests for lipovaccines has led the bureau to decline to license such vaccines for interstate sale, and the evidence at our dis-

posal indicates that a saline vaccine containing pneumococci is at least as effective as an oil suspension of the organisms.

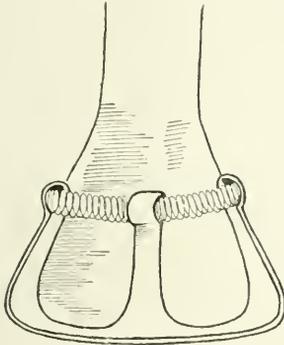
The U. S. Public Health Service has always made it a rule to license only such biologic products as are safe for general use, and within recent years has added the restriction that for original license satisfactory evidence of efficiency must be presented as well, if it is possible to secure such evidence.

Constructive and reasonable criticism is welcomed, but such an insinuation of failure of the service to perform its duties as is carried in the article referred to is unwarranted and unjust.

RUPERT BLUE, M.D., Washington, D. C.  
Surgeon-General, U. S. Public Health Service.

### A STETHOSCOPE OF INCREASED SENSITIVENESS

To the Editor:—Recently I thought of a means of making a more sensitive instrument out of a Ford or similar bell stethoscope by fitting a rubber diaphragm (such as the rubber cap from a packing strip test tube) over the bell of the stethoscope. These are inexpensive and serve the pur-



Diaphragm on bell of stethoscope, with retaining coiled spring.

pose very well. A more durable diaphragm might be made of vulcanized rubber, celluloid or metal with a retaining coiled spring of wire situated above the diaphragm on the bell, holding the diaphragm firmly in place against the bell.

JOHN B. DONALDSON, M.D., Lorain, Ohio.

### "SELF-SACRIFICE IN THE WARFARE AGAINST DISEASE"

To the Editor:—I have read with interest, pleasure and pride the editorial in your issue of Oct. 11, 1919, entitled "Self-Sacrifice in the Warfare Against Disease." It is impossible to honor too highly the nobility of the men who voluntarily, calmly, cheerfully jeopardize their lives in the conduct of an experiment undertaken to elucidate the obscurities of diagnosis and treatment: who do this with none of the inspiring features of battle and no prospect of being welcomed home as heroes if they survive, yet have had fully explained to them the risk they incur.

These men are heroes in the fullest and most beautiful meaning of the word, and we should know about them and publish to the world the story of their deeds. When such experiments are conducted on enlisted men ignorant of the exact nature of what is being done, and perhaps not appreciating the safeguards that it may be possible to throw around them, they show a sublimity of faith in science, a sublimity of love for their fellow men unequalled in any field of service and endeavor.

The annual report of the Surgeon-General of the Navy for 1919, now in press, contains the names of 138 enlisted

men of the Navy who should be remembered along with those to whom your editorial refers. When the influenza epidemic of 1918-1919 was at its height, certain experiments were carried out under the auspices of the Navy by Lieut.-Commander M. J. Rosenau, M. C., U. S. N. R. F., and Lieut. W. J. Keegan, M. C., U. S. N. R. F., and by Surg. Joseph Goldberger and Asst. Surg. G. C. Lake, both of the U. S. Public Health Service, to determine the mode of transmission of the disease. Of eighty-three enlisted men of the Navy experimented on at Boston, forty-seven gave no history of attack during the existing epidemic, and thirty-nine had never had any illness of this type in their lives. These men were inoculated with the blood of patients in the active stage of influenza, and with pure cultures of various organisms derived from influenza cases. Furthermore, both filtered and unfiltered secretions from the respiratory tract of typical *influenzal pneumonia* cases were used by spraying and swabbing to inoculate the noses and throats of the subjects. These subjects were also exposed for forty-five minutes each to infection by direct contact with influenza patients who talked, breathed and coughed into their faces. Somewhat analogous experiments, but on men who, though not previously exposed to influenza, had received inoculation with certain bacterial vaccines against the disease, were carried out simultaneously with the Boston experiments by Surg. G. W. McCoy, U. S. Public Health Service, and Lieut. DeW. G. Richey, M. C., U. S. N. R. F., on fifty members of the Navy personnel in San Francisco.

As has been stated, the experiments were performed when influenza was at its height, and the men who volunteered for them not only knew of its awful fatality but also had been witnesses of the demoralization and terror that beset communities and individuals as this public calamity garnered its thousands and tens of thousands of victims.

W. C. BRAISTED, M.D., Washington, D. C.  
Surgeon-General, U. S. Navy.

### PREVENTION OF INJURY TO PATIENTS BY FALLING FROM WINDOWS

To the Editor:—The article entitled "Fatalities in Hospitals Caused by Patients Falling from Windows (THE JOURNAL, Aug. 23, 1919, p. 604), tempts me to describe a scheme we have used in the More Hospital for a number of years to lessen the opportunities for delirious patients to escape from the hospital.

We installed a special enunciator in the main hall near the general service one. This special enunciator has a loud bell, differing in tone from the other. From this enunciator, concealed wires extend to a small copper plate in the baseboard near a corner in each room and ward. If a patient becomes delirious, his bed is rolled into the corner of the room or ward, and an electric mat about 3 by 5 feet in size is placed in front of the bed and connected by wires to the copper plate in the baseboard. Over this is placed a common rug. Any pressure, as a nurse or patient stepping on the rug, causes the bell attached to the special enunciator to ring, and is a warning to the nurses.

In a small hospital, especially, all nurses can be readily informed that there is a delirious patient in a certain room, and at the sound of the bell it is seldom necessary to go first to the enunciator to see where the call comes from. Our experience has been that the nurses are alert and respond promptly to this emergency call. I, myself, have been on the floor when the bell sounded, and have seen two or three nurses meet at the patient's bedside before he had time to leave the room. No delirious patients have escaped from the hospital or been injured.

C. W. MORR, M.D., Eveleth, Minn.

Medical Progress.—Hoppe-Seyler (1825-1895), in 1872, established the first laboratory of physiological chemistry. Von Recklinghausen (b. 1833) was studying the white blood cells, Weigert was staining bacteria with carmine, Ehrlich was staining blood. Obermeier had found the organism of relapsing fever.

## Queries and Minor Notes

## Medical Education, Registration and Hospital Service

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be printed. Every letter must contain the writer's name and address, these will be omitted, on request.

### HYOSCIN FROM HYOSCYAMUS

To the Editor.—Can you inform me as to the amount of hyoscin obtainable from one ounce of hyoscyamus?

W. K. McLAUGHLIN, M.D., Chicago.

ANSWER.—The alkaloid scopolamin (hyoscin) is usually obtained by working up the mother liquors from the preparation of hyoscyamin; but *Datura metel*, which contains about 0.5 per cent of alkaloids of which scopolamin is the chief constituent, would appear to be particularly satisfactory material from which to prepare this alkaloid.

The alkaloids of hyoscyamus consist chiefly of hyoscyamin, with a little scopolamin (hyoscin) and possible traces of atropin. The U. S. Pharmacopoeia alkaloidal standard for hyoscyamus is "not less than 0.065 per cent. of the alkaloids of hyoscyamus," but, as above mentioned, most of the alkaloidal mixture is hyoscyamin and not scopolamin. According to this standard, 1 avoirdupois ounce of hyoscyamus should contain not less than 28½ grains of the alkaloids of hyoscyamus.

The amount of scopolamin (hyoscin) in hyoscyamus is difficult to determine chemically. Its quantity being small, assays for it in hyoscyamus are not made commercially.

### THE PRESCRIBING OF ALCOHOL

To the Editor.—Kindly advise whether or not a physician is permitted to keep in stock alcohol for office use. If so, how can he secure it for this purpose, under the present law, and must he keep records? Kindly omit my name.

M.D., Columbus, Ohio.

ANSWER.—A physician may secure alcohol for professional use only by securing a permit from the collector of internal revenue of his district and giving bond to insure the proper use of the drug. A bond of \$100 permits the physician to have in his possession or in transit 20 gallons of alcohol. For regulations governing the prescribing of alcohol and alcoholic liquors, see THE JOURNAL for Oct. 4, 1919, page 1080. Permits and forms for bonds may be obtained from the internal revenue collector of the district.

### ASBESTOS JAUNDICE

To the Editor.—Does the manufacture or handling of asbestos ever cause acute or chronic jaundice in the workers with this material? Please do not publish my name.

S. L. I.

ANSWER.—We find no reports indicating that asbestos causes jaundice; asbestos does not seem to have attracted attention as a cause of any pathologic condition. It is rarely possible, however, that, like mineral wool, asbestos may be inhaled in the form of minute particles and give rise to cough and irritation of the lung which may lead to a pulmonary fibrosis.

### F. A. C. P. AND F. A. C. S.

To the Editor.—Would you let me know something about the American College of Physicians, and how one can become a F. A. C. P.? Does it correspond to the F. A. C. S.?

J. F. W. M., Brooklyn.

ANSWER.—Dr. Frank Smithies, Augustana Hospital, Chicago, is secretary of the A. C. P., and Dr. Franklin Martin, 20 N. Michigan Ave., Chicago, of the A. C. S. Write them for the desired information.

**The Infant and Prenatal Care.**—There is something so interesting, so human, so tangible, so dramatic about the new-born baby that we fail to realize that the condition of the baby at birth depends largely on the care of the mother before its birth. The pendulum is beginning to swing from babyhood to motherhood, and today we find that the first aid to the infant, the first prevention against injury, accident and disease at birth, begins from the time the mother becomes pregnant.—Jacob Sobel, M.D., *Monthly Bulletin*, New York City.

### COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James F. Hair, 730 State St., Bridgeport.

DELAWARE: Dover, Dec. 9-11. Sec. Regular Board, Dr. P. S. Downs, Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 824 Washington St., Wilmington. Pres. Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Tampa, Dec. 1-2. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.

ILLINOIS: Chicago, Dec. 1-3. Mr. F. C. Dodds, Supt. of Registration, Springfield.

KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.

LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.

MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Plattner, State House, Columbus.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McBain Bldg., Roanoke.

### ORGANIZED MANAGEMENT OF A HOSPITAL

In an article under the title "The Duty of the Hospital Trustee and His Relation to the Staff," published recently, Mr. C. H. W. Foster, a trustee of the Massachusetts General Hospital, Boston, gives what he deems "a desirable procedure in the organization and management of a hospital." Mr. Foster says that formerly only the pauper was concerned with charity, but nowadays a broader view prevails—charity is a "gift in trust for promoting the welfare of the community." Each member of a community, rich or poor, should have access to the hospital equipment and organization, and it would be uncharitable to deny either rich or poor this privilege. This means that in planning the hospital plant there will be a building for people of means with luxuries to which they are accustomed, a building equally comfortable but less luxurious and expensive for people of moderate means, and a third building for the poor. The people of means will pay full price, the people of moderate means as much as they can, while the poor will pay little or nothing. Any profit made in one branch of the institution will be used to pay a deficit in another branch. By treating all classes in the community with the same medical organization, there is avoided the grading of the medical profession which might take place if the rich and poor had separately chartered hospitals. The trustee must see also that the best professional treatment that is in the physician is given to each and every patient alike, whether charity or not.

### HOSPITAL ORGANIZATION

Mr. Foster suggests three divisions for every hospital: (1) professional—treatment and direct care of the patients; (2) administrative—concerning housing, feeding and financial questions of the hospital; (3) educational—and scientific department.

The professional division will have: (a) a medical director; (b) a general executive committee; (c) a resident physician, and (d) staff nurses, orderlies, and the like.

**Medical Director.**—The medical director is appointed by the trustees, and is ex officio chairman of the executive committee, but without a vote. He should be expected to

concentrate all his professional activities at the hospital, and may receive a salary. He should be the principal adviser of the trustees as to medical policies, should represent the hospital on important medical occasions, and in general should concern himself with the medical progress and reputation of the hospital. He should have authority to order the resident physician or administrator to suspend any person or action until the matter can be referred to the executive committee or trustees. In regard to the professional activities of the hospital, he should not only be considered as having authority to investigate and interview, but should also be expected to do so—with the idea of cooperating as well as of becoming informed.

**Executive Committee.**—The executive committee should consist of two chiefs of the medical services, two chiefs of the surgical services, two special department chiefs, and a junior medical or surgical man. The latter member will hold the office only during his months of service, and the medical and surgical will rotate in filling the position. The medical director will act as chairman and the resident physician as secretary, without power of voting.

**Resident Physician.**—The resident physician should have the immediate superintendence of the medical and surgical departments, except as to the direct treatment of patients. He should admit and assign patients to the hospital, should have control of interns, externs, nurses orderlies and apothecaries, and in general should see that the rules of the trustees and the orders of the physicians as to the treatment of patients are carried out. He should give his whole time to the hospital, and will be paid.

**Administrator.**—The administrator should be appointed by the trustees, on nomination of their finance committee and treasurer, whose agent he will be in regard to all money matters and accounting. He should have charge of the plant, building operations, housing, feeding and purchasing. He should create a budget of income and expense, and keep the various department heads informed concerning their part in it.

**Staff.**—The trustees should generally ask the executive committee for nominations to staff positions, but should reserve to themselves the right to appoint any other candidate. As to the composition and duties of a staff, let us accept this form: There will be two medical services, each with its chief, and two surgical, each with its chief. One medical and one surgical will be continuous services; the others will be so-called clinical services, in which each participating physician will serve only a certain number of months per annum. The continuous service provides a better opportunity for research work and training, while the clinical service enables a larger number of men to get the hospital experience with time also to engage in private practice. To provide a living for the continuous service men, one plan is that they be given the preference in the allotment of patients of means and of the great middle class—both of which classes will pay a professional fee. In some just way the hospital should regulate the fees and collect them for these full-time physicians, and thus give them time for their professional research work. Speaking for the eastern part of the country, at least, Mr. Foster asserts that an ample living for all the continuous service and research men who might wish to work in the hospital is being lost through the failure of the hospitals to provide accommodations for people of moderate means. Hundreds of would-be patients who are suffering and avoiding treatment because they cannot afford the modern-day costs must be treated in some such cooperative way as is possible in a hospital, and in that way save professional time and other costs.

Experience seems to show, according to Mr. Foster, that it is good policy to fill vacancies on the staff by promotions, but not necessarily by seniority, and that the prestige of the hospital will fall under this plan unless the greatest care is taken in the selection of the young men and unless they are given opportunity and encouragement to develop. Answering the contention that this plan of promoting from within is liable to make a nonprogressive and self-satisfied staff and that it is stimulating to introduce new blood by an occa-

sional appointment from without, he believes that much of this stimulation might be obtained by inviting celebrated medical men to visit, lecture and operate, or that some sort of an exchange professor idea might be adopted similar to that in vogue between colleges.

**Educational and Scientific Division.**—This will include the various laboratories, roentgen-ray, and special investigation work, necropsies, record rooms, medical libraries, and the relations of the hospital to medical schools and other medical institutions. There will be a committee of men in the hospital who will study the welfare of the division and further its development. The chairman will be appointed by the trustees, and with others in this division, if continuous service men, should receive a living from the hospital. The medical director should be a member ex-officio of this committee or be in constant touch with its doings. He will find in this department the force which attracts the young men of greatest promise, and, through its discoveries, he may expect the making of a great reputation for the hospital.

**Personal Relations Between Trustees and Staff.**—The trustee should show firmness when needed, but should aid and encourage to an accomplishment the ambitions and efforts of the members of the staff. He must, with justice and consideration recognize that physicians and hospital people are human; that they are, as a rule, denied their fair share of money and recreation, and that their compensation lies largely in the success of their work. The trustee must establish standards which will create respect, which will make effort worth while, and then encourage all hands to forget themselves in the accomplishment. Then we shall have a real hospital both in name and in spirit.

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## Book Notices

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**CEREBRO-SPINAL FEVER: THE ETIOLOGY, SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.** By C. Worcester-Drought, M.A., M.B., Captain (Temp.) R. A. M. C., Officer-in-Charge Cerebro Spinal Fever Ward, and Alex. Mills Kennedy, M.D. (Both. Price, 30 shillings net. Pp. 514, with 64 illustrations. New York: Macmillan Company, 1919.

During the past few years, much progress has been made in the bacteriology and treatment of epidemic meningitis. The excellent book now under consideration is based largely on the observations of the authors while in charge of the disease among the troops of an English military district. The recent literature is drawn on also, although one misses references to some recent American work, notably Herrick's study of general meningococcus infection. There are twenty chapters in all, and the various phases of epidemic meningitis are dealt with thoroughly and satisfactorily. The book is the best we have on its subject, and will be of great value to all who may have to deal with epidemic meningitis, whether from the clinical, bacteriologic and serologic, or epidemiologic point of view.

**MILK.** By Paul G. Heineman, Ph.D., Director of the Laboratories of the United States Standard Serum Company, Woodworth, Wisconsin. (Cloth. Price, \$6 net. Pp. 684, with 237 illustrations. Philadelphia: W. B. Saunders Company, 1919.

The foundation for this book was laid during a connection of thirteen years with the Department of Hygiene and Bacteriology of the University of Chicago, in which position the author conducted laboratory and lecture courses on "The Sanitary Aspect of Milk Supplies." The opening chapter is devoted to a brief but lucid review of the historical evolution of the dairy industry. There follow chapters which present in detail the physiology of lactation, and the physical and chemical properties of milk. The technical methods used in the physical and chemical examination of milk are described in detail, as are also those related to adulterations. There is a complete discussion of the sources and kinds of micro-organisms in milk. The subject of milk-borne infections is treated in a lucid manner with due regard to the relative importance of the different diseases. Separate chapters are devoted to certified milk, pasteuriza-

tion, and control of milk supplies. The economic aspect of milk is discussed. A valuable chapter on milk in its relation to infant feeding has been written by Drs. Isaac A. Abt and Abraham Levinson. The closing chapters deal with butter, cheese, ice cream and ices, condensed and desiccated milk, and milk from mammals other than the cow. The value of the book has been much enhanced by the addition of a fairly inclusive bibliography at the end of each chapter. The entire book is profusely illustrated. This work should prove of much value to every one who is interested in the subject of milk, whether as physician, sanitarian, producer or student. The author has handled the topics from practical, first-hand knowledge; his experience as teacher and investigator has enabled him to make a well balanced presentation of his subject.

A TEXT BOOK OF UROLOGY IN MEN, WOMEN AND CHILDREN, Including Urinary and Sexual Infections, Urethroscopy and Cystoscopy. By Victor Cox Pedersen, A.M., M.D., F.A.C.S., Major, Medical Corps, United States Army. Cloth. Price: \$7. Pp. 901, with 375 illustrations. Philadelphia: Lea & Febiger, 1919.

The author states that this work is planned on a rather uniform discussion of the clinical side of the diseases included, for the benefit of students and general practitioners. A wealth of clinical details is offered, the presentation of which is facilitated by a large number of well selected illustrations; but it is not easy for the reader to reconcile himself to the method by which this material has been arranged. The discussion of general principles of diagnosis and treatment is placed in the middle of the book, after urethritis, acute and chronic. Cystoscopy and urethroscopy are explained in the twelfth and thirteenth chapters, while cystitis and urethrocystitis are discussed in Chapters II and III. The technic of nephrectomy is minutely described in the chapter on complications of urethritis, which is scarcely the place. The unevenness in handling the various topics is pronounced. For instance, hysterectomy indicated by gonorrhoeal infection of the uterus, hardly to be mentioned under urology, is extensively and minutely described, while the operative interferences for removal of the hypertrophied prostate are disposed of in a very few lines. The enthusiasm of the author concerning electrotherapy in urology will hardly be shared by the majority of his confrères. Inaccuracies, such as "Subphrenic abscess and perinephritis are infections," or "The symptomatology is acute, subacute and chronic," could have been easily avoided. The ponderous and involved language of the author is irksome. In view of the quality of most of the extensive material contained in this book it is unfortunate that a little more time was not taken to correct the defects of construction which have been mentioned.

## Medicolegal

### Ill Passenger Being Required to Change Berths

(*Pullman Co. v. Anderson (Miss.)*, 81 So. R. 276)

The Supreme Court of Mississippi had here an action brought by Mrs. Anderson to recover damages because, according to her allegations, when, some weeks after she had been operated on for a severe and critical abdominal trouble, she purchased a ticket for a certain lower berth from Colorado Springs to Memphis, Tenn., in a Pullman sleeping car in which she would have the companionship of a physician and of a trained nurse, she was required twice to take other berths, and later was told that the only berth that could be given her was in a car three cars back, which worried and prostrated her, until finally some women, seeing her condition, gave her their berth in that car and went to the other one; that she suffered great physical and mental pain, could not get much rest that night, and continued ill the next day. The court says that its members were equally divided on the question of the defendant's liability, but all agreed that, conceding liability, the verdict of \$2,000 that was returned in favor of the plaintiff was grossly excessive.

The decision is that, if a remittitur of all in excess of \$300 should be entered, the judgment of the court below would be affirmed; otherwise, it would be reversed and the cause remanded.

### Liability of Visiting Surgeon for Injury from Cast

(*Napier v. Greenzwieg (U. S.)*, 256 Fed. R. 196)

The United States Circuit Court of Appeals, Second Circuit, in affirming a judgment for \$7,709.57 against defendant Napier, says that the plaintiff, a boy 5 years of age, was a citizen of Russia residing in New York, and was admitted to a county hospital to be treated for bow legs. The defendant was a visiting surgeon on the hospital staff, but, as the visiting surgeons took turns in visiting the adult and infant wards, and the defendant was in charge of the adult ward when the operation was performed and the casts were put on the plaintiff, July 7, and the defendant did not see him until July 12, no fault was found, so far as the defendant was concerned, with what happened prior to July 12, when he first took charge of the case. The complaint was that, when it was apparent, July 12, that the cast or the bandages on the left leg were too tight and interfered with the proper circulation of the blood, as disclosed by the swelling of the toes and their cyanosed condition, the defendant prevented the opening of the cast and the bandages and their removal until July 16, when gangrenous conditions had set in which made amputation of the left leg a little below the knee necessary.

The ailment for which the plaintiff was treated was not of a serious nature, and a proper course of treatment thereof is not dangerous to the patient. But the treatment in this case made it necessary to amputate the left leg as stated, and this notwithstanding the fact that the experts had never known of an amputation which resulted from an operation for bow legs. So a jury might well conclude that, if in this case there was such an operation, some one was guilty either of negligence or want of skill; and the question the jury had to decide was to determine whether this defendant in what he did or did not do was at fault. There was evidence that when the swelling of the toes of the left foot, followed by cyanosis, was discovered the intern cut down the plaster around the toes and leg up a distance of 5 or 6 inches, and relief followed. But this was not sufficient, and the same conditions again asserted themselves. Thereupon the intern said that he cut the cast from the bottom to the top, and intended spreading the cast and cutting the bandages beneath, so as to eliminate the pressure from the leg; but, just as he cut the cast, the defendant appeared in the ward and told him to stop, and not to proceed further with it; and because of this order, which he was bound to obey as coming from his superior, nothing further for the relief or spreading of the cast was done until July 16, when the cast was removed by one of the defendant's assistants and a looser cast was applied. The defendant, however, denied that he directed the intern to stop the cutting, July 12, and testified that he himself proceeded to cut the cast at that time from end to end, and the bandages beneath, which he removed, having spread the cast apart like a trough. There was thus a direct conflict in the evidence, and it was for the jury, who saw and heard the witnesses, to determine what the truth was. It was said that the testimony on which the verdict was based was incredible, but, while it is the duty of a court to determine the competence of a witness, the credibility of the witness is for the jury.

The law is well established that a surgeon or physician attending a patient is bound by his contract to possess and to give the case such reasonable and ordinary skill and diligence as surgeons or physicians in similar localities and in the same general line of practice ordinarily exercise in like cases. Inasmuch as the surgeon's obligation is imposed by law, the law requires the same degree of care and diligence of the surgeon, or of the physician, when his services are rendered gratuitously, as when he receives compensation. So no question was raised in this case as to whether the child or his father was under agreement to compensate or had compensated this defendant for his services. In cases of

alleged malpractice, the burden is on the plaintiff to establish that the defendant failed to exercise the skill which the law demanded, or that in his treatment of the case he was guilty of negligence. He must establish this by a preponderance of the evidence.

## Society Proceedings

### COMING MEETINGS

American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.  
American Child Hygiene Association, Asheville, N. C., Nov. 11-13.  
American Public Health Assn., New Orleans, Oct. 2-8.  
Clinical Congress, Am. Coll. of Surgeons, New York City, Oct. 20-23.  
Southern Medical Association, Asheville, N. C., Nov. 1-13.  
Southern Minnesota Medical Assn., Mankato, Dec. 1-3.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Dec. 15-16.

### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Thirty-Second Annual Meeting, held in Cincinnati, Dec. 17, 1919  
(Continued from page 1239)

#### Prenatal Care

DR. SYLVESTER J. GOODMAN, Columbus, Ohio: The average obstetrician thinks it more important to know the technic of applying forceps and of making cesarean sections than what constitutes prenatal care. Diet, to keep the baby small and its tones elastic, is folly.

#### Fundamental Repair of Partial and Complete Lacerations of Perineum

DR. ALBERT GOLDSPOHN, Chicago: All purse-string or figure of eight sutures that engage the levator structures, and also some structures in the outer portion of the wound or the skin are wrong in principle and poor in effort. Efficient union of the most important parts (levator and urogenital diaphragm) can be secured only by direct apposition without any intervening tissues, by means of direct and transversely placed buried sutures.

#### Median Episiotomy in Primiparous Labors

DR. JAMES A. HARRAR, New York: Median episiotomy is a simple operation of valuable assistance in preventing relaxation of the pelvic floor after labor, in shortening the second stage of labor, and in reducing the number of low forceps operations. It is better than the lateral incision, as it separates chiefly muscles in the raphe rather than in their continuity. Median episiotomy wounds heal better than lateral ones or spontaneous lacerations.

#### Incidence in Malignancy in Gallbladder Disease

DR. JOHN F. ERDMANN, New York: Among 1903 patients operated on, 224 had cholecystitis, and fifteen of these had malignant disease in the gallbladder. In thirteen cases the primary focus could not be demonstrated positively, but in the majority of these cases, the point of greatest involvement was in the neighborhood of the gallbladder. In all of the cases of carcinoma of the gallbladder recorded in this communication, stones were found in the gallbladder. I have found that interference with the gallbladder, unless a complete cholecystectomy can be done, is prone to be followed by a rapid death. An established diagnosis of cholecystitis predicates the possibility of occurrence of cancer, almost double that of the possibility of a mortality in case of operation.

#### Inversion of Uterus

DR. H. WELLINGTON YATES, Detroit: The greater majority of inversions are due to faulty technic. The cord should not be dragged down, Credé's method should not be employed indiscriminately; in no instance should the fundus uteri be so pressed down that indentation is made on it; Credé's method should not be employed except when the uterus is in contraction. This is highly important. The obstetrician should

remain with the patient until a firm uterine retraction has been established. The more recent the inversion, the more surely and safely can it be reduced.

#### Cesarean Section: Its Indications and Technic

DR. ARTHUR J. KEEL, Cleveland: In many small hospitals, without a well organized surgical staff, the technic is so poor that one must question a surgeon's right to subject a patient to this uncertain factor. My preference is to operate after labor has started. The cervical dilatation thus secured permits freer drainage, less movement in the uterine wound. When a patient has had one section for disproportion, the abdominal route should be chosen for the next delivery. If the first section was for any cause except disproportion, the patient should be in the hospital with competent supervision, and the method of delivery selected as circumstances may indicate. The repeated section is by no means so simple an operation as the first one. Adhesions are the rule. This incision for the second operation is best made lower down than the first and lateral to it, going through the peritoneum first at the lower angle. In this manner one usually enters the free peritoneal cavity at once and can deal with adhesions advantageously. It has been my practice to free the uterus thoroughly, but to leave the adhesions to the abdominal wall alone, if they present no special reason for interference.

#### Prophylaxis of Gestation

DR. ASA B. DAVIS, New York: Prophylaxis of pregnancy (prenatal care) means a supervision of the pregnant woman throughout the whole nine months of gestation. It means the giving of instruction to her as to her mode of life, clothing, her occupation, exercise, sleep, diet, the attention to hygienic care of her body, bathing, the avoidance of constipation, etc. The aim should be to anticipate and avert complications, and to detect them early if they do arise, while they are yet relatively unimportant and treat them.

#### Version

DR. IRVING W. POTTER, Buffalo: Among 1,010 women, version was performed 680 times. For delayed rotation of the occiput from either the right or left posterior position, there were 545 cases; four face presentations with the chin either anterior or posterior; prolapsed cord, nine cases; arm presenting, three cases; placenta praevia marginalis, eight cases. There were forty-three stillborn children, the total fetal mortality.

#### Cystic Ovary

DR. FRANCIS REDER, St. Louis: A cystic ovary is usually discovered in the course of an abdominal operation. Resection of the cystic area and puncture of the scattered cysts alone rarely cure the condition. Proper suspension of the organ to reestablish and augment its vascular supply, together with a well regulated hygienic management of the patient, may eventually effect a cure.

#### Chronic Oophoritis and the Cystic Ovary

DR. OTTO H. SCHWARZ, St. Louis: Chronic oophoritis necessarily means a chronic inflammatory process in the ovary. It is almost always a secondary disease, secondary usually to an infection of the tubes, and therefore most frequently of gonorrhoeal origin. Periovarian adhesions with sclerotic changes in the ovary are most characteristic. In my work, cystic degeneration of the ovary was found most frequently in cases of noninflammatory nature. In a considerable majority of cases there were no changes in the ovary which could be attributed to inflammation. Small round cell infiltration, one of the usual findings in chronic inflammation, was not in evidence.

#### Adenomyoma of Ovary and Rectovaginal Septum

DR. OTTO H. SCHWARZ, St. Louis: The tumor of the rectovaginal septum represents a new growth in its earliest stage and brings up the possibility of recognizing this type of tumor clinically at this early period. Only a few well described cases of adenomyoma of the ovary have been reported in the literature. Adenomyomas of the rectovaginal septum usually start just behind the cervix, and on manual examination one can feel in this region a small, somewhat movable nodule

scarcely more than 1 cm. in diameter. The rectal mucosa can readily be made to slide over the tumor.

#### Treatment of Vaginal Discharge

DR. GEORGE F. CHANDLER, Kingston, N. Y.: I treat ordinary discharges of the vagina by a so-called dry method. Six treatments are given. The first three treatments consist of swabbing the cervical canal with pure phenol (carbolic acid) and painting the entire vaginal mucous membrane with a weak solution of iodine, after which the vagina is packed with dry sterile gauze in sufficient quantity to straighten out all the folds. The last three treatments consist of the application of a powder made of equal parts of stearate of zinc, starch and boric acid, and packing the vagina with sterile gauze.

#### Buried Loop Operation for Shortening the Round Ligaments

DR. JOHN NORVAL BELL, Detroit: The usual median incision having been made, the round ligaments are brought out through a perforation of the abdominal wall, as in the Gilliam operation. A strip of fascia from one-half to 1 inch in width is cut transversely and dissected from the rectus. The fascial flap is drawn through the loop of ligament, replaced in its original position and sutured there. The loop of the ligament is buried beneath the fascia, and cannot escape to slide back into the abdominal cavity. The flap can be cut to accommodate the length of the loop.

#### Varieties and Treatment of Dysmenorrhea

DR. J. H. CARSTENS, Detroit: Dysmenorrhea is due to obstruction, to abnormal conditions of the membrane, to inflammation of the tubes, to pelvic adhesions, and to an aberrant action of one or more of the ductless glands. Treatment should consist of dilatation and the use of the stem pessary to make it permanent; abdominal section and removal of the tubes or their restoration; breaking up adhesions, and the use of preparations of ductless glands.

#### The Stem Pessary

DR. THURSON S. WELTON, Brooklyn: In the absence of infection, a stem pessary may be introduced, provided the patient refrains from sexual relations while the stem is in place, puts herself under constant observation, and reports to her physician at the first early indication of trouble. This pessary gives excellent results in properly selected cases of dysmenorrhea; otherwise my results with the pessary have been negative.

#### Bands in the Right Upper Abdominal Quadrant

DR. WILLIAM S. BAINBRIDGE, New York: The prone position often fails to give the surgeon an exact conception of the conditions present when the abdomen is opened. The reverse Trendelenburg will be of aid in arriving at an exact diagnosis. Frequently we must also make traction downward on the hollow organs so as to picture what would be the relations if the erect posture were assumed. Early adequate attention to bands and adhesions in the right upper abdominal quadrant often makes such operations as cholecystotomy, cholecystectomy and gastro-enterostomy unnecessary.

#### Short Incisions Versus Long Incisions

DR. ROBERT T. MORRIS, New York: In operative work we are to use as short incisions and as little manipulation of the tissues as may be safest for our purposes. The operator who is not very expert requires a great deal of room for his work. He must work by sight and through an incision perhaps several inches in length, whereas a most expert operator can operate through an incision 1, 2 or 3 inches in length. In other words, a very short incision is the one which on general principles gives the smallest proportion of toxic substance and the smallest degree of destructive nerve impulse. On the other hand, what I call the mackerel incision, such as one learns in the fish-shop, is the one that gives the greatest degree of shock. Therefore, it is very desirable to use the shortest incision possible for one's work through which he may work safely and comfortably in the interest of the patient.

#### Syphilis as a Cause of Delayed Healing in the Noninfected Abdominal Incision

DR. WILLIAM EDGAR DARNALL, Atlantic City, N. J.: In my experience I can find only three cases. Two patients were definitely syphilitic and the third probably so. This evidence is enough to suggest syphilis as one of the causes, at least, of delayed healing in the abdominal incision.

#### Cancer Significance of Mammary Adenoma

DR. WILLIAM J. GILLETTE, Toledo, Ohio: Adenoma of the primary type or stage in persons under 30 years of age may be removed together with their capsule and a wide margin of the adjacent stroma and a very favorable prognosis furnished; but in women over 30 years of age, even this type should be considered potentially malignant. Cases of secondary hyperplasia should be considered as precancerous; and while they do not require so extensive an operation as the removal of the underlying muscles together with the axillary glands, yet no portion of the mammae should be left. The tertiary type is fully developed cancer and should be treated as such. With all due deference to the conservative pathologist, clinical experience proves that so-called benign adenomas of the mammary gland are often anything but benign.

### INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held in Indianapolis, Sept. 26-27, 1919

(Continued from page 1238)

#### Meningococcus Cerebrospinal Meningitis

DR. JOHN A. MACDONALD, Indianapolis: The mode of transmission and avenue of entrance of the organism are of prime importance. That transmission, owing to the extreme fragility of the meningococcus when removed from the body and dried or exposed to light, must be through the human host, is now well established; and since no other avenue of exit or entrance to the body but by way of the secretions of the nasopharyngeal tract is known, the conclusion seems unassailable that the perpetuation of meningococcus infection depends on the human carrier. The carrier problem in the U. S. Army was the subject of careful study and exhaustive research. The result of these studies emphasized the importance, first, of rigid isolation of all meningococcus infection, and if possible the identification of the type of organism present; second, the frequent making of nasopharyngeal cultures from all attendants and contacts; third, the isolation of all carriers discovered; and what is of the utmost importance, the frequent clinical observation of these carriers for symptoms of the disease, since a not inconsiderable percentage of the carriers are already in the incubation period. In addition to intravenous and intraspinal injections, the general principles of treatment should not be lost sight of, and morphine should be used freely to combat pain and restlessness. The abundant administration of water at frequent intervals is particularly essential.

#### Meningitis: Neurologic Manifestations

DR. CHARLES D. HUMES, Indianapolis: I wish to refer especially to the undifferentiated group of cases of idiopathic epilepsy in which the history usually reveals nothing of importance, except, perhaps, gastro-intestinal colic in babyhood which seemed to provoke spasms. Because of the similarity of the spinal fluid in chronic meningitis and epilepsy, so-called, I further associate the two conditions. There is one indisputable fact in both cases, namely, that the cerebrospinal fluid in idiopathic epilepsy and in chronic meningitis does not reduce Fehling's solution. I am convinced that a very large percentage of our epileptics and mental defectives have been the victims in early babyhood or adult life of an intraspinal pathologic condition. So far as the neurologic symptoms are concerned, we can accept this general statement as a fact: that no part of the central nervous system is invulnerable to infection, so that as surely as the convexity or base of the brain is infected, any or all of the adjacent structures may be affected singly or col-

lectively with arrested function, producing any or all of the disturbances of the special senses, interrupting the reflex arcs, irritating the centers of motion, interrupting pathways of movement, and blunting or blocking the afferent pathways, interfering with the visceral functions, resulting in early or late, partial or complete loss of function in its entirety, and obscuring the entire clinical picture with a veil of mental cloudiness and profound psychic reaction.

## DISCUSSION OF PAPERS BY DRs. MACDONALD AND HUMES

DR. C. NORMAN HOWARD, Warsaw: After the meningococcus lodges on the mucous membrane of the nasopharynx in one who is not immune, it is thought that it passes into the blood stream and produces its havoc through that channel rather than up through the cribriform plate to the meninges of the brain, as was formerly the more general belief. I should like, therefore, to emphasize the need, in examining suspected carriers, of passing the cotton wound applicator through the nares clear back to the posterior wall of the pharynx. If the culture made from this secretion is positive, then the logical procedure is to isolate the carrier and eliminate from his nasopharynx the dangerous germs.

DR. A. C. KIMBERLIN, Indianapolis: When one is not able to diagnose the specific disease, and one lies in mind the nervous symptoms, one should not think they will present themselves in the same order, the same degree or with the same symptomatology, because they will not. A good laboratory is a great aid in diagnosis; otherwise, the patient should be isolated. There is only one means of prevention, and that is isolation.

## Active Mobilization in Joint Conditions

DR. E. B. MUMFORD, Indianapolis: The keynote of Willems' treatment is immediate, continuous, active mobilization. The joint is moved as soon as the patient has awakened from the anesthesia; it is moved as often during the day as the power of the muscles will permit, and even in the night the patient may be awakened to take his exercises; all motions must be made by the muscles controlling that particular joint, neither the surgeon nor nurse nor patient giving any passive motion. Drains into or to the joint are not used. The dressing is plain sterile gauze, arranged so as to give freedom of motion at the joint level. As soon as the patient has awakened from the anesthesia, the active mobilization is begun, and after that the success of the treatment depends on the patient. The pain is not the severe pain of an acutely inflamed joint, nor that caused by passive motions to break up adhesions. At the end of from twenty-four to forty-eight hours the pain is a negative factor, and at the end of a week the patient may be allowed to take a few steps each day. Fever is not a contraindication of active mobilization.

## DISCUSSION

DR. WILLIAM R. DAVIDSON, Evansville: I do not think that we can realize to what extent Willems' work is going to influence our ideas of mobilization in general. If it applies to one joint, then why not to all? Why not even to abdominal work in which there is pus?

DR. EDWARD D. CLARK, Indianapolis: This is the first time we have used rational treatment for infected joints, a treatment that will get rid of pus and prevent adhesions.

DR. GEORGE R. MARSHALL, Kokomo: While it is a great thing to be able to secure a movable joint, sometimes it is a great nuisance. A painful, unstable knee joint is certainly worse than a stiff one. This point should be discussed before we put it in practice with private patients.

DR. H. O. BRUGEMAN, Fort Wayne: If one is going to use this method, one must have the patient within twenty-four or forty-eight hours after the injury. In regard to the future of these patients, one can always stiffen a joint, but nobody can get good mobilization of a joint once it is stiffened.

DR. FREDERICK A. TUCKER, Noblesville: The time to use this method is as soon as possible after the injury, not late. If it is done early and kept up, one will have good results

(To be continued)

## Current Medical Literature

## AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

## American Journal of Public Health, Concord, N. H.

October, 1919, 9, No. 10

- Influenza Mortality Among Wage Earners and Their Families. L. K. Frank and L. E. Dohlin, New York City.—p. 731.  
Health of the College. E. C. Howe, Wellesley College.—p. 749.  
Change in Seasonal Distribution of Disease in Chicago; and Relation of Influenza Thereto. W. A. Evans, Chicago, p. 760.  
Fight Against Tuberculosis in France. S. M. Gunn, Paris.—p. 767.  
Present and Future of Public Health Work in Kentucky. A. T. McCormack, Louisville.—p. 776.  
Alabama's Accomplishment in One-Half Year of Public Health Administration. S. W. Welch, Montgomery, Ala.—p. 779.  
What Louisiana is Doing. A. Morris, New Orleans.—p. 780.  
Plans and Personnel of the Recently Created New Mexico State Board. C. E. Waller, Albuquerque, N. M.—p. 783.

## Archives of Internal Medicine, Chicago

Oct. 15, 1919, 24, No. 4

- \*Production of Bright's Disease by Feeding High Protein Diets. L. H. Newburgh, Ann Arbor, Mich.—p. 359.  
\*Cutaneous Reaction and Desensitization in Quinin Idiosyncrasy. J. J. O'Malley and D. G. Richey, U. S. Navy.—p. 378.  
\*Protozoologic and Clinical Studies on Treatment of Protozoal Dysentery with Benzyl Benzoate. F. G. Haightwout, P. T. Lantin and M. A. Asuzano, Manila, P. I.—p. 383.  
Relative Efficacy of Different Methods of Treating Pneumonia. R. Pearl, Baltimore.—p. 398.  
\*Basal Metabolism in Hypothyroidism. J. H. Means and J. C. Aub, Boston.—p. 404.  
\*Relation of Neurocirculatory Asthenia to Hypertthyroidism as Determined by Effects of Injection of Epinephrin. E. P. Boas, New York.—p. 419.  
Significance of Abnormalities in Form of Electrocardiogram. G. C. Robinson, St. Louis.—p. 427.  
\*Use of Lueders Methods in Diagnosis of Early Hypertthyroidism. C. W. Lueders, Philadelphia.—p. 437.  
\*Control of Acidosis in Treatment of Diabetics. E. Stillman, New York.—p. 445.  
\*Sinuatrial Heart Block in a Child; Effects of Atropin and Vagus Stimulation. N. W. Brown, Baltimore.—p. 458.

**High Protein Diet Causes Bright's Disease.**—The experiments which form the substance of Newburgh's paper were undertaken with the intention of discovering whether nephritis will be produced when the kidneys have been eliminating an unusually large amount of nitrogenous material over a considerable period of time. To attain this end, rabbits were fed diets abnormally high in protein. The following results were obtained: Renal injury was very quickly and constantly noted in rabbits that ate several egg whites daily. Prolonged egg white feeding caused acute and subacute nephritis. When the nitrogenous metabolism was increased by means of casein, rabbits suffered no demonstrable renal injury from eating 15 gm. of casein daily; but when the daily intake of casein was 30 gm. and the nitrogen metabolism was about three times normal, a well marked deleterious effect on the kidney was produced. Rabbits that lived on soy beans for months regularly acquired chronic nephritis and frequently died of it. The nitrogen metabolism from this diet was about twice the normal. The renal lesion produced by feeding high protein diets was not caused by the passage of too much urea through the kidney. The data obtained by Newburgh suggest that the kidney injury is related to those digestion products of protein which vary both quantitatively and qualitatively with the type of protein eaten.

**Quinin Idiosyncrasy.** Two new cases of idiosyncrasy to quinin are reported by O'Malley and Richey. The hypersensitivity to quinin was acquired by these patients. In neither case could a similar familial tendency be elicited. The clinical manifestations were extremely suggestive of cinchousm, and it was found that neither individual reacted with any of the other common drugs where idiosyncrasies are known to occur. Furthermore, it was found that in one case the tolerance was somewhat less than 0.03 gm. quinin when given by mouth and in the other it was about 0.25 gm. quinin when given by mouth or intravenously in a 5 per

cent. solution. Both men failed to react clinically with the other alkaloids of cinchona, whereas the various salts of quinin produced a reaction in sufficient dosages. A method of desensitization described by Heran and Saint Girons proved efficacious in one case and increased the tolerance in another. The intensity of the cutaneous reaction was found to be in inverse ratio to the degree of desensitization obtained.

**Benzyl Benzoate in Protozoal Dysentery.**—The authors have employed benzyl benzoate in the treatment of eight cases of endamebic dysentery uncomplicated by bacillary infection, and have seen markedly good results in every case. All the cases were of the acute type and varied in severity. No ill effects on the alimentary or excretory tracts followed the administration of benzyl benzoate. In no case has the drug unfavorably altered the course of any case. On the contrary, its administration has always been accompanied by a marked alleviation of both the objective and subjective symptoms of the disease. It gives the patient much needed rest and permits him to sleep at night. Under the administration of the drug the endamebas disappeared from the stools in nearly every case as the general symptoms subsided. The benzyl benzoate was administered in a small amount of cold water, three times a day, after meals. The doses employed varied from 20 to 30 drops of the 20 per cent. alcoholic solution.

**Basal Metabolism in Hypothyroidism.**—Basal metabolism determinations were made by Means and Aub in three untreated cases of myxedema. All showed a definite reduction below that of normal individuals of the same age and sex. Similarly, the basal metabolism in an untreated cretin and in a case of cachexia strumipriva showed a marked reduction. In the latter case the fall in metabolism antedated the clinical appearance of hypothyroidism. In a case of carcinoma of the thyroid a moderate reduction in basal metabolism was found, both before and after thyroidectomy without clinical evidence of hypothyroidism. The metabolism of all patients studied during thyroid therapy was readily brought to normal or above by the administration of thyroid extract. The authors emphasize that the determination of the basal metabolism forms a sound and convenient method for governing the dosage of thyroid preparations in cases of hypothyroidism, and furnishes a far better guide in this respect than does the clinical picture. It is also of value as a means of differential diagnosis in obscure cases. In the treatment of hypothyroidism, doses of from 3 to 4 grains of thyroid extract, daily, should be ample to bring the metabolism to normal in two or three weeks, and doses of from 1 to 2 grains daily should usually be sufficient to keep it here. Cases of cachexia strumipriva may require larger maintenance doses than those of spontaneous hypothyroidism.

**Relation of Neurocirculatory Asthenia to Hyperthyroidism.**—Was performed the Goetsch test in a series of twenty-one consecutive cases and comes to the conclusion that it is impossible to predict, from any of the criteria we have at present, whether or not any particular case of neurocirculatory asthenia is sensitive to epinephrin or not.

**Diagnosis of Early Hyperthyroidism.**—In Lueders' opinion the laboratory affords the most reliable means toward the recognition of early hyperthyroidism. The sugar tolerance test seems an important aid in the detection of borderline or early cases of hyperthyroidism. The epinephrin test did not prove, in the study of the cardiac neuroses, diagnostic of hyperthyroidism. It seemed rather an index of the sensitization of the sympathetic nervous system. Its value as a diagnostic test is increased when blood and urinary sugar estimations are recorded with pulse rate and blood pressure. Intramuscular injections gave best results. Tests for nitrogen loss and acidosis seemed suggestive as aids in the diagnosis of toxic hyperthyroidism. Further studies are being made to discover if borderline cases or early hyperthyroidism reveal such changes. Creatinuria did seem present in the thyroid disorder group, and when taken in conjunction with the other tests, was of value in the diagnosis of early hyperthyroidism.

**Recognizing Acidosis in Diabetes.**—Stillman describes the methods employed at the hospital of the Rockefeller Institute to detect as early as possible the development of acidosis and

to prevent its progress, and typical examples are given of the procedure and results with patients of each group.

**Heart Block.**—A case is reported by Brown of a child, 11 years old, with acute arthritis, who presents a typical sinoatrial block. Changes in heart rate and rhythm by vagus stimulation and by the administration of atropin are demonstrated. It was found that atropin in small doses will eliminate the arrhythmia without producing an acceleration of the heart rate. Electrocardiographic records accompany the report and illustrate the observations.

## Boston Medical and Surgical Journal

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- Cardio-Vascular Renal Regulation. J. M. Taylor, Philadelphia.—p. 445.
- Cancer of Mouth. F. Bryant, Worcester.—p. 452.
- Neuropsychiatric Work in U. S. Army. A. E. Brownrigg, Nashua, N. H.—p. 458.
- Treatment of Vesical Calculi. J. D. Barney, Boston.—p. 462.
- Operation for Acute Mastoiditis at Age of 84, with Recovery. E. J. Butler, Cambridge.—p. 465.
- Case Report of Hypertuitarism and Hyperglycemia. F. Van Nuys, Weston.—p. 465.

## California State Journal of Medicine, San Francisco

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- Need for State Hospital School for Indigent Crippled and Deformed Children. H. L. Langnecker, San Francisco.—p. 365.
- Frequency of Hypertension in Young Drafted Men. W. C. Alvarez, San Francisco.—p. 367.
- Amino Acids and Hypertension. L. M. Breed, Pasadena.—p. 371.
- Study of One Hundred and Fifty Cases of Hypertension. R. Cummings, Los Angeles.—p. 373.
- Paralysis of Esophagus. H. Y. McNaught, San Francisco.—p. 376.
- Bottini Operation for Prostatic Obstruction, after Twenty Years: Operation of Garity for Cancer of Prostate, after Six Months. G. MacGowan, Los Angeles.—p. 378.
- Intensive Treatment of Meningococcal Meningitis. D. J. Frick, Los Angeles.—p. 379.
- Empyema Treated by Surgical Solution of Chlorinated Sodium. G. Cochran, Los Angeles.—p. 382.
- Pathogenesis of Pachymeningitis Due to Nasal Operations. Report of Cases. A. B. Wessels, San Diego.—p. 383.

**Hypertension in Young Drafted Men.**—Marked cyanosis of the extremities is proposed by Alvarez as an important sign of hypertension or of the hypertensive diathesis. Alvarez regards hypertension as one sign of a hereditarily defective cardiovascular renal system.

**Amino Acids and Hypertension.**—In a study of hypertension, Breed says one must reckon with not only the amino acids, but with the bacteria concerned in intestinal putrefaction. During the past three years in making observations on the flora in intestinal putrefaction Breed found it possible to change the flora at will by changing the diet, and that coincidentally with a continuous carbohydrate diet there was a disappearance from the urine of the absorption products of putrefaction. Breed has made observations on a number of patients with varying degrees of hypertension. These observations consisted of daily examination of feces, daily study of body metabolism, together with functional tests of liver and kidney. Some of these patients had lowered kidney function, others had lowered liver function, some had both, while still others had neither, but all responded promptly to a carbohydrate diet by a lowering of the blood pressure and a lessening of the products of putrefaction. Proteids were gradually and carefully added, but only up to the actual body requirements, always watching the effect on the intestinal flora, providing for normal intestinal motility and keeping the carbohydrates so much in excess that they could not all be absorbed from the upper intestinal tract, thus insuring plenty of available suitable pabulum, for the necessary energy of the intestinal bacteria.

**Hypertension at Menopause.**—Cummings has found an increased blood pressure very frequently at the time of menopause. He says that every woman should have her blood pressure taken frequently during "the change," especially if hot flashes and nervousness are present. Marked relief of these symptoms have been obtained by the use of bromids and internal secretory extracts.

**Paralysis of Esophagus.**—McNaught reports two cases due to occlusion of the right posterior inferior cerebellar artery

probably the result of arteriosclerosis. He suggests that when confronted by a case of sudden inability to swallow, the syndrome of occlusion of the posterior inferior cerebellar artery, should always be kept in mind.

**Intensive Treatment of Meningococcic Meningitis.**—Twenty cases of meningitis are reported by Frick with a mortality of 15 per cent. Intensive intravenous and intraspinal treatment was used in all cases. The seventeen patients who recovered were well on discharge and able to do duty. All the cases were of moderate severity. Fifty-five per cent. of the men had a petechial eruption; 30 per cent. had a positive blood culture and 50 per cent. were unconscious on admission. Frick suggests that all patients with positive signs and symptoms of meningococcic meningitis should be given both intraspinal and intravenous injections of serum. Intraspinal injections of from 30 to 50 c.c. should be given every eight hours for six doses and then at less frequent intervals as needed. Intravenous injections of 100 c.c. after desensitization should be given every twelve hours for three or four doses and then every twenty-four or forty-eight hours as indicated by the condition of the patient and by the findings in the blood cultures.

## Illinois Medical Journal, Oak Park

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- Empyema as Encountered in Army. E. Windmueller, Woodstock.—p. 169.
- Spinal Anesthesia in General and Genito-Urinary Surgery. G. W. Green, Chicago.—p. 171.
- Congenital Syphilis. R. Krust, Chicago.—p. 172.
- Work of Selective Service Boards of United States in the Great War; Our Post-War Obligations. S. M. Wyllie Paxton.—p. 177.
- Country Medical Society. C. R. Kiser, Madison.—p. 180.
- Serpinous Ulcer of Cornea and Its Treatment. W. O. Nance, Chicago.—p. 182.
- Operative Treatment of Chronic Suppurative Otitis Media. A. Lewy, Chicago.—p. 185.
- Bacteriuria. L. E. Schmidt, Chicago.—p. 188.
- Cesarean Section. C. E. Park, Sterling.—p. 194.
- Elongation of Transverse Process of Fifth Lumbar Vertebra as Cause of Backache. Symptomatology and Treatment. J. R. Laviere, Chicago.—p. 197.

## Journal of Experimental Medicine, Baltimore

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- Some Morphologic and Biologic Characters of Spirilla (*Vibrio* Fetu-  
N. Sp.) Associated with Disease of Fetal Membranes in Cattle.  
T. Smith and M. S. Taylor, Princeton, N. J.—p. 299.
- Etiologic Relation of Spirilla (*Vibrio* Fetu) to Bovine Abortion. T.  
Smith, Princeton, N. J.—p. 313.
- Bacteriology of Bovine Abortion, with Special Reference to Acquired  
Immunity. T. Smith, Princeton, N. J.—p. 325.
- Interpretation of Agglutination Reaction to *Bacillus Abortus* in  
Seventy-Five Cases of Bovine Abortion. Bacteriologically Controlled.  
E. W. Smidde, R. B. Little and L. Florence, Princeton, N. J.—p. 341.
- \*Hydrogen Ion Concentration of Cultures of Pneumococci of Different  
Types in Carbohydrate Media. O. T. Avery and G. E. Caslen,  
New York.—p. 359.
- \*Relation of Proteolytic Enzymes in Pneumonic Lung to Hydrogen Ion  
Concentration. An Explanation of Resolution. F. T. Lord, Boston.  
—p. 379.
- \*Relation of Pneumococcus to Hydrogen Ion Concentration; Acid Death  
Point and Dissolution of Organism. F. T. Lord and R. N. Nye,  
Boston.—p. 389.
- \*Ecology of Yellow Fever. IX. Mosquitoes in Relation to Yellow Fever.  
H. Noguchi, New York.—p. 401.

**Hydrogen Ion Concentration of Pneumococci.**—Thirty-nine strains of pneumococcus comprising representatives of the various immunologic types were studied by Avery and Cullen. In the majority of instances these cultures were isolated directly from the blood or sputum of patients suffering from lobar pneumonia. Some of the strains were tested immediately on isolation, others after years of cultivation on artificial media. Most of the strains were pathogenic for white mice and had been passed through these animals to enhance virulence. Cultures used for inoculation of the test medium were grown for eighteen hours at 37 C. in plain meat infusion broth of  $p_{H}$  7.8. The authors found that the optimum hydrogen ion concentration for growth of pneumococcus is  $p_{H}$  7.8. In broth cultures growth of pneumococcus continues until a final hydrogen ion concentration of about  $p_{H}$  5.0 is reached, if sufficient fermentable carbohydrate (above 0.4 per cent.) is present. Apparently this acidity is sufficient in

itself to stop growth. If less carbohydrate is present in the medium growth ceases at a lower hydrogen ion concentration, apparently because of exhaustion of carbohydrate. If no carbohydrate is present save that extracted from the meat of which the broth is made (plain broth medium), growth initiated at  $p_{H}$  7.8 (optimum reaction) ceases at about  $p_{H}$  7.0. If bacteria free filtrates of plain broth cultures in which growth has ceased are readjusted to  $p_{H}$  7.8 and reinoculated with pneumococcus, no growth occurs unless carbohydrate is added. However, if bacteria free filtrates of dextrose broth cultures in which growth has ceased ( $p_{H}$  5) are readjusted to  $p_{H}$  7.8 and reinoculated with pneumococcus growth occurs. Cultures of pneumococcus with all the carbohydrates which were fermentable under the condition used, namely maltose, saccharose, lactose, galactose, raffinose, dextrose and inulin gave identical results in the rate of reaction changes and the final hydrogen ion concentration ( $p_{H}$  5.0) attained. The different immunologic types of pneumococcus, for the limited number of strains studied, behaved alike in fermenting the carbohydrates mentioned above.

**Cause of Resolution in Pneumonic Lung.**—The relation of the pneumococcus to the production of acid in culture mediums and the acid reaction of the pneumonic lung suggest that crisis and recovery may be due to local biochemical changes in the course of which the acid death point of the pneumococcus is reached. Evidence is presented by Lord of certain factors influencing resolution in pneumonia. Three fatal cases of pneumococcus pneumonia in the stage of gray or gray red hepatization furnished the material. Evidence is given of the presence in the cellular material obtained from the pneumonic lung of a proteolytic enzyme digesting coagulated blood serum at hydrogen ion concentrations of 7.3 to 6.7 and inactive at higher; i. e., more acid concentrations. In addition, evidence is brought forward of the presence in the cellular material from the pneumonic lung of a proteolytic enzyme splitting peptone to amino acid nitrogen. This enzyme is operative at hydrogen ion concentrations from 8.0 to 4.8, but most active at 6.3 or 5.2. These findings are regarded by Lord as having a bearing on resolution in pneumonia. During the course of the disease a gradual increase in the hydrogen ion concentration of the exudate probably takes place. With the breaking down of cellular material an enzyme digesting protein (fibrin) in weakly alkaline and weakly acid mediums may be liberated. With a gradual increase in the hydrogen ion concentration of the pneumonic lung the action of this enzyme probably ceases. An enzyme capable of splitting peptone to amino acid nitrogen is probably active during the proteolysis of the fibrin and further activated when the hydrogen ion concentration of the pneumonic lung is increased to within its range of optimum activity at a  $p_{H}$  of 6.3 and 5.2. By this means it may be conceived that the exudate is dissolved and resolution takes place.

**Pneumococcus and Hydrogen Ion Concentration.**—According to Lord and Nye, in the growth and death of the pneumococcus in fluid mediums containing 1 per cent. glucose, the production of acid is the most important bactericidal factor. One per cent. glucose bouillon cultures of the pneumococcus allowed to grow and die out usually reach a final acidity of a  $p_{H}$  of about 5.1. At a hydrogen ion concentration of about 5.1 or higher the pneumococcus does not survive longer than a few hours. In hydrogen ion concentrations of about 6.8 to 7.4 the pneumococcus may live for at least many days. In the intervening hydrogen ion concentrations, between 6.8 and 5.1, the pneumococcus is usually killed with a rapidity which bears a direct relation to the hydrogen ion concentration; i. e., the greater the acidity the more rapid is the death. Cloudy suspensions of washed pneumococci in hydrogen ion concentrations, varying from 8.0 to 4.0 show, after inoculation, dissolution of organism in lower hydrogen ion concentrations than about 5.0. This dissolution is most marked at about 5.0 to 6.0. Some dissolution also takes place toward the more alkaline end of the scale. No dissolution occurs at the most acid end of the scale.

**Mosquitoes and Yellow Fever.** Experiments are reported on by Noguchi which show that symptoms and lesions closely resembling those of yellow fever in man may be induced in

guinea-pigs by the bite of female stegomyias that have previously sucked the blood of a yellow fever patient or of an animal experimentally infected with *Leptospira icteroides*. With mosquitoes infected directly from a yellow fever patient the infectivity seems to become manifest after a longer period of incubation than with those infected with the animal blood. In the former, at least twelve days are said to be necessary before they become infectious, and this hypothesis seems to be borne out by the author's experiments. On the other hand, the mosquitoes which were engorged with the infected blood of the guinea-pig were found to be capable of transmitting the disease within eight days after the feeding. This discrepancy may be explained by the fact that the number of leptospira existing in experimentally infected guinea-pigs is far greater than that in human blood. The frequency with which positive transmission by the stegomyia was obtained in both instances was very small, indeed, in view of the number of mosquitoes employed. It appears that even under natural circumstances the percentage of mosquitoes that eventually become infected with the yellow fever microbe by sucking the blood may be very small. To transmit yellow fever from a patient to a nonimmune person requires 0.01 c.c. or even less. Apparently a mosquito occasionally becomes infectious by taking up the one or two organisms which happen to be circulating in the peripheral blood of man, and it is these occasionally infected few which carry the disease. The development and maintenance of *Leptospira icteroides* are indissolubly associated with the blood constituent, the serum, and this is amply supplied by the blood sucking insect. The organism is one of the most fragile of all the pathogenic parasites and cannot survive the concurrence of other less fastidious organisms, such as bacteria. The comparatively aseptic body cavity of the stegomyia furnishes a secure shelter for the parasite, which undoubtedly penetrates the zone of safety as soon as it is taken into the stomach of the insect. Unlike many other parasites this organism is capable of penetrating the intact skin or a bacterio-proof filter, and hence it is probably an easy matter for it to pierce the tissue of the visceral organs of the mosquito. Whether or not *Leptospira icteroides* can survive, and multiply only in the body of *Stegomyia calopus* and not in other varieties or genera is yet to be determined. Another interesting fact with regard to the extrinsic life of this organism is that it can multiply steadily at a temperature from 18 to 37 C. The optimum temperature at which it remains viable for many months is 26 C. The climate in most of the tropical countries offers optimum conditions both for *Leptospira icteroides* and for the mosquito which carries and nourishes it.

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- Reclaiming Man Power. H. E. Mack, Chicago.—p. 171.  
Use of Orthopedic and Prosthetic Appliances in Late Treatment of War Disabilities. A. B. LeMesurier, Canada.—p. 179.  
Work for the Tuberculous. D. A. Stewart, Ninette, Man.—p. 197.  
Role of Social Service in General Rehabilitation. F. M. Bell, Canada.—p. 204.  
Surgical Conditions in the Ex-Soldier. A. R. Monroe, Edmonton, Alta.—p. 210.  
English Statistics re Disablement as Applicable to Canada. J. McCombie, Ont.—p. 219.  
Doctors of Canada. J. L. Todd, Winnipeg.—p. 225.  
Neuropsychiatry in the American Army. C. B. Farrar, U. S. Army.—p. 228.  
Work and Aims of a Genito-Urinary Clinic for Ex-Soldiers. H. E. Paul, Toronto, Ont.—p. 234.  
Second Report on Institutional Occupation. J. B. McKay, Ottawa.—p. 243.  
Problem of Disabled. C. D. Holmes, Victoria, B. C.—p. 268.

### Michigan State Medical Society Journal, Grand Rapids

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- Tales Dorsalis. F. R. Starkey, Detroit.—p. 505.  
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Modern Clinical Conception of Pulmonary Tuberculosis. H. M. Rich, Detroit.—p. 516.  
Treatment of Ear Diseases in Light of Medical History. E. Amberg, Detroit.—p. 521.  
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Hysterectomy for Fibroid. H. W. Hewitt, Detroit.—p. 533.

### New Jersey Medical Society Journal, Orange

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- Clinical Value of Electrocardiograph. J. Sailer, Philadelphia.—p. 347.  
Plastic Cerebral Enucleation of Cervix; Surgical Indications and Clinical Results in Seventy-Five Cases. F. W. Langstroth, New York.—p. 351.  
Use of Leukocyte Extract for Treatment of Underdetermined Infections. F. G. Leonard, New Brunswick.—p. 354.  
Caesarean Section from a Conservative Standpoint. N. G. Priece, Newark.—p. 358.  
Production and Conservation of Mothers' Milk. E. W. Murray, Newark.—p. 361.  
Influenza Pneumonia Epidemic. F. H. Willan, Arlington.—p. 363.  
Secondary Disabilities from War Wounds. F. W. Pinneo, Newark.—p. 364.

### New York State Journal of Medicine

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- Beer with an Alcoholic Content of 2.75 Per Cent. Is Not an Intoxicating Beverage. G. W. Whiteside, New York City.—p. 240.

### Pennsylvania Medical Journal, Athens

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- Experimental Study of Abdominal Adhesions. M. Behrend and N. S. Rothschild, Philadelphia.—p. 537.  
Anatomic Incision for Groin Surgery. J. N. White, Scranton, Pa.—p. 540.  
Absence of Clinical Symptoms During Preperforated Stage of Duodenal Ulcers. L. J. Hammond, Philadelphia.—p. 542.  
Medication of Technic in Watkins' Interposition Operation. J. C. Hirst, Philadelphia.—p. 546.  
Acute Dilatation of Stomach Following Operation. J. J. Gilbride, Philadelphia.—p. 548.  
Rights of Well Members of Family. T. Diller, Pittsburgh.—p. 550.  
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Industrial Efficiency of Southern Negro. W. C. Allen, Chicago.—p. 554.  
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Traumatic Hernia and Workmen's Compensation Boards. F. D. Patterson, Harrisburg.—p. 633.  
How Industrial Physician and State Department of Health Can Best Cooperate. E. Martin, Harrisburg.—p. 643.  
Carbon Monoxid Poisoning; Prevention and Treatment. A. J. Lanza, Washington, D. C.—p. 646.  
Injuries to Back and Flat Feet. J. O. Wallace, Pittsburgh.—p. 648.  
Health Hazards in Manufacture of Dyeustuffs. A. Hamilton, Washington, D. C.—p. 655.  
Health Insurance; Its Disadvantages and Advantages. J. A. Lapp, Columbus, O.—p. 661.  
Health Insurance and the Public. F. L. Hoffman, Newark, N. J.—p. 664.  
How Industrial Physician Can Help in Campaign Against Venereal Disease. R. A. Jewitt, Washington, D. C.—p. 679.

August, 1919, 12, No. 11

- Pyloric Stenosis in Infants. Report of Cases. C. M. Woodburn, Towanda.—p. 701.  
\*Hirschsprung's Disease. W. L. Carr, New York.—p. 705.  
\*Pyloric Obstruction of Infancy. H. Lowenburg, Philadelphia.—p. 712.  
\*Weaning. E. E. Graham, Philadelphia.—p. 716.  
Laboratory as an Aid in Treatment of Diabetes Mellitus. L. Jonas, Philadelphia.—p. 718.  
Appendicitis in Children. J. J. Gilbride, Philadelphia.—p. 720.  
Laboratory Methods; Their Value and Practicality in General Medicine. M. H. Fussell, Philadelphia.—p. 722.  
Organization and Methods of Contagious Disease Services. J. H. Stokes, Rochester, Minn.—p. 729.

**Megaoduenum; Hirschsprung's Disease.**—Carr's patient, a girl, 6 years of age, had been constipated for five years and had vomited for twenty-four hours before he saw her. The child was in a condition of shock; the skin was pale, the lips and fingers were cyanosed and the eyes were staring. There was dyspnea with gasping respiration. The temperature was 97.5 F.; pulse, 120. The abdomen was greatly distended and there was a constant involuntary discharge of feces. The child died eleven hours after admission. Necropsy disclosed a marked distention of the intestines, which was particularly evident in the sigmoid colon which was bent on itself. The wall of the upper part of the rectum and the lower part of the sigmoid colon was slightly calcified and the lining mucous membrane was very granular. There was hyperplasia of the mesenteric lymph nodes. A microscopic study of the tissue from this specimen showed a complete loss of mucous membrane, and in its place was a vascularized round cell proliferation of the submucosa. There was a corresponding hypertrophy of the inner and outer muscular coats.

**How to Wean the Baby.**—When weaning a baby, Graham says, it is always a safe plan to begin with cow's milk mixture which is considerably weaker than what would be given a healthy baby of the same age who had been raised on a bottle. A fair average would be to start the milk formula at about one half the strength of what would ordinarily be given to a healthy infant that was of the same age as the baby to be weaned. If the child can digest this, the formula can be increased cautiously. It is wiser, as a rule, not to wean the baby during the hot summer months. The change from the breast to the bottle during the heated term is very likely to cause gastro-intestinal disturbances. This, of course, would not hold true in the case of infants who are taken to a cool climate during the summer months. Always, if possible, wean slowly rather than rapidly. At first give one bottle feeding a day. If this agrees in the course of three or four days a second bottle feeding may be given. In this way the breast feeding can be discontinued gradually. A baby should be weaned if the mother has any disease which she may transmit to her nursing infant, such as typhoid, or tuberculosis, or if the mother has any disease which nursing might have a tendency to aggravate, such as nephritis, tuberculosis, or acute pneumonia; if the mother becomes pregnant or is suffering from some comparatively mild disease; if mastitis develops. In most cases weaning depends on the ability of the mother to nurse her baby. If the amount of milk secreted is not sufficient for the nutrition of the infant, additional feedings of cow's milk should be given. Nursing should not be prolonged much beyond a year simply because the baby is doing fairly well. Anemia, subnormal development and failure to gain in weight is a common rule in these cases. Graham believes that it is a wise plan, if a baby 9 months old is doing well at the breast to begin giving it one bottle feeding a day. Bottle feeding is a good thing because it trains the digestive organs of the infant to digest cow's milk and it makes weaning less abrupt.

September, 1919, 12, No. 12

Progress of Medicine in Twentieth Century. M. W. Ireland, U. S. Army.—p. 767.

Protecting Our Third Line of Defense—Our Babies. L. Stewart-Cruik and B. M. Meine, Philadelphia.—p. 774.

Better Methods in Immediate Attention to the New-Born. J. O. Arnold, Philadelphia.—p. 778.

Backward, Nervous and Delicate Children; their Treatment and Management. E. B. McCready, Wildwood.—p. 784.

\*Most Common Rectal Diseases in Children. H. A. Brav, Philadelphia.—p. 786.

\*Influences of Diet Affecting Second Dentition. J. F. Sinclair, Philadelphia.—p. 789.

Serum Treatment of Epidemic Cerebrospinal Meningitis. J. A. Kolmer, Philadelphia.—p. 791.

Vernal Conjunctivitis; Treatment by Radium. E. A. Shumway, Philadelphia.—p. 793.

Roentgen Diagnosis of Pulmonary Tuberculosis. H. K. Pancoast, Philadelphia.—p. 795.

Autogenous One Piece Epithelial Grafts for Restoration of Eyelids: Report of Case. E. B. Heckel, Pittsburgh.—p. 799.

Journal and Other Variations in Blood Pressure. A. L. Parks, Rome.—p. 803.

Syphilis of Mouth and Pharynx. N. S. Weisberger, Sayre.—p. 805.

**Rectal Diseases in Children.**—Brav states that hemorrhoids are rarely observed in children. Prolapsus recti frequently occurs, polypos recti is not an uncommon disease and proci-dentia recti is frequent in children. Rectal hemorrhage in girls is often mistaken for vicarious menstruation. Anal fissure is more common in infants than in older children. Fistula in ano is a very rare affection in infants and children. Fecal impaction, or coprostasis is occasionally met with in children.

**Effect of Diet on Second Dentition.**—Sinclair claims that to improve the teeth of the future generations it will be necessary to begin with the pregnant mothers and supervise their diets so that they may have a well balanced ration in excess of their usual food requirements to the end that both mother and child may not lack needed nutriment for perfect growth and development. This careful dietetic oversight and management must follow the nursing mother and her child until weaning is accomplished, after which the child must be still further properly directed from the standpoint of diet. With the appearance of the deciduous or milk teeth, such

food as will require chewing should be given to the child. Dry crusts of bread, zwieback, toasted bread, the coarser cereals, meat and meat bones, and later, green salad leaves, cooked celery, spinach, peas, cauliflower tops, asparagus tips, string beans and apples.

**Philippine Journal of Science, Manila**

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\*Phebotomus Nienie, a New Species, First Philippine Record for this Genus. C. S. Banks.—p. 163.

Bloodsucking Insects of Philippines. C. S. Banks.—p. 169.

Protopoda, or Olfactate Fungoid Bees, of Philippine Islands. T. D. A. Cokerell.—p. 191.

Philippine Bees of Families Anthophoridae and Melectidae. T. D. A. Cokerell.—p. 195.

Absence of Both Hind Legs Below Femur in a Full Term Pig. M. Carreon.—p. 201.

Ingestion of Erythrocytes by Pentatrachelomonas Sjn., Found in a Case of Dysentery. F. G. Haughwout and W. De Leon.—p. 207.

Effect of Calcium Sulphate on Cement. J. C. Witt.—p. 221.

\*Experience with Methylene Blue Eosin Lactose Agar in Searching for Bacillus Dysenteriae in Stools. C. S. Panganihan and O. Scholl.—p. 235.

Flora of Sumatra. E. D. Merrill.—p. 239.

**Phebotomus Nienie.**—Banks directs attention to a new species of the genus phebotomus as a serious factor in human existence in the Philippines and as a not improbable agent in disease transmission. The term "nienie" is the Tagalog name of a "tiny fly too small to be seen."

**Cultivating Dysentery Bacillus.**—During an outbreak of bacillary dysentery in Manila in 1918, the authors had an opportunity of subjecting the methylene blue eosin lactose plate to a practical test as to its suitability in the bacteriologic diagnosis of bacillary dysentery. The stools were taken at random from hospital patients. Each stool was plated directly on litmus lactose agar and on methylene blue eosin lactose agar. An equal amount of material was smeared on the surface of each plate. Of thirty-eight stools examined, thirty-three were found positive. While the lactose litmus plate gave positive results in twenty-nine specimens, the methylene blue eosin lactose plate gave positive results in thirty-two specimens. The time necessary for the detection of *B. dysenteriae* on this medium was much shorter as compared with the labor required to confirm the positive findings on the lactose litmus plate.

**Tennessee State Medical Association Journal, Nashville**

September, 1919, 13, No. 5

Discussion of Bone Graft. W. C. Campbell, Memphis.—p. 159.

Talipes. J. P. Baird, Dyersburg.—p. 161.

Lacerations of Cervix and Perineum. W. T. Pride, Memphis.—p. 166.

Lignous Phegmon of Neck (Reclus) Report of Case in Boy of Eight Years. R. H. Perry, Nashville.—p. 169.

Malaria Problem of South. H. R. Carter, U. S. P. H. S. ex-co.—p. 171.

Government Plan for Control of Venereal Diseases. R. C. Derivaux, Nashville.—p. 177.

Selective Serologic System. P. DeWitt, Nashville.—p. 180.

Recognition of Certain Renal Lesions by Psychography. S. P. Martin, Dyersburg, Tenn.—p. 184.

**Surgery, Gynecology and Obstetrics, Chicago**

October, 1919, 29, No. 4

\*Intra-renal Removal of Skin and Other Tumor Overlying Deep Seated Inoperable Cancer, a Necessity for Effective Treatment with Roentgen Ray or Radium. L. G. Beck and G. W. Warner, Chicago.—p. 325.

Relative Absorption of Roentgen Rays by Skin, Fat and Muscle, As Compared with Various Thicknesses of Aluminum. G. W. Warner.—p. 337.

Cutting Sensory Root of Gasserian Ganglion for Relief of Trigeminal Neuralgia. A. W. Adson, Rochester, Minn.—p. 334.

\*Sear-Tissue Tumors Occurring on Mucous Membrane of Lower Lip. J. C. Bloodgood, Baltimore.—p. 340.

Some Points in War Surgery. J. R. Morrison, England.—p. 348.

Primary Suture of Gunshot Wounds. S. L. Koch, Chicago.—p. 367.

\*Secondary Syphilis of Uterus. G. Gellhorn, St. Louis.—p. 374.

Importance of Early Recognition of Surgical Conditions of Biliary Passages. J. B. Daxson and S. P. Lehmann, Philadelphia.—p. 376.

Stiff and Painful Shoulder. A. J. Brown, Omaha.—p. 381.

\*Supra-renal Rupture in Walls of Hermal Sacs. A. MacLennan, Glasgow, Scotland.—p. 387.

\*Diverculation of Prostatic Urethra. H. C. Rump, Rochester, Minn.—p. 388.

- Tuberculosis of Anus; Report of Case. C. J. Drueck, Chicago.—p. 393.  
 Svinus Anus; Report of Case. S. Chelliah, Colombo, Ceylon.—p. 396.  
 Early Surgical and Orthopedic Treatment of Hemiplegia. J. Byrne, A. S. Taylor and S. W. Boorstein, New York.—p. 398.  
 Radical Resection of Esophagus for Carcinoma. A. J. Bengolea, Buenos Aires, Argentine.—p. 413.  
 Technic for Neurorrhaphy. K. Bulkeley, Paris.—p. 416.  
 Drainage in Empyema. B. H. Caples, New York.—p. 417.  
 Graphic Presentation of Finger Deformities. A. Gottlieb, San Francisco.—p. 420.  
 Suture for Closing Difficult Peritoneal Incisions. J. N. Jackson, Kansas City.—p. 422.  
 Method for Marking Out Varicose Veins for Operation. G. P. Cooperland, Lakewood, N. J.—p. 423.

**Treatment of Deep Seated Inoperable Cancer.**—Superficial malignant growths, such as epithelioma, respond rapidly to roentgen-ray and radium treatment, while deep seated malignant growths do not. The reason for this, as stated by Beck and Warner, is that the skin, fat and subcutaneous tissues which usually overlie deep seated cancer are strong filters for penetration of the roentgen rays; they absorb most of the soft rays the roentgen-ray tube and allow only the hard rays, which is a small quantity, to penetrate deeply enough to reach the growth. Small quantities of radiation instead of destroying the cancer cell are apt to stimulate it to more rapid growth. Therefore, it has seemed to the authors that if the skin and all the overlying tissue and as much of the growth as is feasible are removed and a large area left entirely exposed, and to this field is then applied either the roentgen ray or radium directly, it may be possible to obtain similar results in treating deep seated carcinoma as are usually obtained in treating superficial growths. In other words, the problem is to convert the deep seated growth into a superficial one. Cases are cited.

**Scar Tissue Tumors of Mucous Membrane of Lip.**—Bloodgood reports six cases of scar tissue tumors occurring on the mucous membrane of the lower lip after the excision of a lesion there. These tumors apparently have no relation to the nature of the primary lesion, whether it be in the mucous membrane or in the submucous tissue. Apparently, they are more apt to occur in the first instance when the primary lesion had been treated with caustics, or when the wound has healed by granulation. In all of Bloodgood's cases, in spite of the fact that no cautery had been employed and that the area was excised with a sharp knife and that with few exceptions the wound healed by primary intention, slight indurations have always formed in the wound, and some have been painful. These cases seem to present the problem clearly and to settle the method of treatment—noninterference.

**Secondary Syphilis of Uterus.**—In Gellhorn's case the initial lesion was situated on the left labium minus near the clitoris. It had healed. The cervical mucosa showed, posteriorly, an oblong patch about 0.5 cm. above the external os. Two other, smaller and more nearly round patches lay to the right of the larger lesion, and a fourth patch could be seen on the mucosa anteriorly. The secretion of these patches, examined with the ultramicroscope, showed an abundance of very active spirochetes of the typical pallida variety. Except for a slight adenopathy of the neck and groins, increased left patellar reflex and sluggish pupils, there were no secondaries present.

**Supraprenal Rests in Hernial Sac Walls.**—In six cases of inguinal hernia occurring in children, MacLennan found small nodules, one-eighth inch in diameter, embedded in the wall of the sac near but not attached to the cord. The sacs in which these rests have been found have been with one exception typically so-called acquired ones, the exception being a congenital hernia, i. e., one where the tunica vaginalis and the sac were common. A specimen has not yet been found in the corresponding hernial sac of the female. On microscopic examination these nodules proved to be "adrenal rests."

**Diverticula of the Posterior Urethra.**—Bumpus reports four cases of this kind seen at the Mayo Clinic. He says that they are generally of the acquired type. Probably the most frequent etiologic factor is a previous perineal operation. They give rise to a definite syndrome; namely, incontinence, dysuria, interrupted micturition, perineal pain and pyuria. Since they may be associated with a normal bladder they

may easily be overlooked unless the posterior urethra is carefully examined.

**Resection of Esophagus for Tumor.**—In Bengolea's case the tumor was situated in the lower portion of the esophagus. A Torek's incision was made, the esophageal resection was begun at the cardia, following the usual technic for intestinal resection. The stomach stump was closed by a Lembert continuous suture. On removal of the tumor a wooden hobbin was placed in the esophageal opening and fixed by means of a catgut purse-string suture. The portion of the stomach pulled up into the thoracic cavity was opened at the point of least traction and as near as possible to the greater curvature, and was then placed in the esophagus in which the wooden hobbin had already been placed. The patient died thirty-seven days after operation.

**Technic for Neurorrhaphy.**—The principle of Bulkeley's procedure depends on the utilization of the scar tissue in the ends of the divided nerve for the release of tension on the actual line of nerve suture. These masses of scar tissues are split lengthwise once and one half is removed. The exposed portion of nerve ends are then brought in contact and sutured together. The scar tissue is sutured on the outside of the union, thus giving support.

**Cross Buck Mattress Suture for Closure of Difficult Peritoneal Incisions.**—When it is difficult to close a peritoneal incision owing to tension or thinness and friability of the peritoneum, Jackson uses a cross buck mattress suture. First, a simple transverse suture at the lower (or upper) end of the wound is tied. It is a continuous suture. The needle on the long end of the suture is now introduced from without inward about one-eighth to one-quarter inch above the primary suture. It passes obliquely forward and is brought from within outward, at a point about the same distance forward of the point of entrance. It is now brought backward to a point opposite the beginning and introduced on the opposite side from without inward. Again, obliquely it is advanced and brought from within outward one-eighth to one-quarter inch forward of the beginning point of introduction. It is now drawn taut and the next stitch is begun. It is thus an X or cross buck mattress stitch. Where there is much tension or a very friable peritoneum, a liberal bite of muscle may be taken in each stitch. When each stitch is drawn taut it is remarkable that it does not cut out. The peritoneum is also everted, leaving no raw surfaces on the inside.

**Marking Out Varicose Veins for Operation.**—Cooperland has found brilliant green, an anilin dye, in an aqueous solution, most satisfactory. The veins should be marked out the day before operation and let dry before the clothing touches them. At the time of operation they can be painted with one or two coats of iodine. The vessels will show beautifully through the coats of iodine, as green intensifies almost all colors. After the skin has been marked with the green, it is almost impossible to wash it off with alcohol, turpentine, ether, etc. It takes several weeks for the stain to wear off.

### South Carolina Medical Association Journal, Greenville

September, 1919, 15, No. 9

- Etiology and Treatment of Epilepsy. J. E. Boone, Jr., Columbia.—p. 558.  
 Fractures. J. Wallace, Easley.—p. 560.  
 My Body: A Means. J. Schieber, Rome, Ga.—p. 562.  
 Anaphylactic Manifestation of Foods in Children. D. L. Smith, Spartanburg.—p. 565.

### Texas State Journal of Medicine, Fort Worth

September, 1919, 15, No. 3

- Myoma of Uterus Complicating Pregnancy, Labor and Puerperium. M. F. Bledsoe, Fort Arthur.—p. 178.  
 Effect of Influenza on Pregnancy. G. W. Nibling, San Antonio.—p. 179.  
 Diagnosis and Treatment of Ectopic Pregnancy. S. P. Cunningham, San Antonio.—p. 180.  
 Pituitary Extract. J. M. Dildy, Brownwood.—p. 182.  
 Fracture Types and Their Management in the A. E. F. C. S. Venable, San Antonio.—p. 185.  
 Treatment of Colles' Fracture. B. Saunders, Fort Worth.—p. 188.  
 Two Cases of Acute Mastoiditis with Peritonsillar and Epidural Abscess. W. D. Jones, Dallas.—p. 189.

FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Tropical Medicine and Hygiene, London

Sept. 15, 1919, 22, No. 18

Cultural Characters of Trichophyton Balaneum Cast. Cause of a Pseudopythiasis Capitis. A. Castellani.—p. 173.  
Case of Bilharzia Disease Complicated by Stone. Cured by Tartar Emetic Treatment. F. G. Cawston.—p. 174.

Sei-I-Kwai Medical Journal, Tokyo

June 10, 1919, 38, No. 6

\*Intestinal Parasites of College Students. Y. Yasaki, M. Terada, and T. Fuzui.—p. 23.

Intestinal Parasites of College Students.—The authors examined the feces of 458 students for intestinal parasites. Three hundred and fifty-four, or 77 per cent., were found to harbor one or more kinds of parasites. The following parasites were found: *Ancylostoma duodenale*, 22 per cent. of cases; *Trichostrongylus orientalis*, 7 per cent. of cases; *Ascaris lumbricoides*, 38 per cent. of cases; *Trichocephalus trichirus*, 54 per cent. of cases; *Clonorchis sinensis*, 6 per cent. of cases; *Metagonimus yokogawai*, 6 per cent. of cases. The percentage of *Ancylostoma duodenale* gradually diminished among the students of the upper classes. The parasite carriers were found to carry from one to four kinds of parasites.

Paris Médical

Aug. 30, 1919, 9, No. 35

Unusual, Incomplete and Masked Insufficiency of the Aorta and Mitral Stenosis. P. Ribierre.—p. 157.

\*Treatment of Diaphragmatic Hernia. A. Schwartz and J. Quénu.—p. 162.

\*Catheterization of the Esophagus. J. Guizez.—p. 165.

Operation for Diaphragmatic Hernia.—Schwartz and Quénu have been making a special study of the best technic for correcting diaphragmatic hernia, and they expatiate on the advantages of an incision in the seventh inter-space, starting at the axillary line and continued down to the umbilicus. There is no need for rib resection. The incision is carried down deep enough to open the pleura and peritoneum. The cartilaginous margin of the thorax, to which the diaphragm is attached, is cut with scissors, and the incision resulting is continued in a straight line in the diaphragm to the hernia opening. Both the thorax and the abdomen are thus opened up. The organs that protrude into the thorax are readily recognized and reduced, the diaphragm sutured, the cartilage reconstructed and a drain left in the pleura if adhesions had to be broken up. The only drawback to this technic is the operative pneumothorax, but this is regarded as of not much moment nowadays. The article is illustrated.

Catheterization of the Esophagus.—Guizez declares that both for exploration and for mechanical dilatation, the catheter has proved its value for the esophagus almost as much as for the urethra. But of course the exceptional fragility of the walls has to be borne in mind, and more must not be demanded from this method than it is able to yield. The bougie should be of soft rubber with an olive tip, flexible, and softened just before use by dipping into boiling water for a few moments. He uses a No. 26 to 30. The patient holds his head vertical or bent forward a little, to even out the abrupt curve between the sixth cervical to the first two dorsal vertebrae. He breathes deep and if necessary pulls out his tongue. Once past the opening, the bougie drops down of itself; there is only possibly a slight resistance at the cardia. If the bougie is arrested, some obstacle is evident, and we can determine its site by measuring the exposed portion of the catheter. We know that spastic and inflammatory processes locate almost invariably at the inlet or outlet of the esophagus. If the bougie is arrested at an intermediate point, the chances are 90 per cent. in favor of cancer, compression from glands or tumors being comparatively rare. If the tip of the bougie is found bent back this suggests a cul-de-sac formation. If the head is bent back, the catheter may get into the air passages by mistake, especially if there is paralysis of the larynx. The latter should be determined beforehand. Ectasia of the aorta, painful inflammation of

the esophagus, and recent caustic action are all absolute contraindications to the use of the catheter, also the suspicion of a foreign body. The attempt to dislodge the foreign body may have dire effects—he has seen some striking instances of this. In a recent case a long sharp bone had been driven into the mucosa of the posterior wall, only 1 mm. of it protruding, and the catheter had probably been a factor in this. In another case a small bone in the esophagus was driven by the catheter into the trachea.

Sept. 13, 1919, 9, No. 37

Digitalis Preparations by the Vein. A. Gilbert and A. Khoury.—p. 205.

Tuberculosis in African Troops. C. Rouhier.—p. 207.

\*Hysterectomy by Aseptic Section of the Vagina. M. Gudin.—p. 211.

\*Focus of Diphtheria in Military Hospital. A. Cayrol, P. P. Lévy and J. de Léobardy.—p. 214.

\*The Tongue in Stupor. Chavigny.—p. 217.

\*Bone Ankylosis after War Wounds. M. Grosset.—p. 219.

Hysterectomy by Aseptic Section of the Vagina.—Gudin found at necropsy of women who had died from infection after hysterectomy that the infectious process was almost invariably a pelvic cellulitis; peritonitis was the exception. He ascribes this pelvic process to infection from the drain in the vagina, and seeks to obviate this by suturing at once the opening in the vagina. This renders draining unnecessary as a rule. If conditions require it, he drains through the abdomen by aspiration.

A Focus of Diphtheria in a Military Hospital.—A wounded prisoner presented wound diphtheria, and the nurse tending him and two men in the ward developed diphtheria. The surgeon who operated on the prisoner became a carrier and, on a trip later, diphtheria developed in persons he met in three different cities, and then his wife developed the disease.

The "Stuporous Tongue."—Chavigny applies this term to the aspect of the tongue in cases of stupor, muscular immobility, etc., all connected with pathologic mental states. The tongue is held pressed against the teeth immovably for such a long time that the teeth leave deep imprints on it. The thin edge of the front and sides of the tongue stands up in ridges corresponding to the spaces between the teeth, forming a mold of the hollows and projections. Psychiatrists are familiar with this "stuporous tongue," and the general practitioner will find it a corroboratory sign of something radically wrong in the psychic sphere.

Bone Ankylosis After War Wounds.—Grosset discusses from the clinical and medicolegal standpoints complete ankylosis as a sequela of war wounds.

Presse Médicale, Paris

Sept. 4, 1919, 27, No. 49

\*The Great Phases of the Evolution of Syphilis in France. E. Jeanselme.—p. 489.

Iodin in Tropical Therapeutics, Especially in Trypanosomiasis. G. Duquel.—p. 492.

Treatment of Simple Fracture of the Tibia and Fibula. II. Conclusion.—p. 493.

The History of Syphilis in France.—This is an address delivered by Jeanselme to the American students at the Paris medical school. He reviews the contributions of French science to syphilology from Berenget's statement in 1527 that the disease was *un mal d'Espagne venant* to Fournier's assertions that syphilis is above all a poison for the nervous system and that it is responsible for tabes and general paralysis (1875).

Sept. 11, 1919, 27, No. 51

\*Tendon Phlebotomy to Remedy Radial Paralysis. M. Manchère.—p. 509.

San Treatment of Relapsing Diphtheria. Carron de la Carrière.—p. 511.

\*Gale in Treatment of Varicose Carotids. L. Malou.—p. 513.

\*Rapid Differentiation of Diphtheria Bacilli. R. Debre and R. Lefebvre.—p. 515.

Tendon Anastomosis to Correct Radial Paralysis. Manchère analyzes the various methods of tendon phlebotomy in vogue, and gives an illustrated description of the technique he had found most effective in treatment of war radial paralysis. The outcome is almost sure to be satisfactory if the operation is done before extensor tendons have had their elasticity from being stretched too long, and if the fingers are exercised early

to keep them from getting stiff. He utilizes the smaller palmar tendon along with a little of the palmar aponeurosis for the anastomosis, reaching them through a broad horse-shoe incision and taking up a fold in the stretched extensor tendons to shorten them about 1 cm. The details of the technic are shown in an illustration.

**The Biometric Method of Estimation of Varicose Conditions.**—Mabille emphasizes the importance of distinguishing between true varices from insufficiency of the valves in the vein and false varices from merely vasomotor weakness or from endocrine disturbance, etc. This differentiation permits proper treatment. It is realized by systematically recording the blood pressure in the leg and arm as the subject stands, sits, and reclines, and as he holds the leg up in the air, and by recording the viscosity of the blood in relation to the blood pressure in these four attitudes. Mabille has thus examined more than a thousand persons, and has determined the standard findings in health and the interpretation of the abnormal findings, as he describes with instances of the various types of varicose disturbance. The cases in which surgical measures are imperative can thus be recognized at once, and also the cases which require weak and prolonged thyroid and pituitary treatment or sodium citrate to reduce the excessive viscosity of the blood. Subcutaneous injections of oxygen and physical measures are often useful adjuvants. He depends on the Pachon oscillogram for the maximal and minimal pressure readings, and commends this biometric method to every practitioner.

**Rapid Diagnosis of Diphtheria Bacilli.**—Debré and Letulle expatiate on the differential importance of Babes' polar granules, shown up by double staining, in true diphtheria bacilli. Their two years of experience with this method of differentiation has confirmed its precision and reliability. The pseudodiphtheria bacilli never show these granulations at the poles when stained by the technic described, which is a modification of Neisser's first method. The specimen is incubated at 35 C. for twenty hours and each loop of the culture is spread on two slides. One slide is treated with the Gram, the other after fixation by heat is covered with a solution made by dissolving 1 gm. of methylene blue in 20 c.c. of 95 per cent. alcohol, and adding 950 c.c. of distilled water and 50 c.c. of glacial acetic acid. The smear covered with this solution is heated until it begins to steam. It is then heated a second time, and is then left in contact for five minutes. It is then rinsed rapidly with distilled water and then is covered with the second stain for ten or twelve seconds and rinsed quickly in distilled water. This second solution is made by dissolving 0.50 gm. vesuvine in 250 c.c. of boiling distilled water, filtering while still boiling. The granules clustered at the poles of the bacilli, or only in some of them, show up a black oval, and larger than the body of the bacillus. In their 800 tests they never found these polar granulated bacilli except with true diphtheria and they always found them then. They warn that one other bacillus may present these granulations, *Bacillus cutis-commune*. But they never found this in the throat in any of their tests. It differs from the diphtheria bacillus further in attacking saccharose. In case of diphtheric lesions elsewhere than in the throat, it might be advisable to test a loop on a sweetened litmus culture medium to exclude this bacillus.

### Progrès Médical, Paris

Aug. 23, 1919, 34, No. 34

- War Surgery of the Lung. M. Barbier.—p. 331.  
Spleen Treatment of Cecal Stasis. J. Baumann.—p. 336.  
\*The Council on Pharmacy and Chemistry of the A. M. A. A. Bernard.—p. 338.

The Council on Pharmacy and Chemistry.—To be reviewed elsewhere.

### Revue Neurologique, Paris

May, 1919, 26, No. 5

- \*Vicious Attitude of Fingers from Injury of Ulnar Nerve. A. Pitres and L. Marchand.—p. 369.  
\*Para-Osteo-Arthropathies with Paralysis from Injury of Spinal Cord. Mme. Dejerine, A. Ceillier and Mlle. Dejerine.—p. 399.  
Case of Progressive Myodermosclerosis. H. Roger.—p. 408.  
The Series of Mental Phases after Commotions. A. Barbé.—p. 414.

**The Clinical Characters and the Pathogenesis of Ulnar Claw Fingers.**—Pitres and Marchand give illustrations of different types of what they call *griffes cubitales*. The thumb and the index finger are normal, but the little finger, the ring and sometimes the middle finger are flexed to a degree to amount to a deformity. They have encountered 163 cases of the kind consecutive to war wounds. This vicious attitude of these fingers is a frequent but not a pathognomonic symptom of traumatic paralysis of the ulnar nerve. It develops in about 90 per cent. of the cases of ulnar injury, but it may occur even without injury of this nerve. The fingers are held in this position at first merely to avoid pain, and then the position becomes irremediable and incurable on account of the neurotrophic lesions which develop in the tissues around the joints. In other cases the deformity is primary, the result of the functional contracture of the fibers of the flexor longus added to the symptoms proper to the lesions of the ulnar nerve. There is also a group of false *griffes cubitales* from contracture of heterotraumatic origin, or cicatricial retraction, etc.

**Para-Osteo-Arthropathies.**—Certain clinical and radiologic findings with this complication of injury of the spinal cord have already been published by this trio of workers, and they now describe with illustrations several out of sixteen specimens of P. O. A. as they call this type of ossification in the tissues around a joint after injury of the spinal cord.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 28, 1919, 49, No. 35

- Access to Base of Skull. Henschen and Nager.—p. 1289. Cont'n.  
\*Tuberculosis in its Action on the Mind and Character. O. Amrein.—p. 1300.  
Tuberculosis in Rodents. B. Galli-Valerio.—p. 1309.

**Action of Tuberculosis on Mind and Character.**—In this long study of the change in tastes and character under the influence of tuberculosis, Amrein warns among other things of letting the patients develop "thermometer-mania." One of his patients left the dinner table once to insist on having his temperature taken, and as the hot soup had warmed his mouth, the thermometer reading sent him to bed "very ill," expecting hemiplegia at once. Another patient routed out by a fire at night saved only his thermometer and fever chart. Amrein comments on the evils of excesses of all kinds in games, dancing, drinking, etc. A single dancing party or drinking bout may undo months of patient sanatorium treatment. One of his patients had a tuberculous cavity rupture during a lively dance, with fatal outcome. The long separation from home and occupation, the opportunities, he says, for *das Flirten* are reinforced, he thinks, by a direct stimulating influence from the tuberculosis toxins on the sexual appetite, especially at times of higher temperature. This applies particularly to patients with a long subfebrile temperature, 37.5 to 37.8 C., and they also seem peculiarly liable to irresponsibility in general. Many physicians have noticed how much more sensible their patients seem to act after recovery, their nervous system more stable. His plea is that the physician should pay more attention to the mind and character of the tuberculous, seeking to train and guide them. This of course can be accomplished best in a well managed sanatorium, and he reiterates that this is "terribly important" (*furchtbar wichtig*) in treatment, especially of pulmonary tuberculosis. Some patients do even better without the strict discipline of a sanatorium. The physician has to individualize and treat them psychologically.

### Pediatria, Naples

September, 1919, 27, No. 9

- \*Inherited Syphilis and Rachitis. S. Cannata.—p. 545.  
\*Dysentery in Children. F. P. Borrello.—p. 550.  
\*Essential Enuresis in Children. U. Provinciali.—p. 567.  
\*Syphilis as a Factor in Chorea. P. Foti.—p. 579.  
Hydronephrosis in Boy of Four. Nicola Iavarone.—p. 590.

**Inherited Syphilis and Rachitis.**—Cannata relates that he has been studying during the last five years the possible connection between inherited syphilis and rachitis. There were 1,285 rachitic infants among the 10,000 that passed

through the children's clinic in that period, and 37.27 per cent. of the rachitic children had inherited syphilis. Excluding those with tuberculosis or chronic skin disease, there were fifty-eight breast fed infants in whom the rachitis seemed to be connected with the inherited syphilis, and the latter dominated the clinical picture. The set of symptoms described by Marfan (craniotabes, pronounced anemia, and splenomegaly) as characteristic of rachitis with inherited syphilis, was found equally pronounced in eighteen infants under 6 months old who seemed to be free from all inherited taints.

**Vaccine Therapy of Dysentery in Children.**—Borrello gives full details of twenty-four cases of dysentery in young infants and children up to 10 years old. The disease is more common in children than generally recognized, and seems to be graver the younger the child, and in the Shiga form, but the Flexner form is liable to prove fatal also, especially when secondary to other disease. Treatment is principally with the specific vaccine, and this is more effectual the earlier it is begun. Its efficacy is most striking in the Shiga form which without it is almost invariably fatal.

**Essential Enuresis in Children.**—Provincioli reviews the various theories that have been advanced to explain essential enuresis, and states that in eight out of ten children of this category roentgen examination revealed anomalies in the lumbar-sacral portion of the spine. In only two were these parts of normal aspect. The children with these anomalies did not show any other appreciable signs of degeneracy or only in a proportion much less than in adults. As the children usually outgrow the enuresis in time, he urges roentgen examination of their spines to see if it might not be possible to detect the nature of the anatomic changes which put an end to the enuresis. He protests against the assumption of dysplasia in the spinal cord or roots, as this would entail quite another set of symptoms, more in the line of neuralgia or paralysis.

**Pathogenesis of Chorea.**—Foti relates that syphilis was unmistakable in 13 out of the 17 cases of chorea given treatment at the children's clinic at Naples during the last five years. It was probable also in 3 others, and only one of the 17 children seemed to be entirely free from the taint in every way. He insists that this 95 per cent. must be more than the mere coincidence which Comby thinks it is. He regards it as a predominating influence in the pathogenesis of chorea as the principal predisposing factor, entailing such instability of the nervous system that the most diverse causes, infections, emotional stress or metabolic disturbance may bring on the chorea.

### Riforma Medica, Naples

Aug. 16, 1919, 25, No. 33

\*The Normal Intestinal Flora in Adults. N. Pane. p. 686.

\*To Enhance the Sensitiveness of Indicators for Acids and Alkalies. E. Pittarelli. p. 692.

Fracture of Anterior Tuberosity of the Tibia. R. Mosti. p. 693

Differentiation of Hysterical and Organic Anesthesia. A. Iappelli. p. 697.

**Toxic Action from Intestinal Flora.**—Páne is director of the Istituto di Batteriologia of the University of Naples, and he here presents comprehensive data confirming the presence in the intestines of toxic facultative anaerobic and aerobic bacteria which by their products may gradually in time thoroughly intoxicate the organism. This is especially liable when much meat is eaten. By modifying the diet, conditions may be so changed that the toxic bacteria no longer find the environment favorable for their proliferation, and the production of their toxic products ceases. This is the explanation, he continues, of the benefit from restriction to milk in chronic intestinal and liver disease. The milk in the diet favors the proliferation of the bacteria of acid fermentation, and these crowd out the toxic bacteria. Milk in itself does not seem to have any antitoxic action. He cultivated in milk some of the toxic bacteria and their virulence seemed to be permanently increased. All his patients were between 50 and 60 and all had indican in the urine. He does not place any reliance on yoghurt as, although this answers the purpose while the yoghurt is being taken, yet as the lactic acid bacilli do not form part of the customary flora of the

adult intestine, they soon die out when the yoghurt is discontinued. The acidophilus and the bifidus, on the other hand, are encountered regularly in human stools.

**To Enhance the Sensitiveness of Indicators.**—Pittarelli refers to the indicators for alkalies and acids and discusses their application to the qualitative and quantitative analysis of acetone.

### Rivista Critica di Clinica Medica, Florence

July 26, 1919, 20, No. 30

The Various Theories in Regard to Aphasia. C. Mannini. p. 349.

### Anales de la Facultad de Medicina, Lima

July-August, 1919, 2, No. 10

Hypertthyroidism. Ernesto Odrizola. p. 1.

Abdominal Contusions. L. Avendaño. p. 12.

Normal and Pathologic Speech. L. D. Espejo. p. 24. Cont'n.

\*Chemical Study of Odorous Resin. A. Maldonado. p. 40.

\*Maize and Maize Liqueurs. M. A. Velásquez and A. Maldonado. p. 46.

Psychology in Early History of Peru. H. Valdizán. p. 64. Cont'n.

**Chemical Study of Incense Resin.**—The *incienso macho* found in the Cuzco region is here subjected to chemical and pharmaceutical study by Maldonado. Velásquez is soon to publish a report on its use in therapeutics.

**Maize.**—Velásquez and Maldonado outline the history of maize, and give the conclusions of their study of its chemistry and the chemistry of the various liquors made from it, especially the chicha of Peru. The ancient Peruvian pottery often reproduced ears of corn. They devote ten pages to the different names for maize and the beverages made from it in various countries, and describe the festivals and other customs connected with the maize harvest, etc.

### Crónica Médica, Lima, Peru

August, 1919, 36, No. 674

The Delirium with Peruvian Verruga; Two Cases. Hermilio Valdizán. p. 263.

\*Trigeminal Neuralgia. M. Sixto Chávez. p. 273.

\*Remote Disturbances from Ovarioectomy. R. Mendoza. p. 283.

**Trigeminal Neuralgia.**—Chávez refers to cases of trigeminal neuralgia in which syphilis, malaria, anemia, tuberculosis, diabetes, gout or rheumatism could be incriminated as the principal factor causing the neuralgia. He describes also local and reflex trigeminal neuralgia, and reports a case in which supra-orbital neuralgia of long standing disappeared after removal of a fibromyomatous uterus. In another case the agonizing right supra-orbital neuralgia developed at the third month of pregnancy in an otherwise healthy woman of 30. As no relief was obtained from the usual measures, the whole of the right supra-orbital nerve was resected, but the pains continued with even greater intensity until delivery. Then the neuralgia vanished completely and the woman has been in good health since. Syphilis should always be suspected with neuralgia, especially when the pains are worse early in the night, a dull ache keeping up all the time with occasional paroxysms of pain, never very violent. If the neuralgia is bilateral, this in itself renders a syphilitic origin almost certain, even when there are no other symptoms from it. The co-existence of neuralgia elsewhere is also significant, as is the case likewise with lymphocytosis in the lumbar puncture fluid, with not very severe neuralgia. In the third stage of syphilis the neuralgia is usually due to mechanical irritation, and it passes from the phase of pain to that of paralysis and then to trophic disturbances. If treatment for the syphilis does not rapidly improve the neuralgia, some other explanation for the latter will have to be sought.

With a malarial origin, the almost constant localization in the frontal branch of the trigeminal is suggestive, and also the periodicity of the pains, sometimes accompanying or taking the place of the chill and fever. The neuralgia usually occurs mornings, at the same hour, and the region aches a little in the intervals, and there are liable to be vasomotor disturbances, conjunctivitis and epiphora. If quinin does not cure malarial neuralgia in three or four days, it does no good to keep it up indefinitely. Anemia is a frequent cause of neuralgia, especially trigeminal. "The nerve is shrieking for a more nourishing blood." The neuralgia in diabetes is

usually but not always symmetrical. When neuralgia resists all other measures, it might be well to try a course of anti-diabetic diet. With neuralgia in gout or rheumatism, tincture of colchicum or the salicylates are indicated; the neuralgia in these conditions moves about from joint to joint and may alternate with psoriasis or hemorrhoids or with the heart attacks. When alcohol or tobacco is an important factor, benefit follows their disuse. The trigeminal neuralgia with hysteria does not yield to the ordinary measures, including hydrotherapy, bromids, valerian, psychotherapy or electricity, while organic neuralgia usually is more or less modified by these. In the exceptional cases in which benefit has followed operation for hysteric trigeminal neuralgia, there has usually been some slight lesion in one of the branches of the trigeminal nerve, and the removal of the latter favorably modified the neuralgia.

**Remote Disturbances from Ovariectomy.**—Mendoza remarks that in Peru ovariectomy has always been associated with hysterectomy. He reviews the various disturbances that may follow castration, and describes the application of organotherapy, ovarian extract, corpora lutea, etc. The benefit sometimes observed after giving extract of corpora lutea may be due to the fact that the castration was not as complete as supposed, and that enough tissue had been left behind to regulate the function. This may explain also the success of certain ovary-grafting operations. In Peru, Carvallo has done some operations of the kind, and J. Voto Vernales has found ergot useful in warding off symptoms from ovarian insufficiency, especially the vasomotor disturbances. Juvenal Denegri has reported fine results from administering in successive two-day periods thyroid, pituitary and ovarian extracts in turn; others, from arsenic and mineral waters with arsenic and iron. Mendoza ascribes the benefit from these to the regulating action on the thyroid as the latter is always an important factor in the disturbances from loss of the ovaries.

### Gaceta Médica de México, Mexico

August, 1919, n. s. 1, No. 2

- The Colloids. Francisco Bulman.—p. 80.  
Cholecystostomy. J. Velázquez Uriarte.—p. 82.  
Localization of Projectiles. Ulises Valdes.—p. 88.  
Serotherapy in Typhus. Francisco Paz.—p. 97.  
Successful Operative Case of Uterine Cancer plus Myoma. Julián Villarreal.—p. 103.  
Supracervical Vaginofixation. Rosendo Amor.—p. 109.  
The Lange Colloidal Gold Test. Jesús Arroyo.—p. 113.

**Cholecystostomy.**—Velázquez reviews two recent cases of cholecystostomy done for gallstones and one for empyema of the gallbladder. He extols the advantages of this simple conservative operation, for the debilitated and elderly in particular. Two other patients followed for years have never presented any further symptoms from their cholelithiasis since the cholecystostomy. As this operation is so simple, it can be done early and before the diagnosis is absolutely certain, thus saving many patients from becoming addicted to morphin to which they may otherwise be driven. It has the further advantage that it facilitates removal of gallstones later if this becomes necessary.

**Serotherapy in Typhus.**—Paz gave the serum by the vein once a day, and compares his tabulated results with those reported by others in which the subcutaneous route was used. There were no complications in any of the eleven cases, and recovery was rapid in all but one instance in which it was "slow." The disease was grave in all and the injections were commenced from the fifth to the ninth day. The serum used was a few hours up to 2½ months old. It was drawn from convalescents from ten to fifteen days after defervescence. The total injected ranged from 36 to 125 c.c. according to the clinical aspect of the case. The results obtained, he says, confirm and surpass those realized by Treille and Legrain in 1911.

**The Colloidal Gold Reaction in the Cerebrospinal Fluid.**—Arroyo's article is accompanied with four colored plates to show the minute details of the Lange reaction as determined in sixteen cases. He gives charts showing the response in various conditions and especially in general progressive

paralysis, in which the test is most instructive. It is not definitely settled yet, however, whether the reaction occurs exclusively in this.

### Medicina Ibera, Madrid

Aug. 2, 1919, 8, No. 91

- Aviators' Neurosis. C. Juarros and A. Perez Núñez.—p. 74.  
Influence of Aviation on Sensibility, Tendon Reflexes and Muscle Force. C. Juarros.—p. 74.  
\*Treatment of Tuberculous Lupus. Sainz de Aja.—p. 75.

**Lupus.**—In concluding this study of lupus from various standpoints, Sainz emphasizes the importance of detecting the lupus in its incipency. This is a task for the medical inspectors of schools, as the first signs of the disease usually develop in childhood.

Aug. 9, 1919, 8, No. 92

- \*Vacuum Extraction of Cataract. I. Barraquer y Barraquer.—p. 93.  
\*Heart Action and Nervous Disturbances in Schoolchildren. Alvarez Sierra.—p. 94.  
\*Iodin as an Alterant. A. Sobrino Alvarez.—p. 95.

**Vacuum Extraction of Cataract.**—Barraquer now has a record of 1,000 cases of suction extraction of cataract in the capsule, or *jacuocisis*, as he calls it. The suction apparatus is known as the *crisifaco*. Visual acuity of from 0.7 to 1 was regained in 69.4 per cent, and from 0.3 to 0.7 in 24 per cent. Simple extraction was realized in 219 cases; in 530 the periphery of the iris had to be slit, and in 251 iridectomy was necessary. There was luxation of the crystalline lens in 3 cases and infection in only 2 of the 1,000. He does not include in this series the cases of his first tentative period. His method was described in THE JOURNAL, Dec. 8, 1917, p. 2006.

**Heart and Nervous Disturbances in Schoolchildren.**—Alvarez insists that when disordered heart action is noted in a child at school this may be from some congenital defect, and ordinary school work and play may aggravate it beyond repair. Or it may be merely the effect of the fatigue of the brain, sustained attention inducing greater afflux of blood to the brain, modifying the respiration and making the heart beat noticeably loud. A child presenting these symptoms should be taken out of school at once; conditions may then right themselves. When he returns to school, the teacher and physician should plan his studies. When a previously good scholar grows indolent and inattentive, this warns of brain fatigue. It is common with an inherited neurotic or alcoholic taint. Sleepiness or dizziness are also signs of irritation of the brain in such children. Too close or too prolonged attention by a child fatigues the brain, and its deleterious influence in time becomes manifest in grave circulatory and nervous disturbances. When these develop, the physician is liable to attribute them to everything but the right cause, the strain of school life. He declares that none of the diseases to which children are liable act so directly and with such dire effects on the general condition in the course of time, as this strain from school life.

### Revista Medico-Cirurgica do Brazil, Rio de Janeiro

June, 1919, 27, No. 6

- The Venereal Problem in the Army. E. Rabello.—p. 191.

### Revista Médica de Chile, Santiago

July, 1919, 47, No. 7

- \*Normal Beef Serum in Treatment of Anthrax in Man. R. Kraus, J. Penna and J. Bonorino Cuenca.—p. 333.  
Typhus. Arturo Atria.—p. 432. Cont'n.  
Bilateral Hysteric Amblyopia after Trauma of Face. Carlos Charlín C.—p. 365.  
\*Cancer of Appendix. Ernesto Greene O.—p. 369.  
\*Cancer of Lung. E. Prado Tagle and C. Garcés.—p. 372.

**Normal Beef Serum in Treatment of Anthrax in Man.**—The success of Kraus and his co-workers has been repeatedly mentioned in these columns, as for instance, July 20, 1918, p. 234. Kraus here brings the subject down to date in this address which he delivered at the University of Chile. He reiterates that normal beef serum has proved as successful as any other known measure so far. He injects it subcutaneously in doses of from 30 to 50 c.c. and repeats the injection in

twelve, twenty-four or thirty-six hours as indicated. Very seldom are more than two or three injections required. In the extremely severe cases he advises to inject the serum by the vein. The serum is heated twice to 56 C., and it only exceptionally induces serum sickness. Even when the case seems mild, he warns not to use a smaller dose than 30 or 50 c.c.

**Cancer of Appendix.**—The appendix was removed on account of acute flaring up of a long chronic appendicitis in a woman of 34, and a fibro-adenoma was found at the tip. It showed traces of malignant degeneration.

**Primary Cancer of Lung.**—In the case reported by Prado and Garces the man of 52 for nine months had been having intense pain at times at the base of the right lung, with a cough and progressive expectoration. The sputum was mucous at first but gradually showed more and more blood, and there were also attacks of hematuria, precordial distress and palpitations. Necropsy nearly eight months after the first symptoms revealed a primary cancer in the right lung with metastases in the left lung and in the right kidney, with compression from metastases involving the cervical roots from the third to the seventh.

### Semana Médica, Buenos Aires

July 3, 1919, 26, No. 27

- \*Therapeutic Prohibition of Meat. A. D'Alessandro.—p. 1.
- Transposed Viscera. M. E. Pignetto.—p. 8.
- Infant Welfare Work. Ernesto Gaing.—p. 12.
- The Pandemic of Quackery. Juan A. Massa.—p. 14.
- \*Calculi in Children. R. A. Rivarola.—p. 18.
- Early Diagnosis of Brain Tumors in Children. Id.—p. 19.
- History of Organized Prophylaxis of Venereal Disease in Latin America. Emilio R. Coni. p. 22.

**Prohibition of Meat.**—D'Alessandro protests against the routine direction to patients to refrain from eating meat. This therapeutic sarcophobia as he calls it is unphysiologic, and patients are too apt to continue indefinitely any specific order like this, intended for some transient condition such as acute fever or acute gastro-intestinal derangement. Not much meat should be eaten by persons inclined to gout, joint disease or nephritis, but it should not be forbidden entirely. He adds in conclusion that in diabetes, meat is indicated only in the first stage.

**Welfare Work for Infants.**—Gaing is in charge of the Instituto de Puercultura No. 1 at Buenos Aires, which includes a well baby clinic, dispensary and infants' hospital. He here reiterates the importance of giving prizes for the babies that are thriving most. When this is not done, the only women who profit by the well baby clinics are those who get artificial food there for their infants. The nursing women soon tire of bringing their babies merely to be told that they have increased so much in weight. In this way the premium is put on artificial feeding, the very opposite of what is intended. This can be remedied by giving small prizes for the infants that are thriving best. The woman's pride in being recognized as the model mother is a greater stimulus than the prize itself, so the expense of the prizes need not be large. He suggests monthly distribution of \$40 in five prizes of \$5 each and five of \$3. He relates that breast milk is provided also at the institution in his charge, 905 bottles being given out in 1914; 246 in 1915, 969 in 1916; 4001 in 1917, and 2859 in 1918. This milk is ordered for infants who are impatient, but when more is available than needed, it is given out for use in the home. It is supplied by four wetnurses in the institute and, as is obvious, it represents much effort, but the benefits realized have been enormous. He expatiates on the wisdom of this arrangement and its application on as large a scale as possible. The infant thrives on this bottled breast milk just as well as if it suckled the breast. Each district with an institution of this kind should have a commission appointed from among the neighbors for aid and propaganda of the welfare work.

**The Pandemic of Quackery.**—In the course of this discussion on charlatanism in general and its present unprecedented extension, Massa remarks that even a qualified physician is an *charlatan en latencia* if he applies any one single therapeutic method in treatment of all diseases.

**Calculi in Children.**—Rivarola ascribes to abnormal persistence of the uric infarcts, found in the kidneys of the newly born, the development of a calculus, either in the kidney or bladder or their outlets, as the child reaches the age from 3 to 5. This lithiasis is not rare in Argentina although far less frequent than has been reported from Hungary and elsewhere. He emphasizes the necessity for watching over the child after removal of the stone to ensure rigorous hygiene, trying to modify the calculus producing tendency. He has had no mishaps from crushing or cutting out calculi in children, but in some cases there was recurrence.

### Siglo Médico, Madrid

July 26, 1919, 69, No. 3424

- \*Research on the Dynamics of the Heart. M. Bañuelos García.—p. 598. Cont'n.
- Aug. 2, 1919, 69, No. 3425
- The Necessary Equipment for Toxicology Laboratories. V. Peset.—p. 617.
- Is Vaccination against Anoplexy Possible? J. Ferrán.—p. 619. Cont'd in No. 3424, p. 593. Cont'n.
- Clinical Varieties of Balamus. Sicilia.—p. 622.
- Aviators' Neurosis. C. Juarros and A. Pérez Núñez.—p. 625.
- Diathermy in Treatment of Ulcerative Processes in Digestive Tract. Santiago Carro.—p. 625. Cont'n.

**Research on the Dynamics of the Heart.**—Bañuelos reports study of the influence of a pituitary extract on the blood pressure in the frog by the mediation of the heart beating with isometric contractions, and also of the influence exerted by the pneumogastric under similar conditions. The work was done at the Physiologic Institute at Bern, Switzerland, and the results confirm those of previously published research, namely, that the pituitary preparation studied has an action antagonistic to that of the vagus, and this seems to be its only action in this line.

### Vida Nueva, Havana

June, 1919, 11, No. 6

- \*Fatal Acute Leukemia in Young Woman. D. González Marmol.—p. 123.
- Organization of the Fight against Tuberculosis in the School. L. Mather.—p. 131.
- \*Hemiosalemesis; Two Cases. C. M. Desvervigne.—p. 134.

**Acute Leukemia.**—In less than a month after a normal childbirth, the young woman developed headache, lassitude and tenderness in the occipital region, and infarction of glands, with a pseudomembranous process in mouth and throat from which only pus cocci could be cultivated. The diagnosis of leukemia was confirmed by the 91.33 per cent. mononuclears. Then conditions improved the twelfth day, the fever subsided, the liver and spleen returned to normal size, and the woman seemed to have recovered. But the thirty-third day the symptoms returned and grew rapidly worse, with death in nine days.

**Hemiosalemesis.**—Desvervigne reports two cases of profuse vomiting of a blood-stained fluid, without general disturbances of any kind. The vomiting attacks occurred every two or three months in the first case, in connection with the menstrual periods, which were regular. The vomiting had occurred first two years before. There was no nausea or cough with the vomiting, merely a sensation of retrosternal constriction. The vomit showed the three strata characteristic of hysteric "pink hematemesis," and the woman presented other signs of hysteria. Such were evident also in the second case in which there was rapid swelling of the palate, tonsils and base of the tongue. The hemiosalemesis in this case developed at the close of a period of profuse menorrhagia. The hemorrhages in both cases seemed to have occurred by diapedesis as there were so few erythrocytes in the vomit. In the first case the husband of the woman began to vomit too, in much the same way, except that there was no adreberria. The couple could not be convinced that the vomiting in both was not due to hemipetis or inter-cerebral origin.

### Hygiea, Stockholm

July 16, 1919, 81, No. 13

- Urticaria and Its Complications during the Course of Co. Suckley's Serum-rabies for Etiology of Tuberculosis. A. Gullberg.—p. 200.



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## OBSERVATIONS ON THE CEREBRO- SPINAL FLUID OF ACUTE DISEASE\*

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The anatomy of the meningeal-choroid complex, or, as it may conveniently be termed, the subarachnoid system, is quite well understood; its physiology and pathology are shrouded in a large measure of uncertainty, while recognition of its clinical importance is recent and, even yet, not very general.

For a summary and an extension of our knowledge of the development, structure and function of this part of the envelop of the central nervous system, we are indebted to Weed,<sup>1</sup> to whose writings the reader is referred for details and the literature.

It seems to be established that the cerebrospinal fluid is largely a product of the choroid plexus of the cerebral ventricles, with small, probably insignificant, accretions from the general ependymal cells and the capillaries of nervous tissue itself, through their perivascular channels; that it exists in an amount of from 60 to 150 c.c., and that its formation is rapid and its circulation active, particularly in the upper or cranial portion of the system of channels through which it circulates.

The route taken by the major part of the fluid is one which leads from the lateral ventricles through the foramina of Monro to the third ventricle, and then through the aqueduct of Sylvius to the fourth ventricle. From this chamber it escapes by the median foramen of Magendie and the lateral foramina of Luschka into the cisternae lying in the cerebello-vertebral angle, where, contained between arachnoid externally and pia internally, the fluid is distributed in the communicating spaces, subarachnoid spaces and to the cerebral and cerebellar spaces as a capillary layer, except where the enclosing membranes are separated by wider intervals, as at the isthmus.

Absorption is chiefly by the great venous sinuses, largely through the pacchionian bodies, which are but augmented arachnoid villi, with lesser drainage into the lymphatic system surrounding certain cranial nerves and vessels. Drainage is largely a physical

process determined by the difference in pressure existing in this subarachnoid system and in the venous sinuses—a matter of undoubted clinical importance.

This system may, in a sense, be conceived of as an accessory or specialized circulation between the vascular choroid plexus and the venous sinuses. That the fluid exchange here is great, there is no doubt.

Frazier<sup>2</sup> estimates the total amount of fluid secreted in twenty-four hours to be from 360 to 720 c.c., and is of the opinion that the entire amount—from 60 to 150 c.c.—is replaced every three hours. He cites also the fact that within two hours of the injection of phenylsulphenophthalein into the ventricles, 60 per cent. is recovered from the urine, and that the subarachnoid spaces of a dog will absorb about 500 c.c. of physiologic sodium chloride solution per hour, the rate of absorption being in direct ratio to the pressure.

Flexner and Amoss<sup>3</sup> have made the most thorough recorded experimental study of the normal and pathologic physiology of the meningeal-choroid complex, establishing the fact of its role as a barrier to the passage of the virus of poliomyelitis from the blood to the central nervous system, and the fact that this barrier is broken down under the influence of inflammation excited mechanically or chemically.

This principle has been found applicable to other injurious agents than that of poliomyelitis.

Austrian<sup>4</sup> demonstrated in rabbits the importance of subarachnoid infections of serum, with resulting inflammation, in determining the localization of meningococci in the meninges in meningococcal sepsis. Wood, Wegeforth, Ayer and Fallon made similar but more extensive studies, which emphasize the effect of lumbar puncture in exciting inflammation and thus increasing permeability.

That similar conditions govern the permeability of the meningeal-choroid complex for chemical substances was shown by Viron in 1833 and by Jordan in 1838 for arsenic.

The complexity of the problem is brought out by Amoss and Flexner,<sup>5</sup> who discuss the variability in Austin's conditions.

These observations, however, and the same experimental evidence, to show, that the meningeal function of

\* Reprint from *The Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

<sup>1</sup> *Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

<sup>2</sup> *Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

<sup>3</sup> *Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

<sup>4</sup> *Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

<sup>5</sup> *Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

\* Reprint from *The Journal of the Neurological and Neurosurgical Society*, A. 64, for April, 1919.

meningococci in rabbits given serum by the thecal route, when a meningococcus bacteremia exists, is the result of injury from the needle rather than of increased permeability consequent on the local effect of serum on the leptomeninges. They also found it impossible to direct the meningococci circulating in the blood into the cerebrospinal meninges of monkeys either with or without aseptic meningitis. It is admitted, however, that because of the high insusceptibility of the monkey to infection with the meningococcus, these experiments have little or no clinical bearing.<sup>9</sup>

The physician can supplement the laboratory studies thus briefly summarized. Since Quincke introduced lumbar puncture in 1890, an appreciable amount of clinical data has been set down. It is worth while to collect and sift this, to add a fairly extensive series of observations of our own, and to evaluate the whole from a clinical point of view. In order to keep within limits, consideration of meningitis in the ordinary acceptance of the term is omitted. We shall take account of the participation of the meninges (meningitis serosa Dupré) as revealed by study of the cerebrospinal fluid only in those diseases that ordinarily are not supposed specifically to involve the central nervous system.

That the meninges participate in the systemic reaction to a variety of infections not as a rule giving rise to meningitis has not had wide recognition. For example, Frazier,<sup>10</sup> in a paragraph on the spinal fluid of acute infections, is content with the statement that "definite pleocytosis which may reach very high counts is found in a large number of cerebrospinal diseases—particularly the infectious meningitides, meningococci, pneumococci, tuberculous and cerebrospinal syphilis, paresis, tabes dorsalis, brain abscess and herpes zoster."<sup>11</sup>

Symptoms of meningeal irritation, headache, delirium, irritability, hyperesthesia and exaggerated reflex activity are accepted as a matter of course as inaugural symptoms of perhaps the majority of the acute infections of any degree of severity. Only when these symptoms persist and become intense are they ordinarily deemed of enough significance to suggest lumbar puncture. Furthermore, if this lumbar puncture shows a "clear fluid," additional study is usually omitted, the cell count and the globulin determination are neglected, and the meningeal features of the picture are suppressed in the clinician's consciousness. A result of this has been that the cerebrospinal fluid of diseases other than the various forms of meningitis and poliomyelitis has been little considered. No broad study of the meningeal phase of acute febrile diseases, based on the character of the cerebrospinal fluid in any extensive series of miscellaneous cases, has rewarded our search of the literature. One finds, in fact, evidence of much confusion of ideas in the conflicting statements v. e. r. t. e. d.

We quote from a few typical statements set down since Dupré,<sup>11</sup> in 1904, coined and defined the term meningitis.

Connal<sup>12</sup> examined the "fluids of a large number of cases other than those of meningeal irritation. Cases

of scarlet fever, enteric, whooping cough, erysipelas, cerebral tumor, epilepsy, tetany, acute lobar pneumonia, bronchopneumonia, gastro-enteritis, uræmic coma and various minor ailments were punctured." The centrifuged sediment was found in each instance to contain very few cells—one to every two or three fields—generally mononuclears.

Blatteis and Lederer<sup>13</sup> state that "when the cerebrospinal symptoms were due only to irritation the fluids were found to be absolutely normal in every way."

Abramson<sup>14</sup> experiences no difficulty in determining fluid from a case of meningism, as it uniformly in his experience "shows no increase in cells, no albumin-globulin and a prompt and heavy reduction of Fehling's solution."

DuBois and Neal<sup>15</sup> remark that in meningismus pressure of the cerebrospinal fluid is increased, there are "very few cells," and globulin is  $\pm$ .

Heiman<sup>16</sup> finds that "in intoxication cases no variation from the normal spinal fluid occurs."

Johnston<sup>17</sup> found that cases with meningism showed "no pleocytosis except in one instance." He also makes the useful observation that a negative globulin test may occur in a pathologic fluid.

At variance with the statements quoted above are these:

Warrington,<sup>18</sup> in common with Hutinel,<sup>19</sup> Jean and Cardamatis,<sup>20</sup> and others, considers that just as "there is no essential difference between the pathogenesis of purulent meningitis, and of serous meningitis or ependymitis, so there is no true pathologic demarcation between meningism and serous meningitis, though examination of the cerebrospinal fluid is a most valuable means of determining the degree of the process."

Lucas<sup>21</sup> believes that in pyogenic infections the reaction in the meninges resembles that in the true serous membranes. He cites a single case of meningismus in which the number of cells in the spinal fluid varied from 10 to 80, and concludes that there are many conditions giving the same cytologic findings in the spinal fluid: (a) encephalitis; (b) epidemic myeloencephalitis; (c) meningismus; (d) tuberculous meningitis, and (e) syphilis of the central nervous system.

Plaut, Rehm and Schottmüller,<sup>22</sup> without citing any series of observed cases, make the statement that lobar pneumonia, pertussis, scarlatina, measles, mumps, enteric fever and sepsis with cerebral symptoms (meningitis serosa—Dupré) may have a cerebrospinal fluid under heightened pressure, with globulin and an increase in cells, in some instances amounting to several hundred in a cubic millimeter.

13. Blatteis, S. R., and Lederer, Max: An Analysis of Four Hundred and Twenty-Six Cerebrospinal Fluids from Various Pathologic Conditions, *J. A. M. A.* **60**: 811 (March 15) 1913.

14. Abramson, H. L.: The Spinal Fluid in Poliomyelitis and Its Differentiation from Fluids of Other Infections, *Am. J. Dis. Child.* **10**: 344 (Nov.) 1915.

15. DuBois, P. L., and Neal, J. B.: Summary of Four Years of Clinical and Bacteriologic Experience with Meningitis in New York City, *Am. J. Dis. Child.* **9**: 1 (Jan.) 1915.

16. Heiman, H.: Clinical Distinction Between Cerebral Intoxication (Meningism, Serous Meningitis) and Meningitis, *Pædiatrie* **27**: 232, 1915.

17. Johnston, M. R.: A Study of Normal and Pathologic Cerebrospinal Fluids in Children, *Am. J. Dis. Child.* **12**: 112 (Aug.) 1916.

18. Warrington, W. B.: Intracranial Serous Effusions of Inflammatory Origin, *Quart. J. Med.* **7**: 95, 1914.

19. Hutinel: Les meningites non-suppurées, *Rev. mens. d. mal. de l'enf.*, 1906.

20. Jean and Cardamatis: Contribution à l'étude des meningites chez l'enfant, *Arch. de méd. d. enf.* **8**: 321, 1905.

21. Lucas, W. L.: The Nonspecificity of the Cyto Findings in the Spinal Fluid in Various Meningeal Conditions, *Am. J. Dis. Child.* **1**: 230 (March) 1911.

22. Plaut, Rehm and Schottmüller: Leitfaden zur Untersuchung der Cerebrospinalflüssigkeit, Jena, Gustav Fischer, 1913.

9. For a study of normal and pathologic history of the choroid see Findlay, J. W.: The Choroal Plexus of the Lateral Ventricles of the Brain: Their Histology, Normal and Pathologic, *Brain* **22**: 161, 1899.

10. Frazier: The Surgery of the Spine and Spinal Cord, New York, D. Appleton & Co., 1919.

11. Dupré: Meningitis serosa, *Compt. rend. de Lyon*, 1904.

12. Connal, A.: A Study of the Cerebrospinal Fluid in the Infective Diseases of the Meninges, *Quart. J. Med.* **3**: 151, 1909-1910.

MENINGEAL REACTION IN ACUTE DISEASES

The cerebrospinal fluid of certain acute diseases has been studied with varying degrees of thoroughness.

**Lobar Pneumonia.**—The most complete study is that of Voisin,<sup>23</sup> whose thesis is a catalogue of the literature up to 1904. Forty-nine lumbar punctures were made in forty-five cases of lobar pneumonia or bronchopneumonia in which meningeal symptoms were observed. Cellular increase was found in the cerebrospinal fluid in eight, the cells numbering from 11 to 66 per cubic millimeter. The patients, in all cases but one, had purulent otitis media. Sixty-four lumbar punctures were made in thirty-eight cases in which there were meningeal symptoms. In fifteen of these there was no abnormal reaction in the spinal fluid. Of the twenty-three cases showing modifications, nineteen had a leukocyte reaction more or less marked. Of these, 60 per cent. showed albumin. The patients in most of these cases had suppurative otitis, which raises the question as to whether these cases can properly be classed as mere meningitis. Only six patients in these thirty-eight cases recovered. Voisin concludes that in pneumonia there may be every gradation of meningeal reaction, from a slight increase in pressure to purulent fluid. Litchfield<sup>24</sup> finds it the rarest exception for cases of pneumonia with meningeal irritation not to present positive findings on lumbar puncture, and reiterates what has already been found true in meningococcus meningitis;<sup>25</sup> that clear normal fluid may be obtained by lumbar puncture, though there is purulent inflammation of the meninges located at higher levels. In this connection, the work of Cushing<sup>26</sup> may be recalled, which brings out the difference in composition of the ventricular and subarachnoid fluids in sugar and albumin content, and in bactericidal and other immunologic properties.

**Scarlet Fever.**—Several reports establish a meningeal reaction in at least some cases of this disease. Hutinel,<sup>27</sup> who was perhaps the first to grasp the general clinical significance of the changes in the cerebrospinal fluid of a variety of acute diseases, finds that the exanthems with which meningism is a frequent associate are often accompanied by a lymphocytosis of the spinal fluid. He suggests that a common origin of the meninges and the skin in the ectoderm may be a not altogether satisfactory explanation of the tendency to the invasion of the spinal and cerebral coverings in the same manner as that of the skin by the unknown infective agents of the eruptive fevers. Porter<sup>2</sup> has expressed a similar point of view, as has Sharpe,<sup>28</sup> who cites a case of scarlet fever with spinal fluid under great pressure and containing much globulin which, at autopsy, revealed edema of the leptomeninges. Kirchheim and Schröder,<sup>29</sup> in a paper in which the anatomic basis of meningism has had careful study, report definite meningeal reaction in three cases of

scarlet fever which came to necropsy. Gauss<sup>31</sup> examined the spinal fluids of fifty patients, aged from 1 to 14 years, having scarlet fever or associated exanthems. All cultures were sterile. The cell count averaged eight, but eleven fluids contained between 10 and 20 cells, from 80 to 90 per cent. of them lymphocytes.

**Mumps.**—Meningitis is one of the rarest complications of parotitis. However, if one studies a series of several hundred cases, an opportunity possible in large military hospitals, he will be impressed with the frequency of meningeal symptoms.

Chauffard and Boidin<sup>32</sup> cite two cases of mumps with meningism, associated with well marked lymphocytosis of the cerebrospinal fluid, which came and went with the meningeal symptoms, and which in one case was so marked that the fluid was quite turbid. Larkin<sup>33</sup> reports a lymphocyte increase in the cerebrospinal fluid in several cases. In 1902, Monod<sup>34</sup> practiced lumbar puncture systematically in infants with parotitis, and found lymphocytosis of the cerebrospinal fluid six times in eight cases. Acker<sup>35</sup> has given a very complete summary of the observed facts in mumps meningitis, in which he cites the findings of Sicard, Chauffard and Boidin, Dopter, Netter, Comby, Hutinel, Nobecourt and Brelt, and Feliciant, confirming the presence of lymphocytosis in the cerebrospinal fluid in parotitis with nervous symptoms. This feature of parotitis seems, therefore, quite established.

**Influenza.**—Observations of meningism accompanying influenza are an everyday bedside experience. Gendre and Terrien<sup>36</sup> give an account of a case of this kind in which there was pleocytosis of the cerebrospinal fluid, with recovery.

**Gastro-Enteritis.**—Meningism is a very common accompaniment of the gastro-enteritis of children. Hutinel<sup>27</sup> has pointed out the frequency of a subarachnoid reaction in this condition. Blatteis and Lederer<sup>13</sup> state that cases of "intestinal autointoxication" with meningeal symptoms may yield fluids chemically and cytologically resembling tuberculous ones.

**Rabies.**—Abramson<sup>11</sup> found the cerebrospinal fluid in a case of rabies opalescent, with a large number of polymorphonuclear leukocytes, and without organisms on smear or culture. Deniges and Tabrazes<sup>37</sup> report a case in which the cerebrospinal was under high pressure, contained 0.2 gram of albumin per liter, and had very few cells.

Lochelouge<sup>37</sup> reports the finding of pleocytosis in the cerebrospinal fluid withdrawn from patients in individual cases of Malta fever, diphtheria with paralysis, tetanus, plague, malaria and trypanosomiasis. In the same monograph will be found references to positive findings in the fluids of cases of uremia, alcoholism, saturnism and herpes zoster, observed by various writers.

REPORT OF PERSONAL OBSERVATIONS

Our own series of observations on the spinal fluid of miscellaneous acute diseases is a by-product of the study of the early phases of meningococcus meningitis

23. Voisin, R.: Les méninges au cours de infections aiguës de l'appareil respiratoire, Paris thesis, 1904, p. 139, 43.  
24. Litchfield, Lawrence: Pneumococcus Meningitis; Treatment by a Serum Antipneumococcus Serum, J. A. M. A. 7:2:1345 (May 16) 1912.  
25. Herrick, W. W.: The Intravenous Serum Treatment of Cerebrospinal Meningitis, Arch. Int. Med. 21:541 (April) 1918.  
26. Cushing, H.: Studies on the Cerebrospinal Fluid, J. M. Rel. 2:65, 1911-1915.  
27. Hutinel, Réactions méningées dans les érythèmes chez les enfants, Presse méd. 17:209 (March 4) 1909.  
28. Porter, L.: Meningism: A Consideration of the Syndrome of Doure, Arch. Pediat. 27:39, 1910.  
29. Sharpe, C. F.: Edema of the Brain in Infectious Diseases, J. A. M. A. 7:2:159-162 (Jan. 18) 1912.  
30. Kirchheim and Schröder: Ueber Meningismus bei Infektionskrankheiten, Deutsch. Arch. f. Klin. Med. 103:218, 1911.

31. Gauss, H.: Note on the Bacteriology of the Spinal Fluid in Poliomyelitis and Scarlet Fever, J. A. M. A. 48:779 (March 10) 1917.  
32. Chauffard and Boidin: Réaction méningée au cours des oreillons, Gaz. d. Hép. 1904, p. 460.  
33. Larkin: Mumps Meningitis. Report of Two Cases with Autopsy Findings, M. J. Surgon 11:32, 1912.  
34. Monod: Réactions méningées chez l'enfant, Thèse de Paris, 1907.  
35. Acker, G. S.: Parotitis Complicated with Meningitis, Am. J. Dis. Child. 6:399 (Dec.) 1911.  
36. Gendre and Terrien: Réaction méningée atténuée avec lymphocytose au cours de la grippe, Gaz. d. Hép. 1904, p. 438.  
37. Cited by Lochelouge: Les liquide céphalo-rachidiennes. Par. A. 31 Juin & 10, 1906.

made at the base hospital at Camp Jackson, South Carolina. Many other acute infections with meningismus came under suspicion in the attempt which was made to recognize meningococcus meningitis during the premeningitic stage of meningococcus sepsis. Lumbar punctures were made in over 100 of these varied medical cases. All counts and globulin estimations were made by thoroughly competent persons having no knowledge of the special study in progress, and no instructions except that every precaution tending toward accuracy should be regarded. For the care with which the laboratory work was done, we are indebted to Marshall A. Barber, Major, S. C., U. S.

the degree of the meningeal irritation and of the severity of the more general symptoms present, and, in many instances, the number of leukocytes in the blood and the differential count. The amount of cerebrospinal fluid withdrawn is given, also a rough estimate of the pressure without manometric readings. The cell count, the globulin determination by the butyric acid method, and the result of the test for reducing bodies is shown.

By this tabulation the relations of the reaction of the subarachnoid system, as shown by changes in the cerebrospinal fluid, to some clinical and laboratory features of acute disease are made available for study:

TABLE 1.—RESULTS OF EXAMINATION IN CERTAIN ACUTE INFECTIONS

Cerebrospinal Fluid				Blood Findings										Clinical Features				
Case No.	Amount C.c.	Pressure	Cells	Globulin	Reduction	Leuko-cytes	Neutro-phils, %	Trans- ferenals, %	Fosho-phils, %	Small Mono-nuclears, %	Large Mono-nuclears, %	Culture	Wassermann	Meningeal Irritation	Temperature	Severity	Result	
LOBAR PNEUMONIA																		
1	.25	0	200	+	+	.....	..	..	..	..	..	0	..	++	104.0	+++	Death	
2	7	0	32	+	+	13,080	64	..	..	3	4	0	+	++	102.4	++	Recovery	
4	..	..	15	..	..	.....	..	..	..	..	..	..	..	+	103.0	+	Recovery	
5	15	0	15	0	..	54,000	..	..	..	..	..	0	+	+	101.0	+	Recovery	
6	15	0	14	+	..	24,000	82	..	..	8	10	1	0	+	104.0	+++	Death	
7	15	..	12	+	+	20,000	78	..	..	12	10	1	..	++	103.0	+++	Death	
8	15	+	10	..	+	13,000	87	1	..	11	1	..	..	+	103.4	++	Recovery	
9	35	+++	1	0	+	7,000	77	..	..	..	..	..	0	+	114.0	+	Recovery	
10	15	0	2	..	..	7,200	62	..	..	1	2	0	0	+	101.8	+++	Death	
11	10	+	2	±	..	34,000	71	..	..	..	7	0	++	++	96.0	+	Recovery	
12	15	+	6	0	+	31,000	82	3	..	15	..	..	..	++	102.0	+	Recovery	
BRONCHOPNEUMONIA																		
79	..	0	30	0	..	20,000	80	1	..	16	3	..	0	++	102.0	+	Recovery	
64	..	..	16	0	..	19,800	82	3	..	15	..	..	..	+	102.2	+	Recovery	
65	..	..	16	+	..	12,000	75	..	..	23	..	0	..	+	102.4	++	Death	
60	10	0	15	0	..	.....	..	..	..	..	..	..	+	+	99.2	+	Recovery	
67	..	..	12	..	..	.....	..	..	..	..	..	..	..	++	105.0	++	Recovery	
68	..	+	9	0	..	.....	..	..	..	..	..	..	..	++	104.2	+	Death	
69	..	..	8	..	..	.....	..	..	..	..	..	..	..	++	101.8	++	Death	
70	..	..	6	..	..	.....	..	..	..	..	..	..	..	+	.....	+++	Death	
71	..	+	6	0	..	.....	..	..	..	..	..	..	..	+++	104.0	+++	Death	
72	15	+	6	..	..	.....	..	..	..	..	..	..	..	+	99.0	+	Recovery	
73	..	..	7	..	..	.....	..	..	..	..	..	..	..	+	100.0	+	Recovery	
74	5	0	4	..	..	.....	..	..	..	..	..	..	..	+	104.0	+++	Death	
75	15	..	2	0	..	.....	..	..	..	..	..	..	..	++	104.0	+++	Death	
76	12	..	2	..	..	.....	..	..	..	..	..	..	..	++	104.5	+++	Death	
INFLUENZA																		
49	..	0	40	0	0	6,600	81	..	..	19	..	..	..	++	105.2	+	Recovery	
50	10	++	38	±	+	4,850	75	..	..	25	..	0	..	++	103.0	+	Recovery	
51	..	..	20	+++	..	?	68	1	..	..	..	..	..	+	98.4	+	Recovery	
52	10	+	15	±	..	.....	..	..	..	30	1	0	..	++	98.6	+	Recovery	
53	..	..	14	±	..	10,000	..	..	..	..	..	0	..	++	104.2	+	Recovery	
54	15	+	0	..	..	.....	..	..	..	..	..	..	..	++	101.4	+	Recovery	
55	..	..	7	±	..	11,300	69	..	1	27	3	..	..	++	102.2	+	Recovery	
56	..	..	6	±	..	.....	..	..	..	..	..	0	..	+	99.3	..	Recovery	
57	10	0	3	±	..	6,400	85	..	..	7	8	0	..	++	103.0	+	Recovery	
58	50	+	3	±	0	.....	..	..	..	..	..	0	0	+++	101.3	+	Recovery	
59	15	+	3	±	..	.....	..	..	..	..	..	..	..	++	105.0	+	Recovery	
60	20	+	3	±	..	.....	..	..	..	..	..	..	..	++	99.6	+	Recovery	
ACUTE FOLLICULAR TONSILLITIS																		
59	25	+	12	+	..	.....	..	..	..	..	..	..	..	+++	101.0	..	Recovery	
17	10	..	14	+	+	.....	..	..	..	..	..	0	..	++	104.0	..	Recovery	
28	20	..	12	+	+	.....	..	..	..	..	..	0	..	+++	101.3	..	Recovery	
TYPHOID VACCINE REACTION																		
33	25	..	45	±	..	.....	..	..	..	..	..	..	..	++	102.0	..	Recovery	
41	..	..	7	±	..	.....	..	..	..	..	..	..	..	++	101.6	..	Recovery	
41	..	..	6	..	..	5,500	75	..	..	25	..	..	..	+++	101.4	..	Recovery	
45	10	..	6	..	..	.....	..	..	..	..	..	..	..	++	100.4	..	Recovery	

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The study is not complete, differential counts, the colloidal gold test and other elaborations having been omitted in the press of work. Several cases showing more than a single Wassermann reaction are omitted from this report, as are all instances of meningitis of any form, poliomyelitis, mastoiditis or other disease process tending specifically to involve the central nervous system. The seventy-six cases tabulated are therefore those with meningismus not resulting in meningitis at any stage of their progress.

ANALYSIS OF TABLES

In the accompanying tables are shown the diagnosis, the temperature at the time of the lumbar puncture,

1. *Relation of the Subarachnoid Reaction to the Degree of Meningeal Irritation.*—No very direct relation is apparent. As stated by Voisin,<sup>24</sup> cases without meningeal irritation may show pleocytosis and a globulin increase in the cerebrospinal fluid. The opposite is also true. The tables show that it is not always the case that the highest degree of meningismus gives the greatest variation from the normal, or even any variation at all, in the cerebrospinal fluid.

2. *Relation of the Subarachnoid Reaction to the Clinical Estimate of the Severity of the General Symptoms, Including Temperature.*—Again, no constant relation appears.

3. *Relation of the Subarachnoid Reaction to the Leukocytic Reaction in the Blood.*—The study of this

point also gives negative conclusions. Many cases with pronounced leukocytosis are without significant alterations in the cerebrospinal fluid, and vice versa.

4. *Relation of the Subarachnoid Reaction to Prognosis.*—In general, it may be said that a pleocytosis and a globulin increase in the cerebrospinal fluid in an acute disease do not in themselves make the prognosis more grave. In our judgment, they have no prognostic value, except in the rare instances in which an oncoming meningitis is indicated.

THE CEREBROSPINAL FLUID OF CERTAIN ACUTE INFECTIONS

The character of the cerebrospinal fluid in certain acute infections is shown in the tables.

1. *Lobar Pneumonia.*—Of twelve cases of lobar pneumonia, in seven there was a cellular reaction in the

a great increase in pressure; globulin was present, and there were 20 cells. This finding suggests an explanation of the headache, vomiting, delirium and lumbar pain that are initial features of smallpox. Hutinel's theory,<sup>27</sup> already cited, gains support from this observation and from our single case of measles with 16 cells.

Of twenty-eight miscellaneous pathologic conditions in which there was meningismus, and from which spinal fluid was withdrawn, there was pleocytosis in seventeen, while in only four of the instances in which the cerebrospinal fluids were examined was a globulin increase revealed.

COMMENT

The results of the examination of the cerebrospinal fluid in this quite large and varied group of acute

TABLE 2.—MISCELLANEOUS DISEASES

Cerebrospinal Fluid					Blood Findings						Clinical Features						
Case No.	Amount C.c.	Pressure	Cells	Globulin	Reduction	Disease	Leuko-cytes	Neutro-phil.	Transi-tion-als.	Eosino-phil.	Small Mono-nuclears.	Large Mono-nuclears.	Culture	Wasserman	Meningeal Irritation	Temperature	Result
0	20	+	41	++	..	Lumbago	.....	..	..	..	..	..	..	..	..	99.4°	..
29	2	..	41	..	..	Stroc. hem. septicaemia	.....	..	..	..	..	..	Hemolytic streptococcus	..	..	102.0	Death
80	20	+	33	0	+	Typhoid	7,280	6	..	..	15	2	Typhoid bacillus	0	..	99.0	Recovery
11	15	..	27	++	..	Septicemia	42,000	62	8	..	15	15	..	..	+	100.4	Death
22	50	..	24	0	..	Postoperative	.....	..	..	..	..	..	..	..	..	98.6	Recovery
21	..	..	22	0	..	Psychoneurosis	.....	..	..	..	..	..	..	..	..	98.0	Recovery
17	10	+++	20	+	+	Varicella	9,600	65	1	32	2	..	..	..	..	101.2	Recovery
31	19	..	18	++	..	Acute bronchitis	15,660	..	..	..	..	..	..	..	+	103.0	Recovery
16	..	..	17	+	..	Pneumia	.....	..	..	..	..	..	..	..	..	97.3	Recovery
35	15	..	16	..	..	Measles	.....	..	..	..	..	..	..	..	..	97.0	Recovery
26	..	..	15	..	..	Arthritis	.....	..	..	..	..	..	..	..	..	96.0	Recovery
23	5	+	14	++	..	Migræ	8,000	73	4	..	0	1	..	..	..	102.0	Recovery
18	10	..	13	..	..	Mastoiditis	1,600	87	1	..	11	3	..	..	..	104.0	Recovery
33	..	..	13	..	..	Syncope	72,40	50	1	..	47	..	..	..	..	98.0	Recovery
37	..	..	12	..	+	Diabetes	.....	..	..	..	..	..	0	..	+	99.0	Recovery
23	30	..	12	0	+	Lumbago	.....	..	..	..	..	..	..	..	..	99.0	Recovery
37	15	..	12	..	..	Acute alcoholism	.....	..	..	..	..	..	..	..	..	100.0	Recovery
24	..	..	11	..	..	Acute alcoholism	.....	..	..	..	..	..	..	..	..	99.0	Recovery
28	55	++	11	0	..	Hysteria	9,800	75	..	..	21	4	..	0	..	101.0	Recovery
19	00	+++	11	..	+	Coma undetermined	.....	..	..	..	..	..	..	..	..	105.1	Death
39	..	..	10	..	..	.....	.....	..	..	..	..	..	..	..	..	100.0	Death
40	10	..	10	..	..	Malaysia	5,200	96	..	2	76	6	..	..	..	103.0	Death
3	15	..	6	+	..	Hepes	.....	..	..	..	..	..	..	..	..	98.1	Death
46	15	..	6	..	..	Psychoneurosis	8,100	6	..	1	22	..	..	..	..	101.2	Death
47	..	..	6	..	..	Malignant endocarditis	.....	..	..	..	..	..	..	..	..	98.0	Death
43	20	..	6	..	..	Undetermined	29,260	91	..	..	9	..	..	..	..	101.0	Death
48	50	++	5	..	..	Chronic arthritis	.....	..	..	..	..	..	..	..	..	98.0	Death
4	..	..	9	..	..	Neurasthenia	.....	..	..	..	..	..	..	..	..	100.0	Death

cerebrospinal fluid of from 12 to 200 cells; in eight there was a globulin increase. Four patients in the twelve cases died. Three patients among the seven with spinal fluid pleocytosis died.

2. *Bronchopneumonia.*—In fourteen cases, lumbar puncture was made. In five of these cases there was an increase in cells varying from 12 to 30. Only one of these five patients died, while eight cases of the entire fourteen were fatal.

3. *Influenza.*—Fourteen patients in cases with meningismus recovered. Of these, five had cerebrospinal fluid pleocytosis of from 14 to 40 cells. Only three had a globulin increase.

4. *Miscellaneous Cases.*—In all three cases of acute follicular tonsillitis with meningism, there was pleocytosis and a globulin increase. The cells numbered from 12 to 172. None of these patients died. It is of interest here to recall like findings already cited in the case of scarlet fever.

In two cases of sepsis there was a significant subarachnoid reaction. In one case of variola there was

diseases confirm and perhaps slightly extend the observations of others. There is no question that the meningeal-choroidal complex shares in the systemic reaction to the toxins or the infective agents of a very considerable number of acute diseases, and that the cerebrospinal fluid of meningismus is not always, or even usually, normal.

Of no slight clinical moment is the comparative permeability of the meningeal-choroidal complex to various infective agents and their toxins. Of the accepted pathogenic organisms, the meningococcus finds readiest access to the subarachnoid system. In our experience,<sup>28</sup> this penetration takes place in about 95 per cent. of meningococcus septicaemia. If Liebermeister's<sup>29</sup> statement is true, that in 25 per cent. of the cases of pneumonia there is distinct suppurative inflammation in the membranes of the spinal cord, even though their gross appearance is unchanged, the pneumococcus and its toxins have an even stouter

<sup>28</sup> Herrick, W. W. Extra-meningeal Meningococcus Infection, Arch. Int. Med. 24: 471 (April 1914).  
<sup>29</sup> Liebermeister, quoted by Hirschfeld (abstract 24)

affinity for the meninges than ordinary clinical experience would suggest.

The tubercle bacillus and *Spirochaeta pallida* also readily pass the meningeal-choroidal barrier; less readily, *B. typhosus*, the influenza bacillus and the gonococcus, or their toxins.

Other pyogenic organisms than those mentioned—notably the streptococcus and staphylococcus—rarely penetrate the subarachnoid system, except by direct extension from some focus of suppuration immediately adjacent to the meninges. That the toxins of the streptococcus may have an effect on these structures is shown by the changes in the cerebrospinal fluid disclosed in the examples of sepsis studied in the series tabulated.

Of the more doubtful etiologic agents of infection, that of poliomyelitis penetrates the structures in question with the highest facility. The virus or toxins of scarlet fever, measles, parotitis, variola and epidemic influenza may give rise to reaction within the subarachnoid space. That many of these viruses are filtrable is perhaps not without significance. All this has diagnostic value, both positive and negative.

It is obvious that it is unsafe to rely too greatly on the presence of a slight or moderate increase in cells or globulin in the cerebrospinal fluid in the diagnosis of meningitis or poliomyelitis. The diagnosis of these serious infections from the mere presence of fever, meningismus and the spinal fluid findings mentioned is not justifiable. Abortive poliomyelitis is a dangerous diagnosis, and until the recognition of the etiologic agent has been placed on a basis useful clinically, had best be made with the greatest caution. Cases with less than 100 cells in the cerebrospinal fluid and without paralysis should be viewed with skepticism in the absence of very strong epidemiologic, clinical or immunologic evidence.

Of late, much has been said and written from a laboratory point of view of the dangers of lumbar puncture. After an experience with some 5,000 lumbar punctures in a large military medical center, in all sorts of medical conditions, we are not impressed with its clinical dangers. In none of the cases tabulated did true meningitis develop. Animal experiment has indicated possible dangers, under very special conditions, but its results cannot always be wisely translated bodily into terms of human pathology. Until convincing clinical proof is at hand, the skilled clinician need have no hesitation in removing from 5 to 8 c.c. of cerebrospinal fluid through a small needle, drop by drop. The removal of larger amounts, under any conditions, except for therapeutic purposes in meningitis, is unwise. The heightened pressure in the subarachnoid system in the early stage of so many infections may well be a protective reaction, and care must be taken not to reduce the pressure to a point which would promote undesirable filtration from the blood stream. There is clinical evidence at hand tending to show that the meningeal-choroidal complex consolidates its defenses after sepsis has existed for some time, and that the release of spinal fluid is fraught with less danger at a later than at an earlier period of sepsis.

#### CONCLUSIONS

1. A review of the literature and a personal study of seventy-six cases not re-ulting in meningitis show beyond question that the cerebrospinal fluid often gives evidence in increased pressure, pleocytosis and heightened globulin content of a reaction on the part of the

leptomeninges to the infective agents or toxins of a large number of miscellaneous acute diseases, not ordinarily causing true meningitis.

2. These diseases are lobar and bronchopneumonia, influenza, tonsillitis, the exanthems, scarlet fever, measles, variola; herpes zoster, parotitis, typhoid fever, sepsis, arthritis, pleurisy, migraine, reaction to typhoid inoculation and others.

3. The cerebrospinal fluid shows variation from the normal in about one third of the cases studied.

4. Most, but by no means all, of the patients with subarachnoid reaction have clinical meningismus (meningitis serosa Duprè). On the other hand, many examples of meningismus are without pronounced changes in the cerebrospinal fluid.

5. The greatest caution should be used in making a diagnosis of meningitis or poliomyelitis from fever, meningismus and the changes in the cerebrospinal fluid mentioned. Cases with less than 100 cells should be viewed with skepticism, unless clinical, epidemiologic or other laboratory evidence is decisive.

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#### ABSTRACT OF DISCUSSION

DR. CHARLES G. KERLEY, New York: This paper is valuable in establishing something definite in our knowledge of the relation of pathogenesis to the cerebrospinal fluid. It was known there was an increased cell count and a positive globulin in pneumonia, scarlet fever and mumps. Knowledge in reference to the spinal fluid in many other conditions was very indefinite. The finding of a cell count of 172 in tonsillitis, of 200 in pneumonia, and of more than forty in a large number of other disorders must have a very direct clinical value. It was of great importance to know that there must be a much larger cell count than had hitherto been thought necessary before deciding that one was dealing with a particular disease. This knowledge would have been of the greatest value in the late epidemic of poliomyelitis when it was given out that a cell count of over ten established the diagnosis of poliomyelitis. A tonsillitis with a cell count of 173 would have landed the patient in a poliomyelitis hospital. There was no doubt that during the epidemic, many cases of poliomyelitis were wrongly diagnosed because of the lack of just such information as had been given by the authors.

DR. ISAAC A. ABT, Chicago: It seems to me that we have just begun to study the chemistry, the cytology, bacteriology, etc., of the cerebrospinal fluid. A vast field is opened up. There are vast possibilities, and a great deal is to be learned. I think that will possibly explain some of the difficulties which Dr. Kerley encountered with the various health boards. We have not said the last word about the cell content of cerebrospinal fluid in health or in disease, certainly not in disease. With reference to the meningismus or the meningismus as spoken of here, we ought to define clearly in our minds what we mean so that we do not confuse it with an incipient or beginning meningitis. Many of us have seen cases which we can definitely say are cases of meningismus. In typhoid fever, particularly, a child will start with meningeal symptoms lasting one, two or three days. The meningeal symptoms disappear, and the typhoid runs the usual course. The same is true of pneumonia. The doctors speak of these cases as apical pneumonia or meningeal pneumonia. They begin stormily with perfect meningeal symptoms. These symptoms soon subside, the pneumonia becomes more apparent in the lung, and the case runs the course of an ordinary pneumonia. In those older cases and in some of the more recent cases the spinal fluid presents some slight or insignificant changes but never the changes that occur in true meningitis.

DR. WALTER R. RAMSEY, St. Paul: It has been shown that there is an increased intracranial pressure causing symptoms of meningitis, both where you find a real infection and

where you do not. Several years ago we had an epidemic of poliomyelitis in St. Paul and Minneapolis. I had just been abroad and they had had a big epidemic in Norway and Sweden. At first the doctors generally did not know what they had, and I remember reviewing and translating from the German an article by a Swedish physician, wherein he demonstrated and pointed out a variety of forms of poliomyelitis. One he designated as meningitis serosa. I remember in trying to diagnose these early cases we found one or two among a large number that manifested all the symptoms of meningitis with severe pressure, and after lumbar puncture the fluid removed was sterile and the symptoms disappeared at once. Whether that was one of the forms of poliomyelitis which gave pressure symptoms as the result of the irritation was a question; probably it was. The most practical point is this: they have demonstrated that in all sorts of diseases you may get this increased pressure. About two or three years ago I remember seeing a child who had measles and became quite convalescent from that but gradually went into a coma, manifesting all the symptoms of meningitis. I had no doubt that this was a case of tubercular meningitis. I did a lumbar puncture. The fluid was perfectly clear, and the next day gave no reaction of any kind. In two or three days that child was running about and had no other symptoms at all. Another child ate many green apples and then was ill for two or three days, going into a condition of coma. I had no doubt at that time that the boy had meningitis. To clear up the situation, I did a lumbar puncture, found a large amount of perfectly clear fluid which gave no reaction at all. The next day he went home. Those cases demonstrate that intercranial pressure may cause all the symptoms of meningitis which cannot be differentiated except by lumbar puncture.

DR. ALFRED F. HESS, New York: The most interesting part of this discussion has been the question of meningism. Dr. Josephine Neal, who is the head of the Bureau of Laboratories, Department of Health of New York City, in an examination of six or seven hundred cases of this kind, found that the cell count was normal in almost all the cases and that the chemical examination was almost normal. There are exceptions, one of which is when there have been convulsions, for instance, convulsions associated with whooping cough; another exception is when there has been some pyogenic infection with meningism, such as mastoiditis, and third, she found it true with the cases which are not acute and recent. If the case was chronic, if it had lasted a week or ten days, then the cell changes which Dr. Herrick described occurred. I think that these tables should be rearranged on the basis of the acute and the chronic cases.

DR. H. L. F. LOCKE, Hartford, Conn.: I was particularly interested in what has been said regarding meningism or meningism. We found that in meningism the cell changes were usually very minor, but that in cases where lumbar puncture was delayed for five, six or seven days, due to delay in diagnosis, there was usually a moderate increase in the number of cells and a slight increase in the amount of globulin. Where the punctures were made fairly early, we rarely found any changes in cases of meningism. I believe the explanation, as Dr. Neal also believes, lies in the gradual development of cerebral congestion which causes an infiltration of cells into the spinal fluid and also delays normal absorption. The factor of time is most important. The longer these cases go on without puncture the more apt we are to find changes in the cerebrospinal fluid.

DR. HERMAN SCHWARZ, New York: During the poliomyelitis epidemic of 1916 and since that time we have taken every opportunity of puncturing in acute cases that had any resemblance at all to meningism or meningitis, and we have found regularly that when the fluid is examined immediately after puncturing the cell count is not increased, except when there is some definite lesion of the meninges or of the brain or cord. In a large group of cases of so-called meningism, the cell count was regularly below twenty. The count of 172 described in the paper as occurring in a case of tonsillitis is certainly very curious. I should like to see many more cases reported before quite overturning our idea

that the cell count of fifty or sixty or more has not some real value in the diagnosis of an inflammatory condition of the nervous system. It might be of interest to report to you that in some studies of the sugar content of the spinal fluid, this substance was regularly increased in real inflammatory conditions of the spinal cord and meninges.

DR. FRITZ B. TALBOT, Boston: There is one point which has been brought out very clearly, and it is an important one. We should first study the normal before we study the pathologic. It is very encouraging to see so much normal data recorded and I hope this tendency will spread.

DR. W. R. SISSON, Boston: During the past year, in one of our southern camps, we have had an experience with spinal fluids similar to that which Dr. Herrick described. This was especially true during the epidemic of mumps. Many patients with this condition had a most fulminating type of infection and frequently manifested meningeal symptoms. Lumbar puncture was performed in most of these cases and a pleocytosis was almost invariably found. So frequent were these findings that we came to look on "mumps meningitis" as a not uncommon complication. I feel that if routine spinal punctures are performed on children with other acute infections we would find pathologic fluids even more often than Dr. Herrick has noted. It is interesting in this connection that one of the first types of cells we found in the spinal fluid, even before an actual invasion of the meninges has taken place, is the small mononuclear endothelial cell which is unquestionably a phagocyte.

DR. W. L. MOSS, Baltimore: I wish to ask Dr. Herrick if cultures were made from the spinal fluids which showed these rather remarkable increases in cell count. It seems probable that in many of the infections which we think of as local, a few organisms may get into the blood stream where they may not multiply or even persist very long or give rise to any very appreciable symptoms. If they reach the blood stream may they not sometimes reach the sub-arachnoid spaces? In support of this suggestion, I may refer to an experience in the A. E. F. during the early days of the influenza epidemic. At first some of us did not recognize the disease as influenza and in our efforts to make a diagnosis we made many blood cultures and a considerable number of lumbar punctures with cultures from the spinal fluid. Dr. Roger Kinnicut and Dr. Carl A. L. Binger, working in Base Section No. 2, found meningococcus Type C (French classification) in a considerable number of cases, both in the blood stream and in the spinal fluid. In the complicated cases showing bronchopneumonia and in some of those which showed an exudate over the brain at necropsy these findings are not remarkable, but I wish especially to emphasize the fact that in some of the cases in the early part of the epidemic when the disease was commonly called "three day fever," before we recognized any complications and at a time when the mortality from the disease was nil, we occasionally found the meningococcus in the blood stream and in the spinal fluid. If meningeal symptoms were present in these cases, they did not reach the level of clinical manifestation. In the light of this experience, I suggest therefore, that micro-organisms may sometimes get into the blood stream and even into the spinal fluid without giving rise to clinical symptoms of septicemia or of meningitis, but may cause a reaction on the part of the meninges which would account for such cell counts as Dr. Herrick has reported.

DR. ARTHUR M. DANNENBERG, Philadelphia: As to Dr. Hess' question with regard to the cell counts of spinal fluids in acute infections taken at the onset of the disease and later on. In all these cases from which spinal fluid was obtained, lumbar puncture was made within from fifteen minutes to one hour after the patient was admitted to the hospital. This was an invariable rule. We did these lumbar punctures in order to make an early diagnosis of meningitis. Only after it was realized that we had this wealth of material did it occur to us to tabulate, correlate and present the results to you.

DR. W. W. HERRICK, New York: British and American physicians seem to be behind the French and Germans in recognizing that the cerebrospinal fluid of so-called meningismis

may show variations from the normal. The work of the latter shows definitely that in a variety of acute infections a positive reaction in the cerebrospinal fluid may be found. I want to say again that in only about 30 per cent. of the cases examined did we find this reaction, that the larger percentage of our cases with meningisms were without these changes in the cerebrospinal fluid. The cases were all acute and were examined early in the course of the disease. It may be of interest to add that the sequence of changes in the cerebrospinal fluid in meningococcus meningitis is as follows: Blood stream invasion, the appearance of isolated organisms in the fluid, globulin, then increase in cells, usually mononuclears at first, then polymorphonuclears and pus. The work of Dr. Levinson is important in pointing out the possibilities of detailed study of the physical and chemical properties of the cerebrospinal fluid. For practical clinical purposes, however, I believe we must still be largely dependent on the demonstration of the etiologic agent in the diagnosis of meningitis and allied conditions.

### FAMILY DEGENERATION OF THE MACULA LUTEA \*

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In the American literature there has recently appeared the report of several cases of macular degeneration occurring in two or more members of the same childship, of a type originally described by R. D. Batten and subsequently by Stargardt, Jennings, Lutz, Darier and Pusey.

In all, nine families unquestionably suffering from this familial affection have been reported, the entire number of individual cases in these families totaling twenty-six.

The most striking feature of this disease is that it is familial; conformity to Bolling's law of heredity has been complete in all reported cases. The lesion is macular in the beginning and is rather closely confined throughout the course of the disease to this area and its immediate vicinity. Subjectively, this is evidenced by a central scotoma with no restriction of the peripheral field. The disease in all reported cases to date begins in early childhood; the fall in central vision is rather rapid to the point where reading is laborious. From the subjective standpoint it is slower from this point forward, and after reaching a certain grade may remain stationary for years. Blindness never supervenes. Mental deterioration does not occur. Those afflicted with it are of average intelligence and health, the only abnormal feature being the visual disturbance and the macular and perimacular lesion.

In view of the fact that the number of reported families afflicted with this disease is so small and that its status is still unsettled, I feel that it is not presumptuous to present a family case and to analyze from the standpoint of classification previously reported cases.

The case I here present is of peculiar interest in that it is the first reported which departs from Bolling's law of heredity—it occurs in two generations. Moreover, the late onset in the father would make the classification of this case in its present category not

only questionable, but wholly impossible, were it not for the fact that the history and findings in the daughter's case parallel the history and findings of all the typical cases reported.

#### REPORT OF CASE

*History.*—The family is one of intelligence and comfortable circumstances. The childship consists of two members, both girls—one 18, the other 10—the elder of whom, Antoinette, is affected. Born, Feb. 27, 1901, she saw perfectly as a child. She found no difficulty in seeing the blackboard from the rear seat in school or in reading her school books until reaching the seventh grade. While in the seventh grade, at the age of 12 or 13, vision began to fail. She first noticed that she was unable to see the blackboard work from the rear of the school-room. She was transferred to the front row and soon could not see well from this position. While she was in the eighth grade, the teachers began to demand that her eyes be examined. At present she can read the newspaper slowly—picking out the words—by holding the paper about 6 inches from her eyes. She says that it takes an hour to read a column of the newspaper. She began studying music six years ago (in 1912). Until three years ago she could see the notes with the music in its proper place on the piano. She now holds the sheet of music close to her eyes and memorizes it. She thinks her vision a little better than it used to be.

Her previous history contains nothing to attract attention. She had measles and whooping cough in childhood.

At present (February, 1919) she is not feeling up to par. Dr. John M. Lilly, whom she consulted, reports that she is somewhat anemic, has lost weight during the past few months, and is somewhat "run down." He attributes the condition to overwork at school. She is extremely ambitious to finish school, and under the visual handicap the work in third year high school is excessive. It has been her habit during the year to study until 11 p. m. and arise at 7. The Wassermann test has not been made.

*Examination.*—These are the salient features of the eye examination: Vision is 6/60 in each eye, scarcely improved by the correction of the low grade refractive error present. The visual fields show a relative negative scotoma at the center; the ophthalmoscope, a lesion at the macula.

*Family History.*—Ceclia, sister, aged 10, born, Oct. 14, 1908, is normal in all respects; vision 6/6 in each eye; fields normal; no fundus lesion. Examined in January, 1918.

W. H., the father of the foregoing childship, aged 43, was born in Posen, Feb. 14, 1876; Polish; no Jewish blood; one of a childship of six—four boys and two girls; no consanguinity in parents; father died at 40 plus of "paralysis of intestines," not robust; had indigestion for years; the father's father died at 85; the mother died at 49 of pneumonia; she was not robust; she was confined to bed five or six months following one childbirth; the mother's mother died at 80 plus; the youngest sister died of tuberculosis of the cervical glands. The father can give no information as to the vision of the other members of his childship, as he came to America at the age of 19.

Until eight years prior to present examination he could read the finest print with ease. Suddenly, in 1911, his vision began to fail and fell rather rapidly to a point at which the recognition of faces was uncertain. Particularly annoying was his inability to read except by the greatest effort. He now reads the newspaper as he did when I first saw him two years ago (1916) by holding it about 8 inches from his eyes and looking through a small magnifying glass. He cannot note any change in his vision in recent years. It may be a little worse, but of this he is not certain.

His previous history, while of interest, is not illuminating. Nineteen years ago he began suffering with indigestion. Fourteen years ago he underwent an operation for appendicitis with no resulting benefit. Six years ago he consulted Dr. Charles Louis Mix, who, after exhaustive examination, discovered an ulcer of the duodenum. For the past five years he has lived on a diet of milk, cereals and eggs which has resulted in marked improvement.

\* Read before the Section on Ophthalmology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.



The eye examination shows the following points of interest: vision, O. D. 6/30; O. S., 6/60; no material improvement by correcting the low grade refractive error present. The visual fields show relative negative scotomas at the centers. He is blind for green and red at the center. The peripheral fields are not contracted. The ophthalmoscope shows a lesion at the macula in each eye.

Mrs. W. H., mother of the foregoing childship, was born in Alsace-Lorraine in 1881. Her mother died at 80, her mother's mother at 76; her father at 80.

#### COMMENT

The literature covering this subject shows a tendency to consider only those cases typical of family degeneration of the macula lutea which conform to a rather restricted preconceived type. This conception is based on the reports of a relatively few individual cases and a still smaller number of family groups. We are, in truth, almost within the bounds of fact when we say that the present concept is based on the one family reported by R. D. Batten in 1897 and circumscribed by the opinion of Stargardt expressed on presenting two similar families in 1909. A further tendency to consider those cases atypical which do not conform rigidly to this concept is apparent.

On the other hand, there is apparent a strong tendency to broaden the classification to such an extent as to include such dissimilar conditions as amaurotic family idiocy, cerebral degeneration associated with macular lesions and the cases under discussion in a single clinical concept.

Now it seems to me that neither the one nor the other concept is logical under our present knowledge. But would it not be logical to broaden our concept of the disease to include the so-called atypical cases? Is it not apparent that a disease with a history so characteristic, with a lesion so definite, and a prognosis so certain merits consideration as a separate clinical entity? Other conditions may resemble this one in certain features which seem to bind them together into one group; but they differ so greatly in other points that plain lines of cleavage exist. Recognition of these lines of cleavage amounts practically to differentiating one clinical entity from others which resemble it in certain features.

To my mind the most potent argument for an inclusive classification is the fact that a familial factor is present in all the so-called types of the disease. The case presented introduces a hereditary factor. This basis for classification, however, is so broad that it is quite evident that its use would necessitate the inclusion of other and still more diverse conditions.

It is alluring to group together those conditions which show in common a lesion at the macula, particularly if they present other common characteristics or resemblances. This very natural tendency leads to the placing of too great emphasis on the location of the lesion as a binding factor. To guard against this tendency, careful consideration must be given to the anatomy of this region which makes it peculiarly vulnerable to pathologic processes and to the physiology which early throw these lesions into prominence. Diverse, indeed, are the known conditions producing lesions at the macula. So diverse are they that the term macular lesion has the same significance as the term corneal lesion—it locates the lesion.

From the unquestioned cases of symmetrical disease of the macula of R. D. Batten; symmetrical degeneration

at the macula of Jennings; progressive familial macular degeneration of Stargardt, and family degeneration of the macula lutea of Pusey, the accompanying table has been compiled. In very few instances a perfectly obvious conclusion, though not mentioned in the text, has been incorporated. From the data supplied by these cases we may reconstruct our conception of family degeneration of the macula lutea to conform with all the features of the disease as amplified by constantly accumulating facts.

Family degeneration of the macula lutea is a disease of unknown etiology. It usually attacks several members of a single childship. The parents of the afflicted childship commonly show no abnormality of the eyes and are otherwise normal. It is unusual for it to affect more than one generation, but it may.

Both Jew and Gentile are attacked—the latter with much the greater frequency. Race cannot be said to be a positive factor in its occurrence.

Sex does not appear to play any considerable rôle in its occurrence. Of the total number of cases reported, more have been of the female sex than of the male. On the other hand, where the complete childships have been recorded there is a preponderance of females in these childships. In certain childships the males seem notably immune to the disease, and the females notably susceptible, making it difficult to escape the conviction that the female is more susceptible to the disease than the male. Statistics, however, do not admit of this conviction being recorded as a fact.

The disease is bilateral. It manifests itself between the ages of 7 and 35. The majority of cases develop between the ages of 10 and 14. The period of adolescence corresponds with the time in life during which the disease most frequently develops. The cases that develop before and after puberty differ in no way from those that develop during this epoch of life.

A slowly progressive course characterizes the disease. After the rather rapid initial onset, evinced by the comparatively rapid initial fall in vision, long periods of arrest may occur during which visual acuity remains stationary or is diminished by imperceptible gradations. It may finally progress to central, that is, macular, blindness. Here it halts. The periphery of the retina is spared. Blindness, idiocy and death do not occur.

Objectively, the findings are those characterizing a lesion at the macula lutea. Externally the eye appears normal. The pupils may be a trifle wide. They react to light and accommodation. But when the light is thrown directly on the macula, the pupillary reaction may be relatively sluggish. This lowered sensitiveness to light at the macula facilitates greatly the ophthalmoscopic examination of this portion of the fundus oculi. The objective findings are complete when a lesion at the macula and temporal pallor of the disk are observed and a central scotoma is demonstrated. In the beginning, the scotoma is relative; later, it may become absolute. Pallor of the temporal half of the disk depends on the completeness of the macular degeneration.

#### ABSTRACT OF DISCUSSION

DR. SAMUEL D. RISLEY, Philadelphia: Since the cases discussed in this paper lie entirely outside of my personal experience, it is possible that I may have overlooked, or not recognized, the family character of certain macular diseases. I am not prepared to accept the hereditary aspects of this case without more elaborate study of the family conditions

even in the family of the patient whose case is presented. All of us have seen many examples of macular disease of various origins, and many times I have been unable to discover why the central blind spot existed. We see this in cases of strabismus, in which the strabismus is seemingly due to the apparent blind spot in one eye. I have oftener seen it monocular than binocular. Some years ago Dr. Adams called my attention to the fact, and subsequently published a paper in which he contended that these central blind spots are often associated with adenoids in the upper pharynx. He published quite a group of cases in which he had demonstrated the presence of the blind spot in children with large adenoids. It is not going far afield when we associate diseases in that locality with the sphenoid sinuses, and we all know the relation between the roof of the mouth and the optic nerve itself, which runs right over the roof of this sinus. In this way we may often account for the existence of the central blind spot. Until we have excluded the possibility of systemic origin in all these cases we should hesitate before placing these cases in the hereditary group. The fact that they have occurred in fathers and daughters may be incidental or coincidental, rather than hereditary. We must have a fair record before we include the case in the distinct type of family diseases.

DR. WILLIAM ZENTMAYER, Philadelphia: I have seen two cases of family blindness with macular changes, as to the proper classification of which I am in doubt. To bring all types of family disease presenting macular lesions into one class would be faulty because the macula and the macular fibers, by reason of their highly specialized function, fall within the Erdinger dictum, and are, in Dr. Blue's words, "particularly vulnerable to pathologic processes." Yet the difficulties in properly assigning a given case are evident. Certain groups of cases which resemble one another in their general symptomatology and course are in contrast as to ophthalmoscopic findings. This is true of juvenile amaurotic family idiocy and the type for which Clarke proposes the term macutocerebral degeneration. Other groups are allied ophthalmoscopically but differ in their general aspect, as, for example, the two forms of macular degeneration, one of which is associated with cerebral degeneration. Furthermore, Gifford states that Hiegele has recorded a family history in which one child had the Tay-Sachs type, another the Voigt type and the third the Stargardt-Batten type. According to Clark, who presented an admirable paper on macular degeneration with and without dementia, before this section last year, the first type differs from the second in that the onset occurs at, or about, the time of second dentition instead of at puberty. Cerebral changes begin at the same time as those in the macula, but there is a greater terminal impairment of vision. Ophthalmoscopically, the changes are identical but optic atrophy is more common in the type with dementia. Stargardt and Stock assume that in both types the degeneration, which Clark believes to be in the neuro-epithelium of the retina, is due to an auto-cytotoxin that has an affinity for the neuro-epithelium of the retina and in some cases for certain brain cells. In this connection it is of interest to note that Sajous believes the suprarenal secretion to be at fault and responsible for amaurotic family idiocy and evidence is accumulating which tends to substantiate Fisher's view that Leber's disease (hereditary optic nerve atrophy) is due to dyspituitarism. I recently saw, through the courtesy of Dr. Homer Rhoad of Reading, Pa., a family of three children, two of whom were either born blind or became so in the first months of life, while the third, a baby 2½ months of age, appeared to have but a slight amount of vision. They were all too young to permit of a thorough study of the ocular conditions or to determine their mentality. All three presented at the macula changes which, so far as could be determined, were not unlike the whitish areas of circinate retinitis, but bearing no likeness in the grouping of the lesions. The affected area seemed more or less oval and covered a surface several times the diameter of the disk. The disks were partly atrophic and the vessels were small and somewhat tortuous. There had been no inflammation in the eyes of any of the children, and there was no blindness in the

families of either parents. The external appearances of the eyes were normal except for the searching movements of the globe. In January, 1917, I saw a boy, aged 9 years, and his sister, aged 10 years, both having very low visual acuity associated with retinal degeneration. There were grouped about the macula and along the course of the superior and inferior temporal arteries white or yellowish white disciform lesions, mostly discrete but sometimes confluent, varying in size from two to four times the diameter of the main trunk of the central artery of the retina. In the right eye of the boy the foveal lesions were somewhat pigmented. The children were healthy, well developed and mentally sound. The girl had a slightly positive Wassermann.

DR. MARCUS FEINGOLD, New Orleans: It is difficult to class one group of macular degeneration in any one of the several groups referred to here; but it has been an acknowledged fact, except in very rare instances, that macular degeneration will have more or less the same type in a given family. In the case reported the father was injured. He acquired the disease rather late in life, and at the same time the daughter acquired the disease early in life. In other words, while it is difficult to differentiate and define the different types of macular degeneration, we have in one family the two types of it, and it has appeared in two generations—an interesting fact. Next is the fact that we have no appearance of several members of the same childship, having the macular degeneration. This is a factor also which must be borne in mind if we are to consider these as macular degeneration.

The patients whose cases I reported three years ago are holding their own; the condition has deteriorated only in the most progressed case. No degeneration is evident except for some nervous symptoms.

DR. ROBERT BLUE, Chicago: I am aware of the unsettled condition of this question. I have expressed my personal opinions in the paper and will let it rest on its merits. In the father, the normal marks of the macula are found, while in the daughter they are obliterated. In the father they are pigmented, not around the borders of the lesion, but scattered through it. It can be described as a moth-eaten appearance. The lesions are not alike. I judge this from the pictures and the descriptions. The paper shows the lesions at various stages. My reason for not mentioning the lesions is that the appearance does not seem to be the same in the various descriptions, even though the histories are typical, and the discussion of that subject would have made too long a paper to present here.

## UVEITIS

WITH SPECIAL REFERENCE TO THE ETIOLOGY  
AND TREATMENT IN THE CHRONIC AND  
MALIGNANT TYPES\*

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Although much has been written on this subject in the last few years, and although many scientific investigations have been made as to etiology and numerous methods of treatment tried, unfortunately in many cases the cause or causes of the disease remain obscure, and the treatment unsatisfactory. In this country de Schweinitz, in particular, has given the subject of uveitis, in its various forms, much attention; he has made special investigations as to the etiology, and has by his many valuable contributions and discussions done much to clear up a complex problem. A valuable symposium on the subject of uveitis was presented before the Section on Ophthalmology of the American Medical Association in 1902, de Schweinitz, Woods, Friedenwald, Hensell, Wilder, Woodruff and

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Marple contributing.<sup>1</sup> Irons and Brown, Reber, Zentmayer, Frances, Bordley and Dwyer and others have made valuable contributions on the subject. In England, Stephenson, Mayo, Butler, Dunn, Campbell and others have contributed to the subject; while on the continent, among many contributions to this subject in the last few years, Elschnig's papers, perhaps, have attracted most attention, because of the anaphylactic theory of sympathetic iridocyclitis which he also applies to nonsympathetic uveitis. Bordley's and Percy Dunn's contributions to this subject, wherein they lay stress on hypothyroidism as a factor in cases of iridocyclitis and uveitis, and dwell on the clinical value of the administration of thyroid extract in these cases, have not received so much attention, perhaps, as they deserve.

ETIOLOGY

Stephenson and de Schweinitz are of the opinion that most probably every case of uveitis (iridocyclitis) is of septic or toxic origin. In a general way, the causes of uveitis may be grouped under three headings: (1) those that are associated with or produced by infectious diseases, as syphilis, tuberculosis, gonorrhoea, influenza and "rheumatism"; (2) those in which there is perverted metabolism, as in gout,

based on clinical findings, and noting the wide discrepancies therein, he came to the conclusion that these statistics amounted to "precisely nothing." While admitting the value of clinical findings and the history of the case, Reber strongly urged the use of modern laboratory methods, such as the complement fixation test, for detecting *Spirochæta pallida*, gonococci, pneumococci, streptococci, the postinfluenzal group, staphylococci and *Bacillus coli*, the first five having been shown to have a causative effect in diseases of the iris.

Following the latest methods, Brown and Irons<sup>2</sup> reported 100 cases of iritis, the causative factors of which (traumatic cases excluded) are given in the accompanying table.

These authors found it not an easy task to treat these cases when the etiologic factors were multiple, as it proved difficult to decide which factor played the important part in causation. Knapp<sup>3</sup> cites Mayo to the effect that "there are three kinds of bacteria which usually cause cyclitis, and that these are usually present in the aqueous humor. Among thirty cases, he finds the tubercle bacillus in thirteen, the staphylococcus in ten, and the spirochete in five. He suggests as a routine method of examination, first, the Wassermann test, second, the von Pirquet test, then paracentesis and examination of the aqueous."

As to the uric acid diathesis; although laboratory methods have induced us to give up the blanket term "rheumatic" to cover a multitude of affections, and to substitute therefor "toxicemic" or "auto-toxicemic," as suggested by Harrison Butler,<sup>4</sup> we cannot, as suggested by Knapp,<sup>5</sup> give up the rheumatic tendency entirely, and from a therapeutic standpoint the study of the eye patient's diathesis is of importance. Knapp also cites Girard to the effect that among the causes of eye diseases the arthritic diathesis occupies the first place; second, syphilis; third, tuberculosis; and de Schweinitz,<sup>6</sup> commenting on rheumatoid arthritis, says:

In these polyarthritic conditions, the toxin, bacterial or metabolic, or the bacterial element itself comes, in all probability, in general terms, from the digestive system, beginning in the mouth, and including the pharynx, tonsils, intestines, etc. The patient begets uveitis or iridocyclitis, not because he is "rheumatic," but this is one of the manifestations of the toxemia or infection of which he is the subject, while his muscle, joint, and fibrous tissue pains and lesions are other manifestations of the same cause.

In regard to intestinal infections, Dwyer recently has called attention especially to the hyperacidity and hyperalkalinity of the intestinal contents as a factor in eye diseases, including chronic uveitis. He states that either hyperacidity or hyperalkalinity of the bowel contents in these cases destroys the colon bacillus; and at the same time he noted that in such specimens the indol and skatol content was high and that there was always a high percentage of indican in the urine. In such cases intestinal intoxication occurs, and eye affections may follow.

Elschnig has laid great stress on indican in the urine as an indicator of intestinal intoxication, but de Schweinitz has called attention to the fact that indicanuria is not a reliable test of intestinal toxemia; that, in

CAUSES OF IRITIS IN ONE HUNDRED CASES

	Alone	With Other Infections	Coincidental Infections								
			Total	Syphilis	Gonorrhoeal Urethral Infection	Dental	Sinus	Tonsils	Genito-Urinary Tubercle		
Syphilis.....	10	13	23	..	8	5	5	1	1	..	..
Gonococcal infection.....	..	..	..	..	..	..	1	1	..	..	..
Tuberculosis.....	..	..	..	..	..	..	..	..	..	..	..
Dental infection.....	..	11	11	..	..	..	..	7	1	..	..
Tonsillar infection.....	7	9	16	..	..	..	..	..	..	..	..
Sinus infection.....	1	..	1	..	..	..	1	1	..	..	..
Genito-urinary (nongonorr.).....	..	3	3	..	..	..	..	..	..	..	..
Other infections.....	1	..	1	..	..	..	1	..	..	..	..
No cause found.....	..	..	..	..	..	..	..	..	..	..	..
Combined infections.....	..	..	17	..	9	7	6	13	5	1	1

arthritis (so-called uric acid diathesis), diabetes, nephritis, anemia and hyperthyroidism, and (3) those cases of auto-intoxication from focal infections, which may be situated in the gastro-intestinal tract, nasopharynx, nasal accessory sinuses, teeth and alveolar processes, tonsils, genito-urinary tract, or the skin.

In investigating the etiology of uveitis, it is interesting to compare the causes as given by the older writers with those given by men who have had the advantage and use of modern laboratory methods of investigation. In the good old days, syphilis and "rheumatism" held the leading rôles, while gout, malaria, diabetes, tuberculosis, scrofula, gonorrhoea, etc., were given secondary consideration. Take in contrast the statistics of de Schweinitz, Reber, Irons and Brown, who have availed themselves of all the latest methods of investigation as to the etiologic factors in these cases. To begin with, an accurate history is taken; then a physical examination is made; and the roentgen ray and various laboratory tests, as the bacteriologic and serologic, are utilized to arrive at, if possible, an approximate cause of the eye trouble.

It is interesting to note the opinion expressed by the late Dr. Reber on the value of the older methods of ascertaining the etiologic factors in cases of uveitis. After reviewing the statistics of numerous authors,

1. Printed as a monograph, American Medical Association Press, 1902, p. 91.

2. Brown, E. V. L., and Irons, E. E.: Tr. Am. Ophth. Soc. **11**: 493, Part 2, 1916.  
 3. Knapp in Pyle: System of Ophthalmic Practice, Medical Ophthalmology, p. 397.  
 4. Butler, T. H.: Brit. M. J. **1**: 573, 1912.  
 5. Knapp, Medical Ophthalmology, in Pyle: System of Ophthalmic Practice, p. 376.  
 6. De Schweinitz: Pathogenesis of Chronic Uveitis, Tr. Internat. Cong. Med., 1913.

fact, the patient may be toxicemic without the presence of indican in the urine, and, vice versa, may not be toxicemic though indican is present.

A final point in etiology to which I wish to call attention is that of hyperthyroidism, a factor perhaps which has not received sufficient notice. Dunn<sup>7</sup> calls attention to the influence of the thyroid gland in metabolic processes. He says:

Metabolic processes as a whole depend on the controlling influence of the thyroid gland, and that owing to its extreme vascularity, the ciliary body is very responsive to blood changes. . . . There is the primary stage, represented by auto-intoxication, arising, as we may assume, in the intestines. To combat the toxemia, so called, the thyroid gland, through its secretion, is called on to make strenuous efforts under the influence of excessive stimulation. For a time these efforts are successful. Later on, however, the thyroid fails in its mission. Then follows the second stage, namely, hypothyroidism. With this begins a pervading uncontrolled toxemia. Accompanying this, and dependent on it, is the last stage—that of diminished resistance of the tissues, thus rendering them a prey to bacillary infection.

Dunn reports some remarkable cures from the administration of thyroid extract, and reaches this conclusion:

The main purport of this paper is to lay stress on hypothyroidism as a causative factor in cases of iridocyclitis and on the usefulness, clinically, of its recognition. That the ciliary body, so sensitive to toxicemic influence, should readily respond to thyroid treatment is a natural sequence to the vascularity of its structure. Thus is placed in the hands of the ophthalmic surgeon a means of relief, yielding results which can be obtained in no other way. The dose of the extract employed by me for children beyond 5 years of age and for adults is 3 grains twice daily, and from this dosage I have never seen any ill effects.

In a second communication on the same subject, Dunn<sup>8</sup> adds further evidence of the value of thyroid extract in the treatment of deep-seated eye affections.

James Bordley, Jr., of Baltimore has made two communications on the value of thyroid extract in the treatment of malignant uveitis, and has reported seven cases. In four out of five cases,<sup>9</sup> first reported in 1915, the patients are entirely well<sup>10</sup> without return of symptoms to June, 1916, and in the last two cases reported the patients have been entirely relieved of all symptoms of inflammation. Bordley states that he does not claim that thyroid extract is a panacea for all types of malignant uveitis or, indeed, for any special type, and says further that it will take treatment of many cases to prove its usefulness. It is his opinion that, uveitis being due to an infection and the eye not having sufficient defensive power to protect itself, thyroid extract furnishes the offensive energy, and in this way, a cure is brought about. Bordley gave 2½ grains of iodothyryn from one to three times a day.

#### TREATMENT

The foundation of all treatment, of course, rests on finding the cause and if possible removing it. However, as Bordley states relative to malignant uveitis, it must be remembered that the mere finding of a focus is not proof of its causative relation, and that malignant uveitis once established becomes an entity and

not a symptom. It goes without saying that in all doubtful cases the Wassermann and tuberculin tests should be made. In syphilitic and tuberculous cases, the indication for treatment is plain, and intensive treatment should be used. In those cases due to focal intestinal intoxication, the services of an internist must be utilized and laboratory methods employed to get at the underlying cause. De Schweinitz<sup>11</sup> has reported a series of such cases. Lately, Dwyer has made some investigations in cases due to intestinal intoxication, especially in reference to the part the colon bacillus played in these cases. Dwyer found that in many cases of deep-seated eye infection, including intractable uveitis, the colon bacillus was absent, owing to a hyperacid or a hyperalkaline condition of the bowel contents, the colon bacillus not being able to survive in either condition. Dwyer's method of treatment<sup>12</sup> in such cases is briefly as follows:

In the highly acid specimens, an endeavor was made to alkalinize the contents by the use of irrigations of a 1 per cent. sodium carbonate solution and then to practice colon transplantation in order to approach the normal. At the same time the patients were put on rather free diet, cutting out those foods that were completely assimilated, such as meat. In other words, the tolerance for the three fundamental foods was established as far as possible. In the highly alkaline specimens, irrigations with lactose were given and then the colon bacillus was transplanted. At the same time the Bulgarian bacilli were given by mouth, the whole idea being to approach the average normal. Lactose was also administered by mouth in such cases to provide a suitable pabulum for the colon bacilli.

Dwyer reports some remarkable cures when all other treatment had failed.

But even with the removal of foci of infection and elimination of toxicemic conditions in the alimentary tract, the arrest or cure in many of the chronic and malignant cases of uveitis is not to be had. It is in this type of case, when other methods have failed, that Bordley and Dunn call into use thyroid extract. Although my own experience with the use of thyroid extract in these cases is very limited (being confined to two cases) and not of happy result in either, from the reports of Bordley and Dunn I think the method should be thoroughly tried out. Even the cure of one such case would justify its trial in many cases.

#### REPORT OF CASE

By way of foreword, I may say that the following complement fixation tests were made: 1. Wassermann, for *Spirochaeta pallida*, several times, always negative. Spinal puncture was not made, as the patient refused it. 2. For gonococci; negative. 3. For staphylococci; negative. 4. For streptococci; positive for the viridan type. Also examination for the presence of colon bacilli was made, their absence noted, and appropriate treatment given after the method suggested by Dwyer.

*History.*—S. J. D., man, aged 38, consulted me first, May 13, 1910, for an acute iritis in the right eye, which was of one week's duration when he came under my observation. I found the pupil contracted and somewhat irregular, the iris muddy and edematous in appearance, but only with a slight exudate present, the anterior chamber was deep, and the aqueous hazy; there were marked circumferential injection and redness, and great pain and photophobia. The patient's father died at the age of 74 years, of cancer; his mother died at the age of 50, of Bright's disease; one brother, older than himself,

7. Dunn, Percy: Some Aspects of the Ciliary Body in Health and Disease, *Lancet*, 1: 1129 (May 29) 1915.

8. Dunn, Percy: *Brit. J. Ophth.*, January, 1919.

9. These cases were presented before the American Ophthalmological Society in 1915.

10. Bordley, James, Jr.: Thyroid Extract in the Treatment of Malignant Uveitis, *J. A. M. A.* 47: 112 (Aug. 5) 1916.

11. De Schweinitz: Pathogenesis of Chronic Uveitis, *Tr. Inst. Cong. Med.*, London, 1913.

12. Dwyer, J. G.: Deep Infection of the Eye from the Intestine, *J. A. M. A.* 71: 916 (Dec. 21) 1918.

died of Bright's disease, at the age of 36; he had also suffered with "rheumatism," and had had one attack of iritis one year before his death; another brother and sister were in good health; the patient himself, though not robust, had enjoyed good health, never having had any serious illness.

There were no symptoms of syphilis, unless the inflamed eye should be so considered. Many subsequent Wassermann tests have all proved negative; the patient had had two attacks of gonorrhoea, but was apparently entirely cured of this, and subsequent complement fixation tests have proved negative. Roentgenographic tests of the sinuses have shown them to be entirely normal until recently; urinary tests proved negative, except for excess of indican, now and again.

In the last eight years that the patient has been under my observation, he has had ten attacks of iritis, first in one eye and then in the other, until this last attack, when both eyes were involved, the right eye, first, in November, 1917, which still continues, and the left, May 10, 1918, acutely following injections of *Streptococcus viridans*. The shortest attack lasted ten days, and the longest, eight weeks, previous to the present one, which has now lasted for sixteen months, the whole uveal tract becoming involved. All former attacks of iritis yielded to the usual local treatment of atropin, ethylmorphin hydrochlorid (dionin), hot fomentations, leeches, etc., and to antirheumatics given in full doses, both by mouth, and by rectum in muellaginous suspension. The patient has been to the hot baths in Michigan several times, and once to Arkansas. In 1913, while taking the baths in Michigan for an attack of iritis, in the fifth week of his stay he developed an acute arthritis in his left knee, the knee swelling to almost double the usual size, and it has remained in this condition, since, except for short intervals, though he has had hot air baths, and all other approved and unapproved antirheumatic treatment for the condition. In 1917, following the removal of submerged tonsils by my brother, Dr. George E. Davis, the swelling of the knee almost completely subsided within forty-eight hours, but inside of ten days, the swelling returned, and so remains. I may say also, in this connection, that *Streptococcus viridans* injections have caused acute swelling in the knee, and rendered it painful.

**Treatment and Course.**—Diagnostic tuberculin tests proved negative, both for the von Pirquet and subcutaneous injections of the O. T. solution, though the latter were carried up to 5 mg. These tests were repeated after a year's interval, and were again negative. In January, 1918, examination of the bowel contents detected the absence of colon bacilli. The reactions in this case were alkaline. After due preparation, these beneficial bacilli were reimplanted, locally, and also the Bulgarian bacilli were given by the mouth, and proper diet instituted, but all without benefit to the patient.

As it was not known what else to do, and as other treatment failed to give relief, for diagnostic purposes a course of mercurial inunctions combined with pilocarpin sweats was given for a period of four weeks, but without improvement of the condition.

The history concerning the teeth is of particular interest in this case as a possible etiologic factor. The patient, when 15 years of age, had a swelling about a capped lower molar tooth on the right side. This swelling lasted two years, and subsided without treatment. In 1912, after the patient had had two attacks of iritis, an abscess formed around this capped tooth, and the tooth was removed with a portion of the alveolar process. The patient had no other trouble with the teeth until 1917, when he had one lower molar on the left side removed. In the fall of 1918, after consulting two competent roentgenologists, one of whom pronounced the teeth all right but the other pronounced them diseased, the patient had two right upper molars, and one left lower molar removed, and also a small piece of the root from the site of the right lower molar which had been removed six years previously, on account of abscess. *Streptococcus viridans* was found, and autogenous vaccine was given biweekly, beginning with an initial dose of 2,500,000,000 and carried up to 8,000,000,000. After these injections, the right eye had slight reaction, followed by some clearing; following the ninth injection, there was slight circumferential flushing in the left eye, which had been quiet, and after the tenth injection,

a decided reaction followed, with redness, pain, photophobia and lachrimation; and in two days, a very severe iritis developed in the left eye. The right eye had also become slightly worse, and injections were discontinued for one week, and then begun with the same size dose as the tenth injection, which apparently had little effect on the eyes, one way or the other. Altogether, forty-three of the streptococci injections were given, the last dose, as stated above, being 8,000,000,000, but without improvement.

The patient was then put on thyroid extract (Rogers residue<sup>13</sup>), 3 minims five times a day, for several weeks, but without improvement. A second series of injections of *Streptococcus viridans* was given biweekly, being rapidly increased until 40,000,000,000 were given at a single dose (Dr. John H. Richards gave these injections); but as the patient did not improve, the injections were given up altogether.

Roentgenoscopy of the sinuses seemed to show some sphenoidal involvement, and accordingly, March 12, 1919, Dr. E. R. Faulkner opened up and drained these cells, a submucous resection of the nasal septum being done as a part of the operation. The operation showed signs of an old cicatrization, parts of the bone being ivory hard. There was but slight reaction from the operation, and what effect it will have on the patient's condition is a matter of speculation.

The present condition of the patient's eyes is: R. V., 5/200 not imp. L. V., 4/200 not imp. Almost complete posterior synechiae of the iris to the lenses, incipient cataract with the vitreous full of floating membranes in each eye. Deposits on Descemet's membrane, T. 12 mg. each. I may say that at no time, even in the attacks of iritis, has there ever been a plus tension. The fields of vision remained normal until the vision was markedly reduced, when peripheral contraction was manifest to a slight degree.

The patient has a marked arthritis in each knee which has not been improved by any treatment, and altogether he is in a bad way, both as regards his eyes and his joints.

#### ABSTRACT OF DISCUSSION

DR. GEORGE S. DE SCHWEINTEZ, Philadelphia: The advance made in the management of these cases depends on the widely accepted statement that practically all cases of uveitis are of septic or toxic origin. Second, it depends on the recognition of the fact that uveitis must be considered as a complication. And in the third place, in the management of these cases, we have learned that the finding of one source of focal infection does not necessarily mean that we have found the cause in its entirety. In other words, the toxemia may come from several sources. These various sources we ordinarily call the areas of focal infection, or sepsis, and those most in our mind are in the tonsils, intestines and teeth, or more accurately, the buccal mucous membrane. The relation of the teeth to the eye has been recognized for years. Forty years ago Nettleship reported the relationship between various teeth and choroiditis. Seven years ago I sent out 700 questionnaires to Americans and Canadians on this subject. Of 100 replies seventy-four were available and among these only nine surgeons reported a relationship between infected teeth and uveitis. Next year Mr. Lang reported 215 cases, with 139 attributed to tooth infection. I think we have learned, too, that extensive tooth infection is not at all necessary, and that the smallest blind abscess is liable to be the seat of infection. In like manner the so-called innocent tonsil is often a virulent source of danger. I wish to emphasize the importance of buccal sepsis in its relation to uveitis, and to call attention not only to ordinary pyorrhea alveolaris, but to "blind abscesses," apical abscesses, in devitalized teeth, and to the fact that no dental examination is complete without roentgen-ray examination. I would urge insistent exploration of the tonsils, even though they are innocent looking. I shall not discuss the treatment from the medicinal, dietetic and vaccine standpoints; it is well

13. Rogers residue is that which remains from the thyroid gland after acetic acid has been added and the proteins have been extracted. The residue is a liquid and supposedly nontoxic. Three minims of this were given five times a day.

known. But I urge the importance, in addition to these measures, of repeated paracentesis of the anterior chamber in uveitis, especially where there is rise of intra-ocular pressure—a not infrequent complication. Naturally, the fluid obtained should be examined bacteriologically.

DR. E. L. JONES, Cumberland, Md.: I have seen results in uveitis, which I believe indicate that we are on a trail that in some cases at least will lead to better results than we could obtain heretofore. The etiology of this affection has been said to be due to infections, syphilis, faulty metabolism, etc. But many causes combine in some cases. The effect of infections, syphilis and faulty metabolism is strong to disorganize the ductless glands; therefore we supply thyroids in addition to the other treatment. It enables antisyphilitic treatment to cure when that treatment alone would not cure; and so with infections and faulty metabolism.

DR. A. EDWARD DAVIS, New York: The point Dr. Jones made has been brought out also by Dr. Dunn, that even in specific cases there is always something beyond, and that by giving attention to this, using thyroid extract, as he has, we secure results not obtainable before.

## EXPERIENCE OF AN AREA CONSULTANT IN FACIAL SURGERY

IN THE ZONE OF ADVANCE \*

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The work of the maxillofacial service began properly with the mobile and evacuation hospitals, and in both the zone of advance and the hospitals of the advanced section, the work of our department was largely one of prevention. We had to deal with all injuries of the face and neck, exclusive of brain injuries. Those injuries involving the eye, the nose and the ear which did not involve other parts of the face came directly under their respective departments; but as these injuries were almost invariably associated with injuries of other parts of the face, most of them came directly under the care of the maxillofacial department.

It was the original plan to have installed in each mobile, evacuation and base hospital a maxillofacial team, composed of a surgeon who had had some special training in this class of work, a surgical assistant and a dentist. The surgeon was to be the head of the team. The dentist was expected to do the splinting or wiring of the jaws, working in cooperation with the surgeon. With this in view, several schools in this country had given special oral and plastic courses to surgeons and dentists, to prepare them in sufficient numbers for the work. Unfortunately, however, this plan was not practicable, not because of the shortage of surgeons and dentists in our army, but because they could not be transferred abroad in sufficient numbers. Another reason was that it was not always possible to have the cases properly classified in the triage and sent to special teams. So a compromise plan was adopted. A dentist was secured for each hospital, and it was arranged that he be called to assist the general surgeon to whose table the case happened to go, in caring for all jaw fractures. By this plan, the dentist was on call twenty-four hours a day, and often had to work steadily during the entire period.

The care of soft parts and the general supervision of the case devolved on the general surgeon, who spent most of his time at general surgical work and who often had had no special training for the maxillofacial work. This was not the ideal plan, but it produced some very good results, and seems to have been the best one possible under the circumstances.

For the guidance of surgeons and dentists in caring for maxillofacial cases, the chief surgeon, A. E. F., on the recommendation of the chief consultant in maxillofacial surgery, issued some bulletins of instruction.

The essential features of these bulletins were as follows:

1. All maxillofacial wounds shall undergo thorough mechanical cleansing.
2. There shall be no débridement of face injuries.
3. No bone fragment having any soft tissue attachment shall be removed.
4. Immediate steps shall be taken to arrest hemorrhage, and to prevent secondary hemorrhage.
5. There shall be immediate fixation of all jaw fractures.
6. Adequate inferior drainage shall be established in all fracture cases.
7. As much primary suture of face tissues shall be done as is consistent with good surgical principles.
8. Cases shall be evacuated to the base hospitals as quickly as possible.

It will be seen that in several respects these instructions ran counter to those that were sent out for the guidance of general surgeons in the handling of war wounds. One of the first requirements of these general instructions was that there should be a thorough débridement of all gunshot injuries. The second was that there should be no primary suture of these cases. This was essential and well advised in the handling of general surgical cases. The danger of general infection, and particularly the danger of infection from the gas bacillus, required that all gunshot wounds should be thoroughly debrided, particularly shell, shrapnel and hand grenade injuries. In the handling of face cases there were two reasons why we should not follow these general rules: In the first place, thorough débridement of all face injuries would have meant the sacrifice of an immense amount of facial tissue which never could have been adequately replaced, and which, if removed, would have necessitated a great amount of unsatisfactory secondary plastic surgery. In the second place, it was shown that there was practically no danger from gas infection in face wounds, no case to my knowledge having been reported.

By thorough mechanical cleansing of the soft tissues and careful suture of these shreds of skin and mucosa into their normal position, much tissue was saved which, otherwise, would have roped up into hard scar tissue and have been absolutely useless in the reconstruction of the face.

As was to be expected, much of this primary suture broke down, but even in these cases, no damage was done by the suture, and the tissues had been brought into some semblance, at least, of their normal position, which they retained to a greater or less extent.

Bone fragments, with some soft tissue attachment, were retained to serve as grafts from which new bridges of bone were to be regenerated. Many of these were lost, of course, but in a good percentage of cases, they served their purpose admirably, and no damage resulted from their retention.

In the matter of fixation of the jaws, it was necessary to allow the dentist considerable latitude for the

\* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

exercise of his own skill and judgment. Materials for this purpose were very scarce, and the dental men were often forced to resort to extremely crude methods. A great deal of ingenuity was evidenced by many of these men, and some excellent results were obtained.

An open bite emergency splint had been devised and was eventually supplied to the advanced hospitals. This consisted of double trays of aluminum filled with modeling compound. The jaws were to be put in the best possible position, the modeling compound softened in hot water, the splint placed in the mouth, the teeth pressed into this softened compound, and the jaws held in that position until the compound hardened. A chin cup and bandage completed the work. This was intended to serve only until the patient reached the base hospital, where permanent splinting could be done. Some of these splints were used with good results. In many cases, however, they were not found practical, and some other method was used. Probably the most common form of fixation used at the front, and one which gave very good results, was that of interdental and intermaxillary wiring. Villain's anchorages were used in a few cases. Arches of heavy silver wire, with interdental wiring, were also used. A few men made swedged splints, and one or two made some cast silver splints, using for this purpose the crudest sort of home-made casting apparatus. As silver and aluminum were hard to get, some of our dentists used frane pieces from their own pockets for this purpose. Block tin was also used in some cases and made very good splints. The ingenuity of the American dentist is such that he can be trusted to find some way out of almost any difficulty, and the lack of equipment and materials never daunted him. In the preparation for another war, should such a misfortune befall us, I have no doubt that some standardized method of procedure will be adopted and carried out; but should we ever be caught again as unprepared as we were this time, it is very comforting to know that we have dental men who can be depended on to meet the emergency as efficiently as they did in France during the later months of the war.

Too much cannot be said of the work done by the dental men in the advanced hospitals, and there is no doubt that much subsequent bone grafting of ununited fractures has been prevented by the early and efficient fixation secured by these men.

As these cases had to be evacuated very quickly, only the most temporary measures could be instituted. We had to depend on the base hospital staffs for the more permanent appliances to the jaw and for the real plastic work.

The arrest of primary hemorrhage was often a difficult matter, and taxed the ability of the surgeon to the utmost. Concealed hemorrhage from a mouth, very much swollen, made its control a very perplexing problem. Ligation of the common carotid was found necessary in a few cases. The prevention of secondary hemorrhage resolved itself largely into a question of the prevention of sepsis. Adequate inferior drainage in fractures of the mandible went far toward controlling the sepsis that almost invariably followed these injuries. This was secured by making a free opening below the border of the mandible at the site of the fracture. In the fractures of the maxilla, the wound itself almost always provided inferior drainage—either externally or into the mouth.

As the consultant in maxillofacial surgery for the advanced section and zone of advance, it was my duty to organize our forces and resources for the accomplishment of our aims. Our forces in surgeons and dentists were meager, and our resources in materials were still less. On my first visit to the advanced hospitals I found practically no plastic surgeons, only a limited number of dentists, and no equipment for caring for face cases. It was necessary to secure dentists to supply the hospitals that were without them. This was done through the chief dental surgeon of the A. E. F. Directors of surgery and commanding officers of hospitals had to be shown the necessity of having some systematized plan of handling our cases. They had to be convinced of the wisdom of the maxillofacial rules of treatment, and as these differed essentially from those governing other cases, this was no mean task. It was only with difficulty that many of them were induced to consent to calling in the dentist to help splint jaw cases, but it was very gratifying on later visits to find dentists and surgeons working in close cooperation. The securing of materials with which to do our splinting was a hard problem. Modeling compound, ligature wire, heavy silver wire for arches, emergency splints, silver, aluminum, silver solder—these and many other things very necessary for the proper splinting of bad fractures, had to be obtained wherever and however we could, and they had to be taken to the men in the hospitals, so that the consultant reminded himself oftentimes of a sample man for a drug or instrument house. It was a part of the consultant's job to gather ideas from all sources, and to impart them to others. It was a work of education of the consultant and by the consultant.

After seeing the work in British and French hospitals, later in our own hospitals in France and now in our reconstruction hospitals at home, where I am now seeing many of the same cases that it was my fortune to see in France, I am convinced of the wisdom of the original plan of work and the rules laid down for the guidance of surgeons and dentists in the treatment of maxillofacial injuries.

**The Prevention of Blindness.**—The fourth annual report (1918) of the National Committee for the Prevention of Blindness is devoted largely to ophthalmia neonatorum. Since reporting is still defective, new cases of blindness from ophthalmia neonatorum can be determined only after the children enter schools for the blind. From this source it is found that 614 new pupils were enrolled in 1917-1918 in forty schools for the blind, and of this number, ninety, or 14.7 per cent., had become blind through the disease named. In 1917 the percentage reported was 18.4, and the year before that, 19. In 1915 it was 15.1. The percentage reported in 1918 is the smallest, therefore, since statistics were gathered. In the forty-one schools for the blind reporting on the subject, there were enrolled in 1917-1918, 4,109 pupils, and of these, 937, or 22.8 per cent., became blind through ophthalmia neonatorum, a decrease since 1907, when it was nearly 30 per cent. Massachusetts had the first organized class, and ten are now being conducted for the benefit of children who would otherwise be a neglected group in the school system. Virginia, Louisiana and Georgia in 1918 enacted laws for preventing blindness by ophthalmia neonatorum, and Kentucky and Rhode Island passed laws on other phases of the committee's work. Twenty-four states have carried forward prevention of blindness work. The report, in addition to the detailed reports of Edward M. Van Cleve, managing director, and Winnifred Hathaway, secretary, gives many other details of the activities of the committee during the year. The headquarters of the committee is at 130 East Twenty-Second Street, New York.

## RECONSTRUCTION WORK IN WAR INJURIES OF THE FACE AND JAWS\*

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As has been pointed out many times before, the successful treatment of maxillofacial injuries depends on teamwork between the surgeon, the dental surgeon

is not going to take place spontaneously. These require bone grafting. In others, when the nonunion is due to infection or lack of fixation, the application of splints and removal of all sources of infection will often result in new bone formation and eventual solid union.

4. Healed scars involving the soft tissues alone, requiring plastic operation, excision of scar tissue and obliteration of the deformity by flap sliding, fat transplantation, etc.

5. Fractures associated with more or less extensive destruction or laceration of the soft tissues of the cheek, lips or chin. These, of course, require fixation of the fracture and correction of the soft tissue deformity (Figs. 5 and 6). Frequently the upper and lower buccal and labial sulci are partially obliterated by adhesions of the mucous membrane to the bone. These are best treated by division of the bands of scar tissue and the covering of the raw surfaces with epidermic grafts placed on modeling compound inlays attached to prosthetic appliances. Many of these injuries are accompanied by trismus, which requires treatment by jaw stretching and other measures.

6. Cases presenting perforation of the hard palate or having openings between the buccal cavity and



Fig. 4 (Case 1).—Permanent denture with vulcanite pad passing down into restored sulcus.

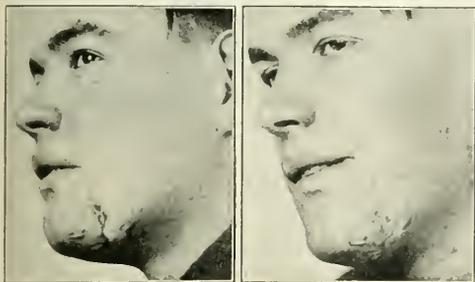


Fig. 1 (Case 1).—Wound received, Sept. 26, 1918. Depressed scar, left side of chin and angle of mouth.

Fig. 2 (Case 1).—Appearance of patient, May 10, 1919, plastic operations performed April 2 and April 11, 1919.

and the dental prosthetist. We desire to outline the practical application of this cooperation at the Walter Reed General Hospital.

The patients arriving from overseas belong, in general, to the following groups:

1. Compound comminuted fracture of the mandible in process of consolidation. These may or may not have been splinted before arrival, and require observation until union is complete.

2. Compound comminuted fracture with delay in union and healing of the soft parts due to the presence of sequestrums, infected teeth in or near the line of fracture, foreign bodies, etc. These require incision and drainage, removal of sequestrums, teeth, foreign bodies, etc., and general treatment of sepsis, in addition to splinting.



Fig. 3 (Case 1).—Temporary appliance attached to lower teeth to hold mass of modeling compound covered with epidermic graft to restore buccal sulcus.

3. Ununited fracture with loss of substance. In many of these cases the tissues have been healed for some time, and there is evidence that union



Fig. 5 (Case 2).—Gunshot wound received, Sept. 29, 1918. Keloid scar of chin.

Fig. 6 (Case 2).—Appearance of patient after plastic operation, performed April 9, 1919. Scar tissue excised, and raw surface covered with pedicle flap from neck.

the maxillary sinus, requiring operative or prosthetic closure.

7. Miscellaneous cases of injury of the nose, orbit, external ear, etc., requiring plastic operation.

In every case a thorough survey of the mouth is made, clinically and roentgenographically, to eliminate any factors that may be keeping up infection. All teeth in or near the fracture lines are extracted, bone cavities drained, and sequestrums and foreign bodies

\* From the Walter Reed General Hospital.

Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

removed. The splints employed in fixation of fractures are as simple as the nature of the case will permit. For many of the uncomplicated cases with many teeth and good occlusion, in which maintenance of reduction is easy, intermaxillary wiring of the teeth has proved efficient. For the majority of cases we employ the cast silver cap splint. When there are firm teeth on both

quently necessary to prepare a saddle extension to cover the anterior surface of the ramus (Fig. 14). By means of a screw rod running from the upper splint to the saddle at an angle of 45 degrees to the line of the upper teeth, backward propulsion of the ramus may be brought about. In this backward propulsion, as the ramus rotates on the condyle, the change of position is accommodated for by a compensating hinge connection of the screw rod with the saddle. The saddle is made of vulcanite lined with a layer of velum rubber.

Various other mechanical appliances are invaluable as supports in plastic operations. Attachments are made to vulcanite plates and splints for holding modeling composition plumpers to bring out the lips to their normal contour and to form supports for epidermic grafts to replace mucous membrane on raw surfaces of the mouth (Figs. 3 and 4). External and internal nose conformers may be attached to the upper denture, as supports in nose plastics. Check supports held in this way are generally more satisfactory than those depending on the head band.



Fig. 7 (Case 3)—Wound received, Oct. 4, 1918. Depressed scar, right cheek.



Fig. 8 (Case 3)—Appearance of patient after operation, performed April 11, 1919. Scar tissue excised, edges of wound undermined, and free abdominal fat transplanted to fill in defect.

sides of the fracture it may be necessary to splint only the lower jaw, thus permitting mastication. For other cases the upper and lower teeth are splinted separately, the two splints being locked together in occlusion with a removable bolt on each side. While we can conceive of the advantage of early application of open bite splints in certain cases coming to us late with trismus, we have rarely seen a case in which the late application



Fig. 9 (Case 4)—Wound received, Oct. 1, 1918. Ununited fracture, left body of mandible, 2 cm. loss of substance.



Fig. 10 (Case 4)—Loss of substance as result of wound.



Fig. 11 (Case 4)—Pedicle bone graft, performed March 26, 1919. Examination, June 10, 1919, after removal of splint, shows perfect union.

of the open bite splint would have any particular advantage over the closed bite splint. Especially is this true in early and late cases in which the patient has no teeth in the posterior fragment and in which the use of the open bite splint may result in union in malposition. For these fractures in or near the angle, particularly when ununited, preparatory to bone grafting, it is fre-

Two methods of bone grafting have been employed. In two cases of ununited fracture of the body of the mandible with loss of substance of not more than 3 cm., we have used the method of Cole, removing a piece of the lower border of the anterior fragment, with a pedicle of muscle and fascia attached to it below for nourishment, sliding it back to fill the gap, and

attaching it to the ends of the fragments by means of silver wire (Figs. 9, 10 and 11). Most of our cases have been unsuitable for Cole's method, either being too extensive, or situated at or behind the angle. In one case there was a defect of 10 cm. In the cases of the eight remaining patients operated on so far, we have employed the osteoperiosteal method of Delage-

which a hematoma occurred, followed by some sup-puration and extrusion of small shreds of bone from the graft. Even in this case, guided by the experience of Delagenière himself, it is hoped that union will occur. In the earlier cases, there is good evidence that union is taking place. The splints will not be removed for at least two months and a half.

Free abdominal subcutaneous fat has been employed several times to fill in marked depressions left by excision of adherent scars or when underlying bone has been lost (Figs. 7 and 8).

Costal cartilage transplants are used for correcting depressed nasal bridges. As a rule the entire thickness of the sixth cartilage is used.

The anesthetic most commonly employed is ether, given intrapharyngeally through nasal tubes. The bottle containing the ether is attached to an oxygen tank, and the bubbles of oxygen carry the ether to the patient, there being thus no necessity for a foot bellows or motor pump. Ordinarily it is not necessary to warm the ether. Regional and infiltration anesthesia with 1 per cent. procain-epinephrin is very useful for many of the lesser plastics.



Fig. 12 (Case 5).—Wound inflicted Sept. 26, 1918. Ununited fracture, right body of mandible, 3 cm. loss of substance. Appearance of patient before operation. Keloid scar of neck and chin.



Fig. 13 (Case 5).—Appearance of patient after plastic and osteoperiosteal graft operation, performed March 31, 1919.



Fig. 14 (Case 5).—Cast metal cap splints used for fixation of ununited fracture during bone grafting. Extensible saddle for posterior fragment.

nière. This consists of first exposing the ends of the fragments and preparing a pocket beneath and over each by stripping back the periosteum and soft tissue for a distance of about 1 cm. The graft is made by the removal of a thin shaving from the antero-internal surface of the tibia with a chisel, leaving the overlying periosteum attached. One piece of this is inserted in the pockets under the ends of the fragments and another over the fragments, with the bony surfaces of



Fig. 15 (Case 5).—Loss of substance of mandible as result of wound.



Fig. 16 (Case 5).—Osteoperiosteal graft in place, May 3, 1919.

the grafts facing each other. It is necessary that the grafts be in contact with the previously freshened bone ends (Figs. 12, 13, 14, 15, 16). No fixation is used beyond suturing the deep tissues over the grafts, the jaws, of course, being splinted and locked in occlusion the day following the operation. It is early yet to report as to the final outcome in these cases. Primary union followed the operation in all cases except one, in

Careful records of cases are being preserved by means of photographs, color sketches, diagrams of operations, roentgenographic prints, plaster casts and wax models.

**Ventilation.**—Rooms having a window area equal to or greater than 21 square feet per person do not require mechanical ventilation.—*Bulletin*, State Board of Health of Rhode Island, August 1919.

## CAMPHORATED OIL TUMORS\*

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AND

W. G. WANDER, M.D.

ST. LOUIS

This paper is an abstract of a preliminary report on a series of important cases we have lately been observing in increasing numbers in which tumors resulted from the injection of camphorated oil. They are from the skin service of Engman and Mook at the Barnard Free Skin and Cancer Hospital, at the Washington University Clinic, and in their private practice. We have heard of other cases, and in view of the great quantities of camphorated oil injected during the epidemic of influenza last year, as well as its common use in operating rooms as a stimulant, a word of warning may not be amiss.

## REPORT OF CASE

Following is a typical case:

Miss A. R., aged 32, had been in good health until the middle of December, 1918, when she had had influenza followed by a severe pneumonia, and had received at the critical time in her illness, when partially unconscious for about five days, about eight injections of camphorated oil in the right arm and three or four in the left. For some time afterward, the right arm was weak, and the sites of the injections were tender, but she had no actual pain. She paid no attention to her arms until June, six months later, when she consulted her doctor about the "lumps" on them. He said they were not due to the injections, because there was a tumefaction on the inner surface of the right arm, and he had not injected in this area. The tumors were increasing in size in both arms, but there was hardly any perceptible redness. The latter part of June, or six and one-half months after the injections, they began to increase rather rapidly in size, and became red and inflamed and somewhat painful on pressure. They continued to get larger and more inflamed until now, in September, nine months after the injections, the entire anterior, outer and posterior portions of the right arm are a mottled bluish red, swollen, hard and very infiltrated. The local temperature is considerably higher than that of the normal skin. The mass is lobulated, and around the periphery the edges are linear and very sharply differentiated from the adjacent tissue, with distinctly marked angles, instead of merging gradually into the normal tissue. The inner aspect of the arm is represented by a wide, circular, reddened band of infiltration, and here the inflammation is a little more acute. The whole process completely encircles the arm just above the elbow in an infiltrated band, and has so interfered with the return circulation of the arm as to produce edema of the hand and the forearm.

The left arm has a similarly inflamed tumor mass, just above the elbow, but it is very much smaller and only on the outer aspect.

Extending downward over the external surfaces of both elbows and forearms to a distance of 8 cm. on the right arm

and 6 cm. on the left, are the same doughy infiltrations, with angular edges, triangular in shape, the apexes pointing downward. They are slightly reddened, but not as inflamed as the earlier arm lesions. Small, beadlike chains of little tumors may be felt in long strands around the periphery of the tumors proper, and they also extend upward toward the right axilla, like metastatic malignant tumors growing along lymph channels.

These processes are obviously the result of the seeping of the oil along nonresistant paths, such as the lymph channels, or between muscle fibers.

The right upper chest and supraclavicular space are somewhat swollen, but show no tumor process. The superficial, dilated veins indicate this swelling to be secondary to the circulatory obstruction in the arm.

In our first case, diagnosed in 1914, a piece of inflammatory tumor was excised, and the diagnosis from the pathologist was tuberculosis, probably owing to the tumor's granulomatous character, with many giant cells. This led us, at first, to believe that the tumors belong to the sarcoid class. In a later case, with practically no clinical inflammation, a piece was excised and the true nature of the lesions discovered.

The term sarcoid has been used by Darier and Boeck to differentiate subcutaneous tumors that are granulomas, due in some instances to tuberculosis, while the origin, in others, is unknown. In some clinical aspects, the tumors described in this report might at first be so classified, in that the inflammatory tumors are granulomas, too; but now that their etiologic factor has been clearly established, they are no longer to be classed with the sarcoid group, for they are known now to be mechanically produced inflammatory tumors.

Ever since paraffin has been injected subcutaneously to remedy various defects, we have been well acquainted with the possible subsequent tumor development and activity. In most instances, no difficulty is experienced in the diagnosis of these tumors, for generally the patient is aware, when he applies for treatment, that they are due to paraffin.

The tumors due to the subcutaneous injection of camphorated oil greatly resemble the paraffinomas in their slow development, their peculiar concrete-like type of infiltration, and the time in which they develop after injection. Their location, however, is so totally different from that of paraffinomas as not even to cause suspicion that they are of the same nature and due to the same cause, namely, the subcutaneous injection of an oil, probably mineral.

An analysis of the cases shows a series of six patients who developed tumors in the arms, some also in the thighs, all with practically the same history and lesions of the same characteristics; namely, the appearance of deep tumors, following the injection of camphorated oil for a previous severe illness, situated generally on the outer aspects of the lower third of one



Fig. 1.—Inflamed tumors in arm, resulting from injection of camphorated oil. They began to grow one month after the injections. The photograph was taken four months later.

\* From the Barnard Free Skin and Cancer Hospital.

• The full report, of which this paper is an abstract, will soon be published in the *Journal of Cutaneous Diseases*.

or both arms and occasionally in a shoulder, thighs or breasts. They are of months' duration, and if not inflamed they have a doughy or concrete-like infiltration that may be from the size of a walnut to the size of an orange, and is usually lobulated. The size of the tumor depends on the amount of oil injected and the extent of the individual reaction. Instead of being rounded in outline, they are linear, with definite, sharp angles marking them off from the normal connective muscular tissue which is adjacent. Beadlike infiltrations of the same nature, but smaller, may be traced toward the axilla or around the periphery, simulating the metastasis of a malignant growth along lymph channels. The skin surface may or may not be elevated or discolored, and some tumors are discoverable only on palpation. They are practically always deep in the muscle or connective tissue. They may or may not be painful, or even tender. The early discomfort is generally slight.

If they are inflamed, the process is of long duration and the skin will be of various hues, varying from a red to deep purple, the color depending on the congestion and the amount of inflammation. The local temperature in inflammatory tumors is higher, of course, than that of the surrounding normal skin. In none of our cases has necrosis occurred, such as occurs in paraffinomas; but this may be due to two factors: First, the character of tissue involved, which allows the oil to move in various directions, whereupon the inflammation occurs up and down the arm between muscle fibers, the fascia and the lymph spaces. No doubt, if the oil was to be injected in the face, necrosis would occur as in paraffinomas, owing to the difference in tissue character, that of the face favoring necrosis instead of subcutaneous distribution. Second, the factor of time. Since some of our most marked cases are of recent observation, not enough time has elapsed to let us see the end-results. In one instance, at least, necrosis has been expected two or three times, and the constriction of the tumors has so interfered with the arm circulation as to produce edema and to suggest the possibility of an amputation if the obstruction becomes more complete.

The microscopic sections demonstrate the encapsulated oil cavities, virtually the same as seen in paraffinomas.

The necessarily inert and stable character of the oil in the globules from excised tissue suggests at once that the oil may be a mineral or paraffin oil. Parallel staining reactions between oil from the tissue and liquid petrolatum strengthen this suggestion; both stain with sudan III, but fail to stain with osmic acid.

In at least two instances, the camphorated oil used was manufactured by a well known drug manufacturer, and in one the oil we obtained was part of a quantity

bought by the local druggist. The camphor was put up in a mineral oil and in all respects reacted to the same tests as the oil recovered from the tissue excised from one of the patients.

In the case in which the oil was a part of a quantity bought by a local druggist, it failed to saponify on boiling with a solution of potassium hydroxide, and there was no soap demonstrable in the resulting product, indicating—and more or less conclusively establishing—that liquid petrolatum was the vehicle used in the camphorated oil injected.

From our studies thus far, it appears apparent that liquid petrolatum may remain as an inert foreign body in tissue, whether injected as paraffin to correct facial defects or as camphorated oil when injected in the arms, thighs or breasts as a stimulant during an operation or in any very severe illness.

The inflammatory tumors that may result from either are more or less serious, and the use of camphorated oil as a stimulant should be discontinued until researches show that it can be made innocuous with a vegetable or an animal oil, or a vehicle that will be absorbed immediately after injection, with no ultimate bad effects.

The study reveals other possibilities of bad results from the use of liquid petrolatum as a vehicle in the mixtures of mercurials, such as the salicylate and calomel, in the treatment of syphilis. Deaths from emboli after such injections occur often enough to make one a little apprehensive in their routine use.

Emboli of the lungs from oil have been known to occur.

We have reached the conclusion that it is dangerous to use liquid petrolatum as a vehicle for any remedy to be injected in subcutaneous tissue. This fact has been well established in regard to paraffin injections, and the tumors resulting from the injection of camphorated oil made with liquid petrolatum strengthen the conclusion.



Fig. 2.—Histologic section of camphorated oil tumor, showing cavities and tissue containing the oil. It is very typical and resembles paraffinoma tissue.

**Fads in Treatment.**—Further, you must

avoid, like the devil, all fads in treatment. Fadery lies in wait all through professional life. It does not matter so much what pathological fads you hold; that is only a disorder of belief. But when you carry those fads into action and treat people on "faddy" lines, you are guilty of disorder of conduct, and disorder of conduct is insanity. There have been many eminent persons in our profession who have succumbed to the vice of faddism, and they become in their treatment, in certain respects, insane, and, therefore, in a practical sense, they are a real danger to the community. Watch out, then, for the earliest indications of faddism in yourselves. It was said by Sir James Paget, one of the wisest men who ever practiced our profession, that as you begin to get older you tend to write the same prescription for everything. The man who does that is an incipient faddist.—Robert Hutchison, *Some General Principles of Therapeutics, The Practitioner*, September, 1919, p. 164.

## RECONSTRUCTION AND AFTER-CARE OF OLD UNREDUCED POTT'S FRACTURES \*

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The most frequent disability following in the wake of Pott's fractures is flat foot. This is often exaggerated and rendered painful and persistent by a slight posterior displacement of the foot on the tibia or a widening of the ankle joint, due to a rupture of the tibiofibular ligament. Of course, there is a large percentage of Pott's fractures in which the tibiofibular ligament is not ruptured. These will have a normal ankle joint mortise. There is another factor in the reduction of a flat foot. Often after a Pott's fracture the foot is put up at right angles but in valgus position, and the muscles which support the arch of the foot are put on the stretch; the patient is allowed to walk in the support with the foot in this faulty position and a flat foot develops, the result, largely of loss of muscle tone.

In the treatment of these cases the degree of disability and probable end-results are the main factors to be considered. The age of the patient and the traumatic inflammatory changes, whether vascular, lymphatic, osseous or of the soft parts, should always receive careful attention before operation. The operative procedure varies in each individual case, depending on what is necessary for the establishment of the normal anatomy of the foot. In the after-care, one method may apply to all cases.

I have selected a case for consideration giving the following history:

A laborer, aged 35, weighing 180 pounds, fell 20 feet, in March, 1917, sustaining an injury of the left ankle. Inspection showed the foot in position of equinovalgus, marked traumatic flat foot, posterior displacement of the foot on the tibia, and a widening of the ankle joint. The patient walked with a marked limp and was able to stand or walk for only a little while. A roentgenogram taken at the Hospital for Ruptured and Crippled, in January, 1918, ten months after the injury, disclosed an ununited fracture of the internal malleolus at the base, a rupture of the tibiofibular ligament, a fracture of the fibula  $3\frac{1}{2}$  inches above the joint, a displacement of the tarsal bones as found in third degree flat foot, and posterior displacement of the foot.

### OPERATIVE PROCEDURE

First. The foot was grasped between the hands and knees and forced around into varus, overcorrecting the pes planus and reestablishing the normal relation of the tarsal bones as near as possible.

Second. An incision was made over the internal malleolus, the fibrous tissue removed, and the ends of the fragments freshened by chiseling. An inlay of bone was slid down from the tibia into a groove prepared in the malleoli, and this was sutured into place.

Third. An incision was made over the fibula and the fibula divided transversely about 1 inch above the ankle joint. Then with a curet the fibrous tissue with



Fig. 2.—Equinus with posterior displacement of foot. The position is equinovalgus.

periosteum was removed from between the tibia and fibula from the ankle joint up to the fracture line.

Fourth. The Achilles tendon was divided by the "Z" method, and the foot was forced up into dorsal flexion. This reduced the posterior displacement. The foot was then pulled around into slight varus, approximating the fracture of the internal malleolus to the tibia and forcing the raw surfaces of the tibia and fibula together. The wounds were then closed.

The foot was put up in plaster of Paris in corrected position and held so for six weeks. A roentgenogram taken at this time revealed a reestablishment of the mortise in the ankle joint by union of the tibia and fibula, a union of the internal malleolus, and an all-round reconstruction of the bony anatomy of the foot.

### AFTER-CARE

The after-care consists of: first, continual support; second, baking and massage; third, exercises and manipulations. The support of the foot was of two types: first, plaster of Paris for eight weeks, then adhesive plaster strapping for two or three weeks longer, and finally a Whitman arch support with a raise of shoe of one-quarter inch on the inner border of the heel and toe. The exercises and manipulations are those for reestablishing muscular power of weak feet in general.

In one case, photographs showing the relative contour of the injured and the uninjured foot reveal less deformity on the injured side, or left foot, than there is on the right side, or uninjured foot. This is accounted for by the forced correction of the flat foot on the injured side while the existing flat foot on the uninjured side was merely supported and not corrected.

FIG. 1.—Ununited fracture of internal malleolus; marked widening of mortise of ankle joint; ruptured tibiofibular ligament; fracture of fibula  $3\frac{1}{2}$  inches above joint.

\* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

This man returned to work twelve weeks after operation and has been at work since that time, wearing a Whitman brace with his shoe raised one-quarter inch on the inner border of the heels and toes.

OTHER CASES

I have had two other cases which needed operation. In one only the flat foot and posterior displacement needed correction, necessitating the lengthening of the Achilles tendon. The other patient had a rupture of the tibiofibular ligament. The fibula had healed in a faulty position, and there was a widening of the mortise of the ankle joint. This patient was first seen six weeks after injury. An osteotomy of the fibula and a lengthening of the Achilles tendon, pulling the foot in varus and dorsal flexion, and using the after-care described in the case first mentioned, restored the normal function of this foot, so that the patient has been able to resume his former vocation, which was moving and lifting heavy boxes of goods, without discomfort.

A CAUTION

It is very important that the normal mortise of the ankle joint should be restored. If it is not there will be too much play at the ankle joint. The astragalus will be allowed to rotate, and the foot will be permanently weakened. Special stress is laid on this point, as too little attention has been given to this aspect of the lesion both in recent and old cases of Pott's fractures.

ABSTRACT OF DISCUSSION

DR. ZABDIEL B. ADAMS, Boston: To reduce these fractures simply means restoring normal conditions as far as possible. The method described originally by Dr. Pott in the treatment of these fractures is not carried out in general. In the classical Pott's fracture the procedures that have been

a result as if the deformity had been prevented in the first place. So much change takes place in the articular surfaces of the bones, and there is so much play on the ligaments, that a perfect result cannot be looked for. I am quite in agreement, however, with the general lines of treatment laid down by Dr. Sneed.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: The one fact that has been shown in this paper is that these fractures can be rebroken and reduced, the result in many instances being anatomically and functionally perfect, without the necessity for any internal splints. Dr. Sneed used, in one instance, the sliding graft, on account of the ununited fracture. The

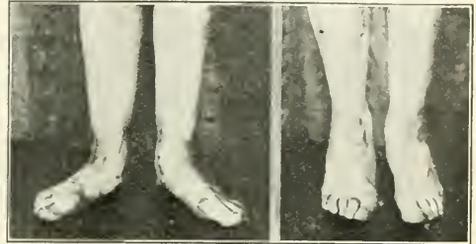


Fig. 4.—Relative contour of both feet eighteen months after operation. Notice long scar over internal malleolus of the left foot and the lesser degree of flat foot on the injured side.

average Pott's fracture is not complicated by nonunion at the point of the mesial fragment, as in his case. Consequently, the raft is unnecessary. I have operated in two cases within the last six months, both being of exactly similar displacement, except that union was perfect. In both cases there was long union between the tibia and the fibula for a considerable distance. This necessitated chiseling between the two bones before replacement. After replacement in proper position, putting the foot in inversion in a plaster cast, I used the simple Thomas heel in shoe, and found it unnecessary to employ any other form of support. Both these cases occurred in young people. The restoration was practically perfect, and I felt that long after-treatment was unnecessary. In old atypical cases, long continued support with the Whitman, or some other form of arch support, would be necessary.

DR. JAMES W. SEVER, Boston: There is one point that I should like to have Dr. Sneed speak of in closing the discussion. That is in regard to the articulation between the tibia and fibula and the rupture of the tibiofibular ligament. In cases in which there is definite injury to the joint, there is a great deal of disability and widening between the two bones. The condition clinically looks like a fracture, but apparently it is not. The adequate treatment of these cases should be discussed, because it is overlooked, the condition being treated as a sprain.

DR. HARRY E. STEWART, New Haven, Conn.: An interesting point has been brought up about the treatment by means of orthopedic gymnastics and massage. We should not confine a man, after a surgical operation, to an artificial support like a plate, but follow up the procedure with treatment designed to bring back the tone of the muscles and ligaments. We should look in the arch plate as we would on any other splint, to be worn while necessary, and discarded as soon as possible.

DR. CHARLES M. JACOB, Chicago: I consider it a great mistake to immobilize the joint for many weeks as is now being done whether the joint was, or was not, operated on. It is my custom to apply a plaster cast for about ten days; at the end of this time passive motion is used each day for a certain period of time; following which a posterior milled splint is used.

DR. FRED J. GAENSELEN, Milwaukee: Very frequently there is a breaking of the lower and anterior portion of the tibia; and if the fracture is of long standing, this misplaced frag-



Fig. 3.—Six weeks after operation. Union of internal malleolus; a re-anchored tibia; posterior reduction of posterior displacement; and union at right angle.

mented out in this paper are the ones that must be resorted to in order to get a perfect result. If they are carried out, one can, in most of these cases, get a very marked improvement, if not an almost complete cure.

MR. ERNEST W. HEY GROVES, England: The keynote of the whole situation here, as in most orthopedic surgery, is prevention. When a Pott's fracture has remained unreduced for any considerable period of time, we can never expect, even by the most ingenious operation, to produce as good

ment acts as a definite obstacle to the reduction of the fracture. In most cases, it would be necessary to remove the fragment or loosen it, so that it would not interfere. Another point is that it is wise to reduce these fractures with the knee in acute flexion. This position relaxes the Achilles tendon avoiding the necessity of tenotomy so that reduction may be accomplished with ease. The plaster may be removed to just below the knee at the end of two weeks, without danger of relaxation.

DR. WILLIAM L. SNEED, New York: There is no doubt that many of these cases, as viewed from a roentgen ray standpoint, do not show any fracture. It is possible to have a rupture of the anterior lateral ligament and of the tibio-fibular ligament that will give a widening of the joint and injury on the inner side that does not go as far as a fracture, having no bony lesion, but that gives the same symptoms as in Pott's fracture without the deformity, other than a widening of the joint. There is a large percentage of cases in which the tibiofibular ligament is not ruptured. Of course, these cases need no consideration. These patients come to us, maybe one year or two years after the injury, and we must consider them in the light of what can be done at that time, and what it is wise to do, taking into consideration the bony and ligamentous deformity, the muscle degeneration, and the presence or absence of lymph or blood vessel changes. Sometimes it is unwise to do anything at all, as when there is infection in the tarsal bones. I have not known of any case in which it was necessary to carry the support about the knee. We all try to get rid of any mechanical support. If we can restore the normal anatomy, and it needs no support, we do not use it. It is only in the cases in which we cannot restore the normal anatomy that we need to use the support.

### ARSPHENAMIN IN PNEUMONIA WITH DELAYED RESOLUTION IN SYPHILITIC SOLDIERS

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Base Hospital

AND

JOHN L. SEABLOOM, M.D. (RED OAK, IOWA)

Captain, M. C., U. S. Army

CAMP WHEELER, MACON, GA.

In some individuals an acute disease will so derange the protective mechanism of the body that an old infection lying apparently dormant will be reactivated thereby.

Medical officers stationed during the war in Southern camps where malaria was prevalent not infrequently observed instances of renewed malarial infections in soldiers sick with pneumonia. These soldiers gave old histories of malarial fever with chills, fever and sweats, in some instances years prior to their entrance into the army. The symptoms of malaria appeared usually in the early part of convalescence from pneumonia. The chill and fever were typically periodic. The spleen was usually enlarged. Tertian organisms were found in the blood, and the paroxysms of fever responded promptly to quinin. Several such instances occurred at the base hospital at Camp Wheeler during the epidemic of pneumonia in the winter of 1918-1919.

A severe attack of pneumonia will sometimes weaken or break down the protective cell forces in or about old pathological lesions in the lung. Pulmonary tuberculosis offers an instance in point. Pneumonia not infrequently lights up an old apparently healed or

latent tuberculosis lesion, and the patient who supposed himself cured of tuberculosis is brought face to face in a life and death struggle with his old enemy, the tubercle bacillus.

We are not aware, however, that the attention of the profession has been called to the fact that syphilis may act to prolong or delay the reparative process in the lungs of persons who have had pneumonia, and that syphilitic persons with pneumonia are liable to exhibit signs of delayed resolutions for weeks or months of time. The healing process in these cases does not progress as in the normal individual, and the usual methods of treatment are of no value, while in the cases we have observed, specific treatment has been effective.

The following three cases observed at Camp Wheeler during the epidemic of pneumonia, occurring between Oct. 5, 1918, and Feb. 1, 1919, illustrate the effect of syphilis in causing the delayed resolution of pneumonia and the prompt effect of arsphenamin in clearing it up.

#### REPORT OF CASES

CASE 1.—J. J., aged 22, colored, single, soldier in labor battalion, with a negative family history, had measles, mumps and whooping cough as a child, malarial fever in 1914, and smallpox in 1917. He denied having syphilis, but admitted having gonorrhoea. Nov. 14, 1918, when going to drill, he developed severe pains in his left side and had a chill. He was admitted to the base hospital the next day with high fever (104), delirium, rapid breathing, dyspnea and marked cyanosis.

The examination of the chest revealed dullness over the entire left lung with bronchial breathing but no râles. A diagnosis of lobar pneumonia of the left lung was made.

From November 14 to the 24th, the man was very sick with pneumonia, his temperature ranging between 102 and 106.8. He had marked delirium, bloody sputum and high leukocytosis, and a Type IV pneumococcus was isolated from the sputum. November 25, his crisis occurred, and the temperature dropped to normal and remained so until his discharge, March 3, 1919.

In spite of the patient's improved condition, the left lung remained dull to percussion. Crepitant râles and bronchial breathing continued to be heard in the affected area. Roentgen-ray examination revealed an unresolved pneumonia of the left lung. Exploratory puncture of the pleura was made for possible fluid but none was found.

December 30, six weeks after the onset, the lung showing no signs of clearing, the blood was taken for a Wassermann test, and a ++ report was returned. Since the lung remained consolidated and the usual therapeutic measures had proved of no avail, it was decided to try arsphenamin. The patient was given 0.4 gm. intravenously beginning January 14, two months after the onset, and continuing one injection every seven days until five injections had been given. After the second injection of arsphenamin a rapid change in the lung condition took place. The signs of consolidation promptly subsided and the râles disappeared. By February 2, nineteen days after the arsphenamin treatment was started, all signs of lung involvement had cleared.

CASE 2.—James R., aged 25, colored, single, soldier, with a negative family history and with no history of chancre, was admitted to the base hospital, Dec. 5, 1918, complaining of headache, cough, chills and stupor. He stated that three days prior to admission he commenced to feel a pain in his left chest and had a cough. He felt chilly and thought he had fever. On the second day of his sickness he began to cough up some bloody looking sputum and was then sent to the hospital.

The examination on admission revealed nothing of importance outside of the lungs. Over the right lung posteriorly many crepitant râles could be heard on cough or deep breath-

ing, the percussion note was not impaired, and no bronchophony or tubular breathing could be detected. Over the left lung posteriorly, the percussion note was impaired with some increase of bronchophony, tactile fremitus and many fine crepitant râles. His temperature was 103, leukocytes 7,300. The urine showed a trace of albumin and a few hyaline casts. The diagnosis of bilateral bronchopneumonia was made.

From December 5 to January 11, the patient was examined from day to day; and while his temperature dropped to normal, December 16, the physical signs persisted in both bases and would not clear up. Roentgen-ray studies revealed unresolved bronchopneumonia of both lungs. A blood examination, December 8, gave a ++ Wassermann reaction. The failure of the lungs to clear after six weeks of observation and expectant treatment, the ++ Wassermann reaction and the experience in Case 1 with arsphenamin warranted a trial of the same treatment in this case. The note of January 7 read: "Crepitant and a few sibilant râles heard in the base of both lungs behind. These do not clear up. There has been no appreciable change in the physical signs for weeks."

January 14, about six weeks after admission, 0.4 gm. of arsphenamin was given, and the same dose was repeated thereafter every seven days until five doses had been given. One week after the first dose of arsphenamin was given the physical signs began to show improvement, and after the second injection a marked clearing of râles was noted, while after the third injection of arsphenamin all the lung signs and cough had disappeared and the patient was in excellent condition, and was discharged.

CASE 3.—Thomas S., aged 21, colored, single, labor battalion, with a negative family and past history, and who denied

that resolution of the lung takes place under serocellular processes the nature of which is not known, and that the resolution so promptly brought about in the cases here recited may be explained on the grounds of a natural termination of the disease rather than the arsphenamin effects. However, the impression received in watching from day to day the physical signs and clinical manifestations in these three stubborn cases of unresolved pneumonia in syphilitic soldiers has fully convinced us that the arsphenamin had a specific effect in clearing the lungs, and we advise its use in cases of unresolved pneumonia in syphilitic subjects.

THE BLOOD VASCULAR SYSTEM IN  
A PARIETAL CRANIOPAGUS \*

WILLARD M. SONNENBURG, B.S.

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The craniopagus shown in Figure 1 was delivered at the Madison General Hospital, May 5, 1919, in a case attended by Dr. Walter H. Sheldon. The twins weighed 11 pounds and 1 ounce at the time of birth. The faces and bodies were practically in vertical alignment. One of the twins, which I shall hereafter refer to as A, was a well developed female; the other, which I shall refer to as B, had an imperforate anus and an



Fig. 1.—Craniopagus, with bodies in practically vertical alignment.

venereal disease, was taken sick, Oct. 26, 1918, with headache, malaise and fever, and was sent into the base hospital three days later. A diagnosis of bilateral bronchopneumonia was made and a Type IV pneumococcus isolated from the sputum.

The man was very sick with pneumonia from October 30 to November 7, when his temperature dropped to normal and remained so until he was discharged. A Wassermann test, taken December 1, showed a ++ reaction.

On Jan. 8, 1919, nine weeks after admission, the lung findings were as follows: "Posteriorly over the right lung, the percussion note is impaired from the angle of the scapula downward and forward to the midaxillary line. Showers of râles are heard over this area and bronchophony is slightly increased. Sibilant and fine crackling râles can be heard behind over the base of the left lung. There has been very little change in this man's lung condition for the past six weeks."

The clinical diagnosis was: bronchopneumonia, bilateral, unresolved. Roentgen-ray studies confirmed the clinical diagnosis of an unresolved bronchopneumonia.

January 14, the lung condition showing no evidence of clearing and the man giving a ++ Wassermann reaction, an injection of 0.4 gm. of arsphenamin was given intravenously, and one injection was given every seven days until five injections had been given. January 30, two weeks after the first injection of arsphenamin, all physical signs had cleared in both lungs and the soldier was pronounced well and ready for discharge.

COMMENT

We are fully aware of the fact that both lobar pneumonia and bronchopneumonia are self-limited diseases,

imperforate "penis" as large as a normal infantile penis. Subsequently, at a postmortem examination, Dr. C. H. Bunting found that the internal genital organs of A were apparently normal. B had normal ovaries, but its uterus was four times the normal size. In B, furthermore, the sigmoid colon, greatly distended, emptied into a cloaca. The left umbilical artery in B was either

COMPARISON OF THE MEASUREMENTS OF PRINCIPAL PARTS OF THE TWINS, AND OF THE HEART RATES AND RESPIRATIONS

	A	B
Distance from line of fusion to umbilicus, cm. . . . .	23.0	24.0
Distance from umbilicus to sole, cm. . . . .	23.5	22.5
Circumference of head, cm. . . . .	32	31
Circumference of neck, cm. . . . .	19	17
Circumference of chest at nipples, cm. . . . .	29.5	32
Circumference of abdomen at umbilicus, cm. . . . .	27	37
Heart rate . . . . .	132	128
Respiration . . . . .	4 <sup>5</sup> 53	24 26
Dimensions of cord, cm. . . . .	55 by 0.75	57 by 0.5
Nose to nose, 13 cm.		

very small or was absent. In A, both umbilical arteries were present. Microscopic studies of the umbilical cord have not as yet been made. No other noteworthy abnormalities in either specimen were seen, except in the region of the cranium.

The accompanying table gives some of the chief measurements of each twin.

\* From the Anatomic Laboratory, University of Wisconsin, Medical School.

The cords came off the same placenta at the center, about 2 cm. apart. The placenta was almost circular, being 22 by 23 cm. in diameter, and had a V-shaped notch on the periphery, 4 cm. deep and 7 cm. wide. The membranes were intact, and the cotyledons normal and intact.

The birth occurred at 9: 50 p. m. A began breathing thirty seconds after birth, B, fifteen seconds later. Within five minutes, both cried vigorously. In the course of a few days it became obvious that there was no close functional correlation in the activities of the nervous systems of the twins. One would sleep soundly while the other was awake or cried. Furthermore, as shown in the accompanying table, the respiratory and pulse rates varied in the two individuals. Both fed normally, although B soon showed signs of discomfort because of the imperforate anus. Its abdomen became greatly distended and, on the seventeenth day, its "penis" was noticed to be distended. A probe was then pushed into the base of the "penis," and following this there was a discharge of fecal matter. On the ninth day, B became comatose, and A showed signs of discomfort, began crying, and continued to cry until its death, May 15, at 5 a. m. A died fifteen minutes after B.

The fact that the death of one twin was followed so soon by that of the other indicated that there was probably some circulatory connection between the two bodies, in spite of independence of pulse rate. To determine this, the arterial system of the normal twin, A, was injected through the abdominal aorta with a mixture of 40 per cent. glycerin, 40 per cent. alcohol (95 per cent.) and 20 per cent. phenol (carbolic acid), in which 175 gm. of barium sulphate per gallon was suspended. Stereoscopic roentgenograms were then taken of the specimen by Dr. Howard Curl, roentgenologist at the university clinic. These roentgenograms, one of which is reproduced in Figure 2, showed an apparently normal arterial system in A and no gross connection between the arterial systems of A and B.

In Figure 3 the arteries of Specimen A at the right may be seen to terminate fairly abruptly at the line of junction of the heads of the individuals.

Some of the injection mass in A, however, passed through the capillaries into the veins. This occurred most readily in the brain, where the injection mass, in part, passed over into the venous sinuses. There was a communication between these sinuses in A and B, and from the venous sinuses of B, the injection mass

passed to the right side of the heart and into the veins of the liver and into the pulmonary arteries (Fig. 4). For the first injection, a pressure of one-half pound was used. After the roentgenograms were taken, the arteries were injected again, under 4 pounds pressure, without any notable difference in results.

Subsequently, an injection under 4 pounds pressure, made into the arteries of B through the abdominal aorta, showed that the arterial system in this specimen was apparently normal. An injection into the inferior vena cava of A under 3 pounds pressure served to increase the amount of opaque material in the hepatic veins and pulmonary arteries of B, partly filled by the first injection, described above.

Following the completion of these injections, the scalp was cut opposite the line of junction between

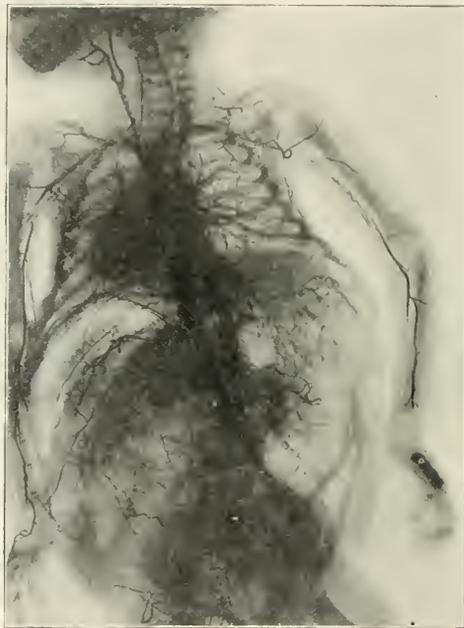


Fig. 2.—Apparently normal arterial system in A, as shown by a stereoscopic roentgenogram taken after injection into the arterial system of a mixture of alcohol, phenol and glycerin, in which barium sulphate was suspended.

the two heads. It was then seen that the bones of each skull, frontals, parietals and occipitals, met symmetrically but did not fuse. When the skull was opened, it was found that the two brains were enclosed within a common dura mater. At the line of junction between the two skulls, a circular venous sinus common to the two brains was enclosed in the dura mater, but the dura did not extend far inward between the two brains from this sinus. The falx cerebri of one brain was fused to that of the other, and at the line of junction there was a venous sinus corresponding to the superior longitudinal sinus, and common to the two brains. The brain of each child was covered with pia mater. Where the brains projected against one another the pia mater of one brain was in part fused to that of the other brain. The plane of meeting of the two brains was not a flat one, at least,

after the specimen had been hardened in formaldehyd solution. In places, one brain projected slightly above the level of a flat plane, in places the other brain.

#### REVIEW OF CASES REPORTED IN THE LITERATURE

The specimen here described belongs to a rare type of human monsters. I have been able to find described in the literature only four cases of parietal craniopagus in which the countenances of the two individuals faced in the same direction. These cases, in all of which the teratism was female, with the possible exception of that of von Baer, are cited by Ahlfeld:<sup>1</sup> 1. The first case, after Blainville, is from the catalogue of the Hunterian

1. Ahlfeld, F.: Die Missbildungen des Menschen, 1880.

Museum. The monster was born at Bruges, May 6, 1682, and was living at the time of observation. The twins showed independent individualities. One might sleep while the other cried. 2. The second case is after Otto, 1841. The fetuses were aged 5 months. The superficial blood vessels of the head were anastomosed. Only the smaller branches of the intracranial arteries appeared to anastomose. The brains were completely separated by pia mater. Other organs were normal. There was only one umbilical artery in each umbilical cord. 3. The third case is after von Baer. The monster lived one and one-half days. 4. The fourth case is after Badger.<sup>2</sup> The monster was stillborn, in Jamaica, in 1869. There was no necropsy.

A case in which the two heads faced nearly in the same direction is cited by Ahlfeld, after Naranowitsch.<sup>3</sup> The twins were females, born in St. Petersburg, in 1855. They had independent individualities, and lived six weeks, dying of an acute infection. The brains were enclosed in a common dura mater. There was a common falciiform process and superior longitudinal sinus.

There have been a number of parietal craniopagi described in which the dorsoventral diameter of one twin was an angle, usually of about 90 degrees, to that of the other, so that the nose of one was above the right or left ear of the other. Of four such cases, two of the monsters were females; one, a male, and in one the sex is doubtful: 1. The first is cited by Ahlfeld, after Sannie. The monster was born in Holland, in 1752. The nose of one twin was over

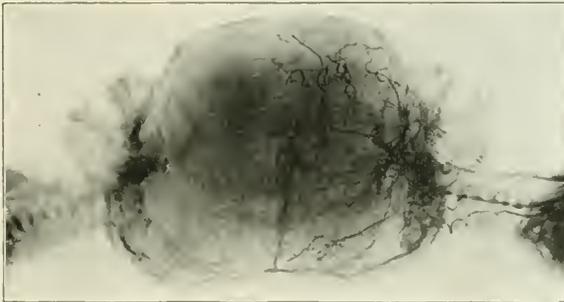


Fig. 3.—Passage, in part, of the injection mass, through the capillaries in A, over into the venous sinuses.

the right ear of the other. While the text calls the twins females, the illustrations appear to show male genitalia. 2. The second case is cited by Ahlfeld, after Uccelli. The twins were females, born at Florence, in 1823. The angle between the ventrodorsal axes was 45 degrees. Between the two brains was a common dura mater, in which there was an opening through which the brains might have communicated. 3. The third case is cited by Ahlfeld after Klein and Harless. The twins were males, born in Wurtemberg, in 1799. The nose of one child was over the left ear of the other. The monster lived sixty-four hours. The child first born lived a half hour longer than the other. The individualities were independent. The brains were fully separated by membranes. 4. A fourth case is cited by Baudouin,<sup>4</sup> and also by Bernbach.<sup>5</sup> The twins were females, born near Frankfort-on-the-Main, in December, 1911. They were alive at the time of description. The nose of one was over the right ear of the other. They had independent individualities. There was an apparent anastomosis of the superficial blood vessels.

There are also four cases described in which the countenance of one child faced opposite or nearly opposite to that of the other child. 1. One is cited by Ahlfeld, after Albrecht. The monster was born in 1733. The sex is in question. The heads were united by the right parietal bones. The monster lived at least several months. 2. Another case is cited by Ahlfeld, after Villeneuve. The twins were males, born in 1829 in Paris, at about the seventh month. The brains were fully separated by dura mater. There were two cords inserted into one placenta. 3. A third case is cited by Kissinger.<sup>6</sup> The twins were males, born, March 24, 1907. They died of icterus neonatorum, March 30, 1907. There was no dura between the brains, but they were separated by pia mater. The convolutions of the brains were irregular. 4. A fourth case is cited by Ziematzky.<sup>7</sup> The sex, in this instance, was apparently female.

A number of other cases of craniopagy have been reported in which the heads were united in the occipital or in the frontal regions, or irregularly, as by joining of the frontal to the parietal regions. Cases have also been reported in which a fairly well formed head was united to the head of an otherwise normal child. Of

these cases, the best known and most interesting is that of Home.<sup>8</sup> The child was born at Bengal, in May, 1783. The parasitic head, which terminated above in a conical protuberance in place of a neck, was fused below to the head of the host, a female, with an angle of 90 degrees between the dorsoventral diameters of the two heads. The child lived for two years,

and was then killed by a snake bite. The parasite had the power of moving its eyes, but could not converge them. The lid reflex was defective, and tears were constantly forming. The pupils showed a light reflex, but only on passing from the dark into strong light. The eyes of the parasite at times remained open, while those of the host were shut. The lower jaw was small, but mobile. The ears were defective. The parasite made sucking movements at six months. When seen at 2 years of age, secretion of saliva was active in the mouth of the parasite when the host ate. The parasite is said to have expressed grief when the host cried and satisfaction when the host smiled. If the parasite was pinched, however, the host showed little or no pain. After death, the heads were sent to England. It is stated that a study showed that the nutrition of the parasite must have taken place through the dural or pial vessels. It was not clear from the specimen as to whether or not the two brains were completely separated by membranes.

2. Badger, G.; *M. Rec.* 4: 166, 1869.

3. Naranowitsch; *Schmidt's Jahrbuch* 96: 296, 1856.

4. Baudouin, M.; *Semaine med.* 33: 553-555, 1913.

5. Bernbach; *Rev., Deutsche med. Wechschr.* 38: 1854, 1913.

6. Kissinger, P.; *Med. Klin.* 4: 1681, 1908.

7. Ziematzky; *Bull. de l'Acad. Imp. Sc., St. Petersburg, Series 5, S:* 207-218, 1908.

8. Home; *Phil. Tr. Roy. Soc. London* 80: 296-304, 1790.

## CONCLUSION

From this brief review of the literature, it is evident that:

The rare form of double monster known as parietal craniopagus usually is of the female sex.

The head of one individual as often faces laterally or backward or in the same direction as that of the other.

There is usually considerable independent individuality in the reactions of the twins.

The brains are nearly always, if not always, separated by pia mater, and sometimes also by dura mater.

The chief vascular connection appears to be in the venous sinuses of the skull, but at times other vessels anastomose.

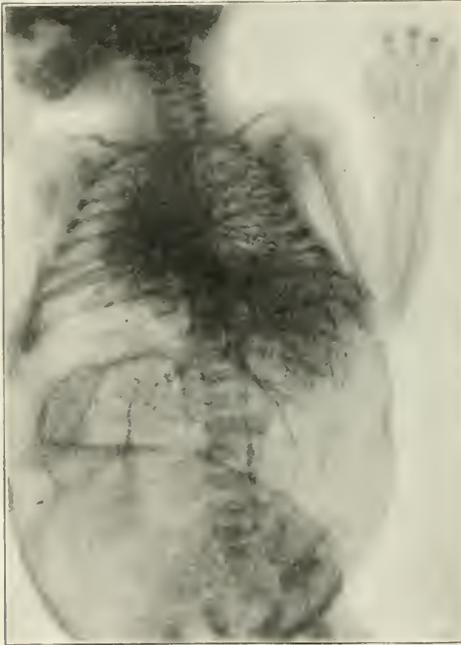


Fig. 4.—Roentgenogram of B, demonstrating a communication between the sinuses of A and B by disclosing passage of the injection mass to the right of the heart in B, and into the veins of the liver and into the pulmonary arteries.

It is probable that there must have been some arterial anastomosis in the case of the parasitic head of Ilome, described above.<sup>9</sup>

9. In addition to the references already given, the following will be found of interest:

Blank, L.: *Les anomalies chez l'homme et les mammifères*, 1893.  
Miller, N. T.: *Jahrb. f. Kinderh.* 35: 464-474, 1893.  
Schwalbe, E.: *Morphologie der Missbildungen des Menschen*, 1908.

**Health Center in Massachusetts.**—It is strongly urged by the state department of health that the following standard for the protection of the health of Massachusetts children be kept in mind by all those who are working for the betterment of our children: A health center, where special attention will be given to maternity and infant care, for each community or group of communities; public health nurses specially trained for the work, averaging 1,000 to 2,000 of population.—*The Commonwealth* 6:120 (May-June), 1919.

INTRAMEDULLARY BEEF-BONE SPLINTS  
IN FRACTURES OF LONG BONES\*

EDWIN W. RYERSON, M.D.

Major, M. C., U. S. Army  
CHICAGO

It is occasionally of great importance to be able to fasten securely certain fractures, particularly those of the femur and the humerus and those in which both bones of the forearm are broken. The inlay autogenous bone graft is admirable in many cases, but has the disadvantage of being technically difficult and of not affording a very high degree of immediate stability. The intramedullary dowel or peg, on the other hand, is easy of application and furnishes great strength. Clinical evidence has proved conclusively that such a graft does not interfere with the regeneration of bone tissue, and that fractures operated on by this method unite as readily and as rapidly as by any other method. It is probable that an autogenous peg, made from the patient's own tibia, is the ideal material to use, but circumstances may easily be imagined when it would be undesirable to remove a strip of the tibia. In fact, if a universally adaptable material could be developed, no operator would desire to use his patient's tibia, but up to the present time no claims can be made that there is anything quite as good as the autogenous graft. This is especially true in fractures of long standing, and in the case of elderly persons.

In fresh fractures and in reasonably young persons, however, heterogenous bone pegs may be used with safety and with the assurance that bone growth will not be inhibited. Beef-bone and ivory nails, screws, and intramedullary grafts have been used for many years by a small number of operators, but for some reason have not attained a wide degree of attention. Gallie<sup>1</sup> of Toronto has even gone so far as to use beef-bone grafts for the production of fixation of the vertebrae, after the method of Albee, but I do not feel like advising so radical a procedure as this. For fractures of long bones, however, such as those mentioned above, it is well for the operator to have at hand a ready and simple technic in case of need. It is not always easy to insert an intramedullary peg, especially if it is a long one. The proper alinement of many fractures, however, may depend on the length of the peg, so it is important to be able to insert a long peg with a minimum of difficulty. Hey Groves<sup>2</sup> describes a method which is ingenious, and which suggested the following technic:

## TECHNIC

Beef-bone splints of various sizes are cut from the long bones of slaughtered cattle. It is possible to procure from a butcher's shop pieces of the tibia or femur 5 or 6 inches long, and these are split with a saw into suitable sizes. They are then turned in a lathe or filed with a wood-worker's rasp or run through a dowel cutter so as to be round or nearly round. Those for use in the femur should be about 5 inches long by three-fourths inch wide, for adults, and several smaller sizes should be ready in case the medullary canal

\* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Gallie, W. E.: *Am. J. Orthop. Surg.* 14: 373 (June) 1918.  
2. Groves, E. W. H.: *On Modern Methods of Treating Fractures*, New York, William Wood & Co., 1916.

should be unusually small, or for use in children. Splints for the humerus should be about three-eighths inch wide, and those for the radius and ulna one-fourth to five-sixteenths, and three inches long. The ends of the splints are rounded off, and a hole is bored through near one end like the eye of a needle. These splints are then sterilized by fractional sterilization, and kept in containers. When it is desired to use them, they are boiled with the instruments.

The technic of their use is as follows:

The fracture is exposed with as little removal of periosteum as possible. The beef-bone splint is pushed into the longer fragment until it is completely within the bone, a long piece of heavy chromic catgut having been previously threaded into the eye of the splint. This double thread hangs out from the end of the bone. An eighth-inch drill is now used to bore a hole in the other fragment, distant from the fracture about half the length of the splint. The hole slants a little toward the fractured end. A piece of wire, bent at the middle to form a sort of probe, is now passed into the hole, and out through the fractured end of the bone. The two ends of the catgut cord are then threaded into the wire probe, and the wire is pulled back through the hole, bringing the catgut with it. The over-riding ends of the fracture are now reduced, either by a Murphy bone skid or by leverage or traction, the catgut cords being tightened at the same time so they will not become caught or pinched. When the bones are in position, the catgut cords are pulled on, and the splint will glide half way from one fragment into the other, so that it will be at exactly the proper point.

The catgut can be threaded into a needle, and sewed into the periosteum or muscle at its point of exit, which will secure the splint so that it will not slide out of position up or down the medullary canal.

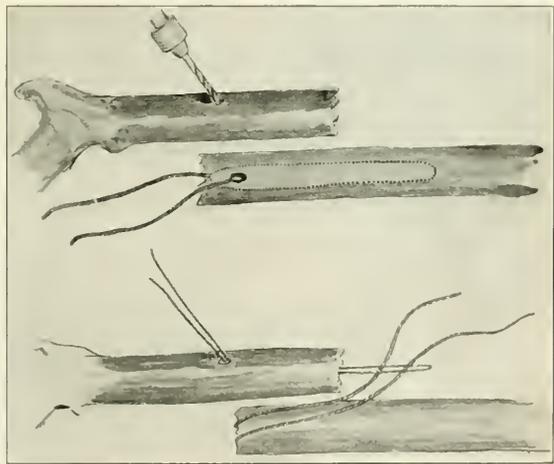
Such a splint cannot, of course, fit the canal very tightly, and it is not necessary that it should fit tightly, provided that it is prevented from sliding out of place, and this is accomplished by the catgut.

This method involves less exposure of the bone than any other mode of artificial splinting with which I am familiar, and in the four cases in which it has been used in human beings, the fixation obtained has been very satisfactory. If autogenous splints are desired, as in old or ununited fractures of long standing, it is easy to make the splints from the patient's own tibia.

#### ABSTRACT OF DISCUSSION

MR. ERNEST W. HEY GROVES, London, England: I have been extremely interested in Dr. Ryerson's paper, and in his description of a method that I described some years ago. As he said, the intramedullary peg has been used for a number of years. I should like to compliment and criticize this method in one or two particulars. In the first place, the method is excellent, provided that its exact limitations and its details of application be borne in mind. In regard to its limitations, there are two points that should limit it, if good success is to be obtained from its use. First, the fracture must be clean; and second, it must be approximately transverse—or, at least, not comminuted. The type of fracture that is especially liable to give rise to unsatisfactory results is the very common type of fracture in which there is a little third fragment. In such a case, if you do use the intramedullary peg, it is better to cut that little triangular fragment out and bring the two ends of the long fragments together. I think that the use of the intramedullary peg

should be restricted to transverse fractures without comminution. If you employ it for a comminuted fracture, you separate the triangular fragment, which forms an indolent piece of tissue that does not form union. Dr. Ryerson did not describe the principles of what I have described as the long and the short peg. It is quite clear that, however short the peg is, it prevents lateral movement of the fragments on one another. That is the main thing you want. The essential principle of the long peg, four or five inches long, extending a considerable distance, is that it prevents angulation. I believe, however, that it is far better to get the fixation and prevention of angulation by the use of an external splint; because mechanically an intramedullary peg is a great disadvantage. If you have to secure immobilization of the femur by such a long splint, it has to be so long and strong that it is inconvenient to employ. I have personally given up the use of the long peg altogether. I use quite short pegs. Fitting the peg accurately is much more important than Dr. Ryerson gave us to understand. With all due respect to him, I do not think that any method by which a peg is pulled by a thread from one fragment to another gives a sufficiently firmly fitted peg to be satisfactory. I had



Upper part of illustration: splint threaded with catgut and pushed into medullary canal. Lower part: wire loop passed through drill hole ready to pull catgut back through drill hole.

rather have a method by which a short peg is fitted in one fragment, when the two ends are separated; and then the other end is brought over, and the two are snapped together by muscular contraction. As to the comparison of dead and living bone, I think it has been amply proved that when a piece of bone is used as a nail or as a screw, provided that it be driven like a nail or a screw into an accurately fitting hole in the piece of living bone, there is absolutely no difference between the behavior of dead and living bone; and those who believe that autogenous bone acts differently under these conditions are under obligation to bring forward some evidence sustaining their position, which has not yet been done. I am not speaking of grafts as a whole. That is quite another matter. Within six weeks the cells from the living bone grow into the dead peg as far as into the living bone. Therefore, I am convinced that when it is a case of using a nail, the dead bone nail is as good as the living; and it is far easier to prepare and make fit than is a living, autogenous bone nail.

DR. HORACE R. ALLEN, Indianapolis: Dr. Ryerson has very ably presented another new modification of the bone peg. Down in Fort Oglethorpe I built a museum of modern war injuries and their surgical treatment. In this collection I made a model of the bone peg operation. Major Levinson

ct San Francisco told me of his peg operation. The model showed a rectangular opening in the side of the shaft of the bone of sufficient size to permit a bone peg to be worked along inside the canal of the broken bone past the line of fracture. He informed me that the piece of bone should not be removed but should be pushed into the canal and then used as a bone peg. In turn I suggested the use of transverse pegs at the ends of the long peg to prevent its slipping up or down. This modification of his suggestion has since proved very useful. Concerning the length of bone pegs it should be born in mind that a long peg not only equals a short peg in preventing the lateral shearing or displacing element but it also tends to hold the bones in alignment better than a short peg. If only one bone is broken in a leg or forearm there is always difficulty in bringing out the fractured ends. If a short peg will prevent the lateral shearing or lateral displacement the angularity can readily be taken care of by the wire loop method. It consists of a wire suture passed over the angular apex, its free end being attached to an outside straight edge.

DR. ROBERT M. E. SCHLAFFLER, Kansas City, Mo.: The hard ivory pegs last too long. In some cases in which we had a perfectly firm union of the fragments, there would be a little piece of dead bone or two on the edge; and, consequently, a persistent little sinus. In these cases, after a perfectly firm and satisfactory union, the sinus would not heal; and we had to cut down and get out this little piece of quite hard bone. It showed that the medullary splint was lasting too long. When you cut these medullary splints yourself, you are apt to take the hardest part of the beef bone, file it, and give it a fine edge; but when made commercially, they do not do as well as when they are cut a little rougher. The bone should also be left a little porous and not polished so nicely. They should not be prepared too far in advance. These somewhat rougher looking pegs of not too highly polished bone give as good results and last long enough, and when they are used secondary operations are almost unknown.

DR. JOSEPH E. ROOT, Hartford: With all due respect to Dr. Ryerson's very ingenious method, it is too complicated. Remember, all that we have to do, or the main thing that we are after is to secure perfect apposition. All that is necessary in the femur is to obtain perfect apposition, so as to get perfect length. I began by taking the ordinary long bone splints and endeavoring to get them into place by traction, but I have given that up. I have also used the autogenous grafts referred to by other men. All that is required is to hold the fragments together at the point of fracture, and it seems useless to have an intramedullary graft longer than that required for the purpose of perfect apposition. If the bone is in straight, it will stay so; then you can put on ordinary external splints or plaster. To hasten the time of the operation, instead of having a graft with a square end, I saw a semicircular or pointed graft about one and one-half inches long, driving it half way into the medullary space of one end and fitting it into the other. This affords all the necessary fixation at the point of the fracture. By relaxing all the muscles—they can be separated without cutting the fibers—the fragments can be brought out through the hole. Simply bend the limb sharply at the point of fracture, drive the peg into one end, fix the graft in the center of the other fragment and straighten the limb out, thereby locking both fragments. A long external splint, or preferably a plaster spica, will keep the bones in line and enable the patient to get out on crutches the second week. As far as operation time is concerned, it can be reduced greatly by an assistant who takes out the bone graft from the other leg, while you are exposing the bone fragments. In the majority of cases there is a triangular fragment which, of course, becomes loose and detached in some cases. At first, I hesitated about replacing it, but now I replace it. I have noticed in my roentgenograms that a superabundance of osteoblasts were thrown out with a resultant large and long callus.

DR. FRED S. WILLIAMS, Bridgeport: Speaking of snapping the bone back in place, wherever there is a square break, it will do that; and you do not need any peg to hold it.

DR. E. W. RYERSON, Chicago: I do not want to have Major Hey Groves assume that no external fixation was to be applied, because that is the most important feature in treating fractures—the external fixation, and not the internal. Of course, we use the best means at our command for this, using splints, apparatus and plaster of Paris for this purpose, as may seem desirable. Regarding the length of the peg, I would say that a long peg is not necessary in transverse fractures of the femur. That is self-evident. Where you do need it is in fracture of both bones of the forearm; and any man who has had much experience with these fractures will feel better satisfied, if he puts in a long peg, so that the bones will not become bent and approach each other to form a synostosis. We have had many cases in the army in which this has happened, and in which loss of pronation and supination has resulted. It is extremely valuable, in my opinion, to have a sufficiently long splint in these cases to maintain the alignment; because the line of the ulna and that of the radius are different, and in some cases you cannot maintain them by external fixation. I feel very comfortable when I have a long splint in the radius and in the ulna that will maintain them in alignment. Also, in comminuted fractures of the femur, it is well to have a long splint. I have not had the experience of having the small keystone-shaped fragments make trouble, but I undoubtedly shall some day; and I am glad to have had it brought to my attention. The peg method described by Dr. Allen was described by Dr. E. J. Høglund, a number of years ago. It was published in exactly the same form shown by Dr. Allen, except for the two little drill holes in the bone, which Dr. Allen has described. I think that it is difficult to put a peg in, slide it through, find the holes, and put the catgut through them. It may be easy, but it looks difficult to me. The method of putting wire around these fragments and pulling them in line I have not tried. I do not know that I should be willing to try it. The idea of having a short peg and getting the bones into line is possible; and the statement made that if the fragments come into line and are securely locked, they do not need other fixation, is sometimes true, but by no means always true. I have been led astray by this idea that when I had good splints applied, no displacement would occur; but it has happened to me on several occasions that after I had done this and thought that the fragments were locked, the roentgen ray showed displacement and overriding a week or two later. There is nothing that is fool proof in this world; and if you can make it as nearly fool proof as possible, it is a good thing. Major Groves' statement that this must be done in an aseptic field is true. It is bad to put a peg into a field where there is sepsis, but sometimes one can get away with it. It sometimes works, but not often. No fracture should be treated in this way when the field is septic, if any other means can be employed to attain the end desired.

**The Age of Insects.**—We call the present the "age of man." Zoologically, however, it is the age of insects. There is but one species of man—*Homo sapiens*. Over 300,000 insect species have been described, and it is estimated that there are no less than 10,000,000 in the world. Naturally, a sharp edge in the struggle for life falls between mankind and this vast hoard composed largely of foes which seek to devour his person, his cattle and his fields. Our yearly insect tax for damage to agriculture and forest products alone rises millions over the billion-dollar mark—\$1,018,000,000. Add to this destruction of household goods, clothing, carpets, furs and woollens and causation of disease, malaria and yellow fever, typhoid, hookworm, dysentery and the whole list of filth diseases, and the tax which insects lay on the people of this country must rise well toward the two-billion-dollar mark. . . . We howl when we pay this tax. . . . We lay the blame on the railroads and the trusts when we ought to take most of it to ourselves for not having sense enough to study insects, protect our birds and control our cats. . . . A pair of flies, beginning in April, might be progenitors, if all were to live, of 191,010,000,000,000,000 flies by August.—C. F. Hodge.

LUXATION OF A LUMBAR VERTEBRA  
AT BIRTH

REPORT OF A CASE

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In his *Cyclopedia of the Diseases of Children*, Keating records a statement of Scanzoni that he "had never met with luxations in the newly born, yet they occur, sometimes as congenital lesions, sometimes and not very seldom, at the hip as the result of powerful traction on the lower extremities." The dislocation of one vertebra on another is mentioned by medical writers as a possible cause of birth palsy, but a survey of the literature reveals no description nor report of a case. A brief account is recorded here of a case which may undoubtedly be considered a luxation of the first lumbar on the second lumbar vertebra, occurring at birth and causing a subsequent permanent deformity and permanent flaccid paralysis of both lower extremities below the knees.

## REPORT OF A CASE

*History.*—Delmar R., aged 4 years, 8 months, was admitted to the Children's Hospital School in November, 1918, with the complaint of curvature of the spine.

The mother, aged 28, was very small of stature. She had had four pregnancies, the patient being the only living child. The first child was carried seven months, when labor was induced because of typhoid fever contracted by the mother.

The child weighed 4 pounds and lived only a few hours. The second child is the patient, who was also carried seven months when spontaneous rupture of the membranes occurred without preceding pains. A version and breech delivery were performed under chloroform anesthesia, with considerable laceration of the mother and child. The skin was torn from both limbs of the boy, and the mother noticed a marked version of 14th feet. The estimated weight of the child was 2½ pounds, and the attending physician was greatly astonished to find him alive on his next visit. The child had been wrapped well in cotton by his grandmother, and for the first two weeks of life thrived on whiskey and crackers! At the end of that time he was able to take the breast, and thereafter made excellent progress. At one month the mother noticed a "sinking in" of his back, which became worse as the child advanced in growth. She also was aware that his legs were motionless, and apparently paralyzed below the hip.

The mother's third pregnancy terminated at seven months, the child dying after two weeks with jaundice.

During the fourth pregnancy, the mother's pelvis was found by examination and by measurement to be distinctly below

normal in size. Accordingly, in the mother's language, the child "was taken from her" at four months, and her "tubes were cut" to prevent further pregnancies.

The patient's history to the present is not of particular interest. There was apparently considerable retardation in development; his first tooth appeared at 18 months, and he did not talk until 30 months of age. Massage and passive exercises of the legs were begun early, and at 18 months this treatment had overcome the outward rotation. At 2 years the Achilles tendon on the right was divided to overcome contracture. The mother reported that the child had no control of micturition, and only slight control of defecation.

*Physical Examination.*—The patient was a well nourished, though underdeveloped, white child of 4 years and 8 months. The head exhibited a narrow, elongated configuration. The eyes and ears were normal. The mouth was negative except for hugely hypertrophied tonsils, and the nasal speech and obstructive breathing indicated the presence of excessive adenoid tissue. There were numerous palpable, enlarged glands in the suboccipital region and at the angle of the jaw. No other glandular enlargements were present.

The lungs were clear and the heart was normal. There was a markedly protuberant abdomen, but no abnormal masses were made out. The external genitalia were considerably retarded in development, and only the right testicle was descended.

An examination of the reflexes revealed the absence of the abdominal and cremasteric responses, an exaggeration of the knee kicks, with absence of both the ankle jerks and plantar responses on the two sides. The upper extremities were very well developed, exhibiting extraordinary power as compared to the legs.

On examining the lower extremities, one was struck by the fairly well developed thighs as compared to the helpless-looking, flail-like feet, and the puny, underdeveloped calf muscles. There was a bilateral foot drop, both feet lying in extreme equinus. A slight power of plantar flexion on the right was the only movement present below the knees. Extension at the knee was normal, but flexion was decidedly weak. The biceps femoris was absent on both sides, though the internal hamstrings were present.

At the hip all movements were present, the flexors more powerful than the extensors, resulting in a flexion deformity of 30 degrees, with extreme tightening of the fascia lata on both sides, a condition frequently met in neglected paralysis following anterior poliomyelitis.

In examining the trophathic and epicritic systems some difficulty was found, owing to the age of the child, in securing any accurate delimitation of alterations in sensitiveness. The skin above the knee was of normal appearance, but below it was blue and definitely cold to the touch. The recognition of light touch was unimpaired, but there was a definite diminution in the sensitiveness to pinpricks, although it was not entirely absent. This diminution was most marked on the lateral aspects of both lower legs over the fifth lumbar



Fig. 2.—Patient erect. This illustration, with Figure 1, shows the marked and irreducible deformity.



Fig. 1.—Patient in sitting posture.

nerve distribution. The sensations of heat and cold were well appreciated on the left, but on the right the sensibility was markedly impaired over the distribution of the fifth lumbar and first sacral nerves.

The back showed a remarkable lordosis (Figs. 1 and 2), with its apex at the level of the first and second lumbar vertebrae. There was present also a definite scoliosis, with its convexity to the right in the lumbar region, and with a rotation of the vertebral bodies to the right in the lumbar region and to the left in the dorsal region. In spite of the absence of superficial or deep-seated pain, the back was held fairly rigidly, and all movements were resisted. The scoliosis in the lumbar region could be corrected with force, but the lordosis in the sitting posture resisted complete reduction, and was not entirely corrected by flexing the thighs strongly against the abdomen.

By supporting himself on a chair, the child was able to stand, but on a very broad base. In the erect position, the lordosis was greatly pronounced, and had the appearance of a right-angled back. With help, a certain amount of progression was possible.

A roentgenogram, taken, to be sure, four years after the injury, showed anteroposteriorly a scoliosis of medium degree. Laterally, one might distinguish a distinct break in the normally regular alinement of the bodies of the vertebrae, occurring between the first and second lumbar vertebrae, exactly opposite the apex of the lordosis. By accentuating the contrasts on the roentgenogram plate this break in alinement was well shown (Fig. 3). There was no spina bifida.

*Treatment.*—Souttar's operation to correct the extreme flexion at the hip was performed, and the child was provided with a combined spinal and long paralytic brace designed by Dr. George E. Bennett. The brace should, with practice, enable the child to get about with considerable ease.

#### COMMENT

Considering the difficult delivery at birth, the very early recognition of the deformity of the back, the persistence of that deformity, the presence of a bilateral paralysis, and the fairly definite roentgenographic findings, the diagnosis of dislocation of the first lumbar on the second lumbar vertebra is almost inevitable. The elasticity of structures at birth would lead one to consider this a pure dislocation without fracture but at this late date there is no evidence for or against an accompanying fracture. Because of the close interlocking of the processes and the strength of the ligaments, the possibility of the occurrence of pure dislocation of the lumbar vertebrae was long considered doubtful. The report of two authentic cases by Blasius<sup>1</sup> has, however, dispelled this doubt. Brewer<sup>2</sup>

and other authors state that pure dislocations of the spine are rare, and, of the few occurring, five sixths are in the cervical region.

As to the cause, extreme flexion or hyperextension are cited by authors as adequate methods for producing such a dislocation. A difficult breech delivery through a definitely undersized birth canal would no doubt provoke either or both of these insults.

The symptoms remaining at the present time do not correspond exactly to a lesion following dislocation of the first on the second lumbar spine. The residual symptoms point to permanent injury to the fourth and fifth lumbar and first sacral nerves, although some fibers even of these nerves seem to have escaped or recovered from injury. In fracture dislocations of the lumbar region several points of anatomy must be borne

in mind: (a) The spinal cord ends opposite the lower border of the first lumbar vertebra; (b) the five lumbar nerves arise from the cord opposite the eleventh and twelfth dorsal spines, and the five sacral nerves arise from the cord opposite the first lumbar spine; (c) the lumbar and spinal nerves emerge from the vertebral canal considerably below their origin, and find their exit through the intervertebral foramina just below the corresponding vertebrae. Accordingly, an injury between the first and second lumbar vertebra is apt to leave the cord itself uninjured, but may involve (1) the cauda equina in whole or in part, or (2) may damage the nerve as it makes its exit from the vertebral canal through the intervertebral foramen. In either case, a partial or complete regeneration of the nerve roots might reasonably be expected, and that is probably what has occurred in this instance.

A survey of the literature reveals no mention of a similar birth injury in which the victim survived. No doubt, they have occasionally occurred with fatal consequences, and quite naturally have not been recorded. Kleinberg<sup>3</sup> reports a somewhat similar case which he classifies as "congenital anterior curvature of the spine." The case was also a difficult breech delivery with considerable injury to both thighs, the left femur being fractured, and for ten days following birth the child did not move either lower limb. The most prominent feature was the marked lordosis, but a lateral roentgenogram revealed no luxation. Kleinberg says, "As the condition was observed in the first few weeks

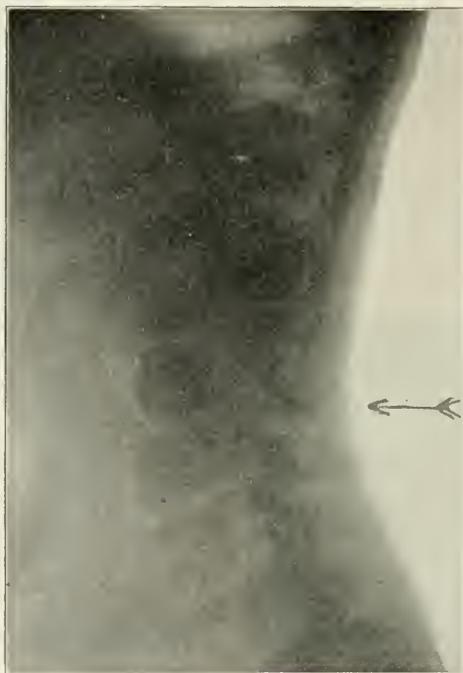


Fig. 3.—Definite break in regular alinement of vertebral bodies, four years and eight months after birth.

1. Blasius: *Vierteljahrsschrift für praktische Heilkunde*, **102**, 103, 1869.

2. Brewer, G. E.: *Textbook of Surgery*, Philadelphia, Lea & Febiger, 1903.

3. Kleinberg, Samuel: *Congenital Anterior Curvature of the Spine*, *J. A. M. A.* **66**:736 (March 4) 1916.

of life, and then very resistant, we are warranted in considering this a genuine congenital deformity." Is it possible that this might also have been a fracture dislocation, though partially reduced, as the result of a violent manipulation at birth?

Concerning the scoliosis, it would seem that this, too, must be attributed to the injury. There is no roentgenographic evidence of the presence of any of the anomalous conditions mentioned by Bohm<sup>4</sup> following developmental error occurring in embryonic life, nor is there any evidence of the wedge-shaped supernumerary vertebrae reported by Fitzwilliams<sup>5</sup> and by Norbury.<sup>6</sup> Apparently one must add injury at birth to the causes of so-called congenital scoliosis.<sup>7</sup>

### THE DELETERIOUS EFFECT OF THE ALKALIZATION OF INFANTS' FOOD\*

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AND

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At the present time little regard is paid to the reaction of the milk preparations that are fed to babies. It is considered quite immaterial, for example, whether

being not specifically mentioned. This is true of American, English, French and German textbooks. This neglect is all the more remarkable as for some years it has been appreciated that the salts play an important rôle in infant feeding; indeed, in every effort to construct an artificial food approximating mother's milk, the salt factor has been given particular consideration.

We wish to point out that it is by no means immaterial whether we render the baby's milk more or less alkaline. What effect an addition of alkali has on proteins and other caloric food factors it is impossible, in the present state of our knowledge, even to surmise; but that this alteration has a decided effect on the vitamins is susceptible to proof. In a previous article we have shown<sup>4</sup> that orange juice, the prototype of antiscorbutics, and the one most relied on in infant feeding is essentially damaged within twenty-four hours by being rendered twentieth normal alkaline to phenolphthalein. In fact, orange juice of this faintly alkaline reaction was found to have lost its power to protect guinea-pigs against scurvy. It is evident, therefore, that the antiscorbutic vitamin is peculiarly sensitive to alkalization. We may add that this vitamin seems to be more sensitive to various physical and chemical influences than either the water-soluble or the fat-soluble vitamin. There is at present some difference of opinion as to the vulnerability of the

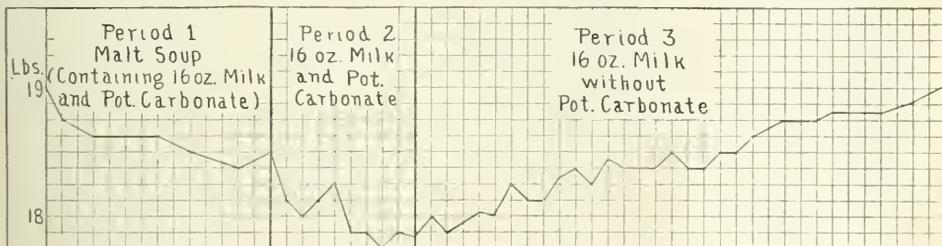


Chart 1—Human scurvy: weight curve of a baby that developed scurvy on a diet of malt soup (Period 1). During Period 2 the flour and malt soup were omitted from the diet, the same amount of milk and potassium carbonate being continued. The disorder did not abate. The only change in Period 3 was a discontinuation of the potassium carbonate. This brought about a gain in weight and cure, showing the destructive effect of the alkali on the vitamin.

sodium bicarbonate is added to a milk formula, or whether a proprietary food is more or less alkaline in reaction. To such an extent is this the case that in stating the composition of proprietary foods, the textbooks on children's diseases content themselves with a statement of the protein, fat and carbohydrate content of the various popular preparations, giving no consideration whatsoever to their reaction. In such tables the salts are expressed in terms of percentages of total ash, the nature of the inorganic constituents

water-soluble vitamin to the application of heat in an alkaline medium. There is no question, however, that this reaction renders it more susceptible to destruction.<sup>8</sup>

This subject was forced on our attention by the experience that milk formulas containing malt soup have an exceptional tendency to bring about scurvy in infants, unless an antiscorbutic foodstuff, such as orange juice or canned tomato, is added to the dietary. As has been brought out elsewhere, this undesirable effect might be the result of one or more of the following conditions: (1) that the formulas contain an amount of milk insufficient to protect fully; (2) that the preparation is boiled as well as frequently prepared from pasteurized milk; (3) that there is a period of aging between the initial pasteurization and the boil

4 Bohm, Boston M. & S. J., *Nax* 22, 1906, and Jan. 25, 1906.  
 5 Fitzwilliams, D. C. L., *Proc. Roy. Soc. M. L.* 2: 21, Sect. Studies on Dis. Child, 1408, 1909.  
 6 Norbury, *Proc. Roy. Soc. Med.* 71, 1913.  
 7 In addition to the references already given, the following will be found of interest:  
 Riblon, J.: Report of Two Cases of Scurvis Accompanied by Paresis Paralysis of the Lower Limbs, *J. A. M. A.* 67: 803 (Sept. 9) 1916.  
 Hildeson, F. G.: Congenital Deformities of the Vertebrae and Ribs, *Am. J. Orthop. Surg.* 14: 34 (Jan.) 1916.  
 Dwight and Rotch: The Spine in Infancy, *Arch. Pediat.* 8: 161.  
 Le, E. Breton, P.: Congenital Lateral Curvature of the Spine, *Pediatrics* 27: 2, 1915.  
 \* From the Bureau of Laboratories, Department of Health.  
 \* Read before the Section on Diseases of Children at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1 Hess, A. F., and Unger, L. J.: Factors Affecting the Ascorbic Value of Foods, *Am. J. Dis. Child* 17: 241-50 (April) 1919.  
 2 McCollum, E. V., and Simmons, N. *J. Biol. Chem.* 33: 55, 1918.  
 3 Malt soup is prepared by dissolving the alkaline malt soup extract in water, and mixing wheat flour with milk. These two mixtures are then boiled together for about three minutes. According to some directions, 11 ounces of milk are used; according to the formula followed by us, 16 ounces were employed.

ing of the milk and the flour; (4) that an alkali is contained in the malt soup, and finally (5) that a considerable amount of carbohydrates in the form of flour and of malt sugar is added to the food. It seemed important, when an opportunity presented itself, to analyze this question, to determine which of these factors is at fault.

Chart 1 shows the weight curve of a baby that was receiving a diet of malt soup and cereal, with the addition of three teaspoonfuls of cod liver oil a day. It developed scurvy. The symptoms were those commonly associated with this disorder; namely, pallor, hemorrhages of the gums, tenderness of the femur, irritability, and lack of gain in weight. In view of this occurrence, an attempt was made to cure the scorbutic condition by eliminating the carbohydrate from the diet, by omitting the flour and malt sugar from the formula. In order to accomplish this, a pint of milk was prepared with the addition of sucrose and the same amount of potassium carbonate as is contained in the malt soup formula.<sup>4</sup> This milk, which was fresh and of excellent quality, and contained no malt or flour, was boiled for five minutes. There are many who believe that the carbohydrates, especially the starches, are of great importance in bringing about the so-called deficiency diseases, because they require a considerable amount of vitamin for their metabolism, and lead therefore to such disorders as scurvy or beriberi, if present in relatively high amount. It was found, however, that the harmful influence of the malt soup preparation could not be attributed to its high carbohydrate content, as the exclusion of the flour and the malt did not bring about an alleviation of the symptoms, or, as will be seen (Chart 1), lead to a gain in weight. As this form of treatment proved unsuccessful, it was determined to discontinue the addition of the potassium carbonate, so that the baby received a pint of milk that was boiled for five minutes without the addition of alkali. The sucrose, the cereal and the cod liver oil were continued. The result was striking. Not only did the infant gain in weight, as will be seen from the chart, but there was a marked change in its general condition and a disappearance of the various signs and symptoms enumerated above. It seems, therefore, quite evident that the alkalization of this food, which contains a limited amount of antiscorbutic material—merely that which is contained in a pint of boiled milk—was sufficient to render its antiscorbutic quota insufficient.

As the result of this experience, an experiment on guinea-pigs was instituted. It had been shown in previous experiments that guinea-pigs weighing about

200 gm. very rarely develop scurvy when given daily 80 c.c. per capita of fresh milk. Accordingly the same percentage of potassium carbonate as is contained in malt soup was added to this amount of milk, and its effect was noted on the weight and on the clinical condition of the guinea-pigs. Ten c.c. of an 11 per cent. solution of the alkali were mixed with raw certified milk, which was then boiled for a period of five minutes. It will be seen from Chart 2 that scurvy developed in all the pigs. That this disorder was not attributable to the alkali itself is shown by the prompt response and alleviation of symptoms, when 3 c.c. of orange juice were added to the dietary, notwithstanding the fact that the potassium carbonate was still continued (Chart 2).

These results have an application far wider than their relation merely to malt soup. Investigation brought out the fact that an alkaline potassium salt is added to the greater number of our proprietary foods for infants. This is done for one of two reasons: In the first place, because it renders the food less subject to acid fermentation,

and second, because the addition of potassium counterbalances the relative poverty of this salt in cow's milk. In the majority of instances, potassium bicarbonate is added in the ratio of from 2 to 2.5 per cent., instead of the carbonate, as in malt soup in a much lower percentage. In view of the clinical and experimental results that we report, the danger of this practice is evident. In many instances it is unnecessary, as a salt such as potassium citrate probably could be substituted to supply the potassium deficiency. In cases, however, in which the object is to change the acid reaction, such a substitution would, of course, not be practicable.

#### CONCLUSIONS

With the realization that foods contain not only caloric factors but also accessory food factors or vitamins, it is incumbent on us to revise our standards and to reconsider their entire preparation from this new point of view. It is clear that the antiscorbutic vitamin in milk is rapidly destroyed by alkalization associated with heating, and that by the thoughtless addition of alkaline proprietary foods we are robbing the infant of much of this essential foodstuff.<sup>5</sup> The question may be raised in this connection whether, in a similar way, we are heedlessly destroying the potency of other vitamins. It has been shown, for example, that cod liver oil is rich in at least one vitamin, the fat-soluble factor, and that it is almost a specific in

5. In a discussion published soon after infantile scurvy had come to be recognized, it was asserted by a member of the Berlin Medical Society that "Riche's albumose milk" induced scurvy. This was a popular preparation to which 0.4 gm. of potassium carbonate was added in order to change the albumin to albumose. No further attention ever was paid to this observation (Meyer, E.: *Berl. klin. Wochenschr.* 22: 85, 1896).

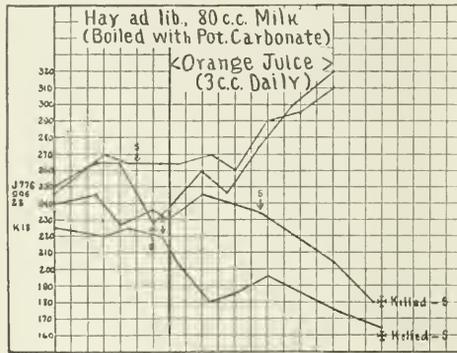


Chart 2.—Guinea-pig scurvy: All four guinea-pigs developed scurvy on a daily diet of hay and 80 c.c. of milk to which had been added the same percentage of potassium carbonate contained in the ordinary malt soup preparation and which had been boiled for five minutes. After the disorder had developed, two of the pigs (776 and 906) were given orange juice. They recovered and gained rapidly in weight in spite of the continuation of the alkali in their diet, thus proving that we were dealing with scurvy. The other two (28 and K 13) were not given orange juice, and lost weight and showed marked signs of scurvy during life and at necropsy.

4. This is stated as 0.44 gm., or 6.79 grains, to the fluidounce, and is measured by adding 10 c.c. of an 11 per cent. solution of potassium carbonate for each liter of prepared malt soup.

the treatment of rickets. We have found that this oil, originally acid owing to its considerable content of organic acids, is alkaline in many of the proprietary emulsions commonly employed. It is quite possible that this alteration in reaction is not immaterial in relation to the efficacy of this valuable therapeutic agent.

16 West Eighty-Sixth Street.

#### ABSTRACT OF DISCUSSION

DR. HARRY LOWENBURG, Philadelphia: I should like to ask the doctor if he said that the addition of orange juice while he was administering the carbonate of potassium prevented the development of scurvy? Dr. Hess's work is very interesting and very enlightening, if it can be verified. However, it appears quite rash, on the face of it, to draw as sweeping a conclusion as he does from the study of only one sick baby and from the protocols of only four experimental guinea-pigs, in the light of vast clinical experience with many feeding cases wherein the alkalization of milk has produced no harmful effects. I have yet to see the development of scurvy in these cases. I feed many infants on malt soup extract; I never feed orange juice, although I commence the administration of comminuted green vegetables and stewed apples and prunes early. It is very difficult, indeed, to consent to have one's convictions swept aside by the meager data offered by this single case and these four experiments. I should like to see this work carried out further and confirmed. Until then I must continue to add alkali to milk mixtures where I believe it to be indicated. This is said not in the light of destructive criticism. The essayist has not provided us with sufficient data. Hence hasty conclusions may not be drawn nor accepted. It is illegal to conclude from the doctor's statements that those who are using malt soup extract and alkalis should have an abundance of scurvy in their practice. This has not been my experience.

DR. JULIUS H. HESS, Chicago: When Keller first gave us the formula for making malt soup, he warned the profession against feeding this mixture for too long a period, because of the danger of developing scurvy. I have had the misfortune of placing infants on Keller's malt soup, and notwithstanding instructions the parents have remained away for from two to four months and returned with the infants showing evidences of scurvy. This has occurred three or four times. One proprietary infant's food on the market is recommended to be fed in amounts as high as three to four ounces daily. This food contains 2 per cent. of potassium bicarbonate which would result in the feeding of from 30 to 45 grains of the alkali to the quart, while the potassium bicarbonate in Keller's malt soup equals about 16 grains to the quart. A great many babies come under my observation who have been on this food for a considerable period of time, and I must confess that I have never seen a case of scurvy develop on the diet, even though it is a very one-sided one. These facts lead one to wonder why we do not see more scurvy in babies fed on the infants' foods containing potassium bicarbonate.

DR. C. G. KERLEY, New York: I have been feeding alkalis of different kind for many years and I have had only an occasional case of scurvy, and these cases are nearly always associated with the diet of some cooked milk product and not with fresh milk. Children given fresh milk do not have scurvy whether alkalis are added or not. There must be something else, therefore, than the presence of alkalis that interferes with the vitamin content of the food. Malt soup mixtures are more apt to produce scurvy than any other diet. I never use this method of feeding without prescribing orange juice at the same time.

DR. J. P. CROZER GRIFFITH, Philadelphia: Let me call your attention for a moment to what is in a way ancient history, but no less important and true now, since conditions have not changed. I refer to the published investigations of the American Pediatric Society some years ago, as to the effect of the feeding of different kinds of food in the

production of infantile scurvy. In that publication you will find that infantile scurvy followed oftener on the use of many of the proprietary infant foods of various sorts than after any other regimen. In fact, one manufacturing company was so disturbed about the matter that they made a claim that the scurvy was due to the fact that the milk mixed with the food had been boiled. It is undoubtedly true that the boiling of milk is followed by the development of scurvy in some cases, but not nearly so often as in the use of the commercial foods. I am not referring in any way to malt soup, which is not advertised to the laity but to the profession. Dr. Hess's paper is a very valuable and interesting one. He seems to have proved in the case reported that rendering the food alkaline produced scurvy. I do not think, however, that this is convincing proof that alkalis used as a routine measure are to be feared on this account. In the American Pediatric Society's report there were mentioned ten cases of scurvy occurring in infants fed solely on breast milk. That would not prove that breast milk is to be avoided. I have fed hundreds of infants with malt soup preparations, since it is a very favorite food with me, but I have yet to see a case of scurvy following its use. It should be said, too, that in many cases the pasteurizing or sterilizing of milk serves such a very useful purpose and tends to prevent diseases so much more serious and common than scurvy, that it would be foolish to avoid its use, especially since any tendency which it may have to produce this disease can readily be obviated by the administration of orange juice. Indeed, the fact that scurvy is uncommon, considering the vast number of babies artificially fed on boiled milk, pasteurized milk, alkaline foods, and many other foods, is an indication that we do not yet know all there is to know about the etiology of this disease.

DR. ST. GEORGE T. GRINNAN, Richmond, Va.: Some of you have said that scurvy is rare. It certainly is not in Richmond. I was in New York about two years ago and heard Dr. Hess read a paper and Dr. Kerley discuss it. I went back and looked up the subject of scurvy more than I had before, and I have seen more cases in the last two years than I had in the ten years before. I found that there was a very large sale there of a certain proprietary food, and I found many cases of scurvy in the babies fed with this food.

DR. JOSEPH GROVER, Boston: I feel sure that scurvy is not a rare disease. In the Children's Hospital in Boston we see one case every two, three or four days. I think boiled or pasteurized milk causes it a great deal, but the dry foods cause it more frequently still. The use of certain dry proprietary foods over a period of two or three months is fairly sure to bring on the first symptoms of scurvy.

DR. LEWIS HILL, Boston: I have used the food to which Dr. Grinnan referred a great deal and I have never seen a case of scurvy develop while it was being fed. This food is only carbohydrate with a little vegetable protein and salts. It should not be called a food. It is malt sugar and should be used as malt sugar, to which is added a reasonable amount of milk, orange juice or cereal, or some other food. I believe it is a good preparation and no more likely to produce scurvy than any other sugar is.

DR. EFAA V. DAVIS, Chicago: I am rising to voice my protest against condemning a malt sugar which happens to be called a food. It is malt sugar made from wheat. We have been discussing corn syrup; dextrimalose is now made from corn. It was formerly made from potatoes. I think we may as well face what is being placed on the market and understand it first hand, rather than condemn a thing on theory. I have tried the "malt food" in the modifying of raw milk for the past two years in my nursery, where I have from ten to fifteen artificially fed infants, without the development of scurvy. I know there is a certain percentage of potassium carbonate in the food. About six months ago, my attention was called to the fact that sodium bicarbonate added in the usual housewife's method of cooking beans destroyed the vitamins. From that hint I began to drop it in making bean soup, which I give my babies in their second year as well as the early use of antiscorbatic elements, such

as vegetables, fruit juices, etc., from the seventh or eighth month. To go back ten years is a little ancient. We made other mistakes than which affected our results, such as feeding every two hours, for example. I think the alkalinity of infants' food is still an open question.

DR. EMANUEL C. FLEISCHNER, San Francisco: It seems to me that we are losing sight of what Dr. Hess wishes to bring before us. I do not think it is his purpose to pass on the entire etiology of scurvy. I have seen a large number of his experimental animals, and I think no one can doubt he has demonstrated thoroughly, that with a certain fixed amount of raw cow's milk he is able to determine in an exact manner that he can keep guinea-pigs free from scurvy. Giving animals the same amount of cow's milk which under ordinary circumstances keeps them free from the condition, and by alkalinizing this food to a certain extent, he has shown that the antiscorbutic vitamin is destroyed. In other words, our attention must be directed toward the fact that a high percentage of alkali in artificial foods, if we are giving a quantity of milk which is just sufficient to prevent scurvy, can destroy a sufficient amount of the vitamin in that milk to produce the disease although it may be in a very mild state. It does not seem to me that in his paper he has tried to convey to us that all cases of scurvy are due to highly alkaline foods, and I am sure that he has not tried to prove that proprietary foods are always responsible for the disease. All of us know that we can use proprietary foods of practically all types, even with high alkaline content, if we are giving these children a large amount of raw milk. In other words, they are getting enough vitamin to prevent the development of scorbutus, notwithstanding that the alkali destroys a portion of the antiscorbutic element. It seems to me that Dr. Hess has developed a very interesting and scientific fact in this connection.

DR. F. C. NEFF, Kansas City, Mo.: I should like to ask Dr. Hess one question. Within the past year a sugar to which potassium carbonate was added was marketed with the definite statement that it was to be used instead of other preparations for the relief of constipation. I want to ask what the findings are with regard to that. I have seen no effect whatever on constipation by the addition of potassium carbonate.

DR. A. F. HESS, New York: I do not see how we can do that, especially with the malt soup and some of the other things. Dr. Lowenburg said that he had never seen scurvy develop on malt soup. I think Dr. Kerley has answered that. If I put a hundred children on malt soup without any antiscorbutic I will get almost 100 cases of scurvy. By scurvy I do not mean the active cases that sometimes are waited for, with the bulging red gums and the hemorrhages. I mean the mild cases with pallor, loss of weight, tenderness, irritability, and a few petechiae. Those cases will develop more frequently on malt soup than on any other food. Malt soup, according to the way it is made in the final preparation, contains 0.1 per cent. potassium carbonate. It is quite different from the others, and that explains why malt soup is so prone to produce scurvy. As regards the animal experiments I described only four, but I could have described many more. I do not know of any essential particular in which animal scurvy differs from human scurvy. I have never found any. An antiscorbutic for the guinea-pig is antiscorbutic for humans. I have tested many hundreds of guinea-pigs in the last few years, and found that what will produce scurvy in the guinea-pig leads to it in the baby, so that we can accept, as far as I know, animal scurvy for interpretations of human scurvy. As to the dry food, I do not think that it is the drying of these proprietary foods that leads to scurvy, because, as I have recently shown, dry milk, subject to a temperature of 240 F., for two or three seconds still retain its antiscorbutic property and when made up to the equivalent of fresh milk is able to protect guinea-pigs against scurvy.

**Trained Nurse.**—A trained nurse does not always enjoy being a sanitary policeman, but some one must do it if the treatment is to be carried out.—*Bulletin*, State Board of Health of Rhode Island, August, 1919.

## IMPROVISED ORTHOPEDIC EXERCISING APPARATUS\*

RUDOLPH S. REICH, M.D. (CLEVELAND)

Captain, M. C., U. S. Army

FORT SHERIDAN, ILL.

During June, 1918, at Camp Cody, New Mexico, the camp orthopedic staff was confronted with the necessity of carrying out, on a large scale, many specialized corrective gymnastic exercises for soldiers and recruits among whom were found all of the whole gamut of orthopedic defects: weak feet; contractures of the finger, wrist and larger joints; limitation of motion of various joints incident to recent fractures, etc. For this work, the medical department provided the orthopedic staff absolutely nothing in the way of ready-made orthopedic apparatus, such as Zander



Fig. 1.—Hurdle for exercising ankle and knee.

machines, and at that time the principles of vocational reconstruction had not made such appliances available. The schedule of gymnastics included specialized calisthenic exercise without apparatus, supplemented by a general daily routine suited to the individual needs of the men. Although excellent results were secured, it seemed to me that the end results might be augmented by the employment of apparatus designed to assist in corrective and developmental work.

### APPARATUS FOR THE LOWER EXTREMITY

Realizing the need of apparatus to facilitate flexion and extension of the foot and knee, we devised wooden steps, having a rise of 6 inches and a tread of the same dimension, arranged in such a way

that the patient walked up four and down the same number. Wooden hurdles, 8 inches high, were made (Fig. 1). These were placed at variable distances, and each man stepped over them in such a way that his foot passed directly over the hurdle, necessitating flexion and extension at the knee, and extension of the foot.

The success of this simple device, which was no doubt partly due to its novelty, encouraged us in attempting other appliances. We tried to procure an old sewing machine to stimulate dorsal and plantar flexion by pedaling, but were unable to do so, and decided to build its equivalent. Through the courtesy of the reclamation and conservation officer, we obtained a fly-wheel of a washing machine. Short pieces

\* Read before the Section on Orthopedic Surgery at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

of various sizes of lumber were obtained through the courtesy of the construction quartermaster. A frame, 36 inches high and 24 inches square (Fig. 2), was constructed out of two-by-fours. An offset was attached to the right side, and in the inside of the frame, to which was attached the fly-wheel, 24 inches in diameter. The foot-pedal, which was the chief mechanical feature, made of 2 by 10 lumber, rested on an elevation from the base, which was similar to that of a sewing machine, and it was joined to the fly-wheel by means of a wooden connection rod. The patient's seat was built to the frame, and his feet were strapped to the pedal. The efforts to force the fly-wheel gave the desired dorsal and plantar flexion with resistance, which was graduated by an adjustable brake.

Another machine, similar to the one described, was constructed, in which the pedal was hinged to the frame in such a way as to bring the fulcrum at the far end of the pedal, and in this way a wider range of dorsal and plantar flexion was obtained.

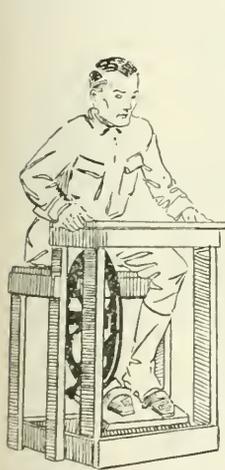


Fig. 2.—Pedaling machine for exercising ankle and knee.

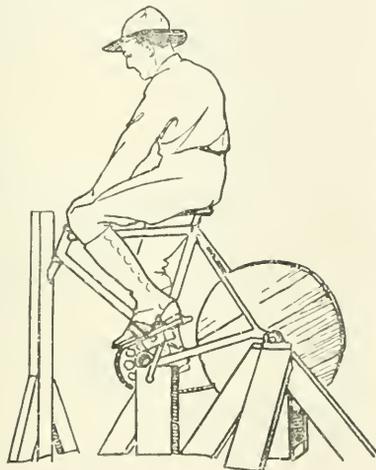


Fig. 3.—Bicycle for exercising ankle and knee.



Fig. 4.—Foot exercising board.

The Red Cross obtained for us an old bicycle, which included the frame, saddle, sprocket, chain, and rear axle and gear only. This was fixed upright on the floor by means of a wooden frame (Fig. 3), and a rear wheel was constructed entirely of wood. Pedals, which were 10 inches long, also had to be improvised of wood. The feet were strapped to them, and, by putting the pedals into motion, flexion and extension of the hips and knees, as well as dorsal and plantar flexion, were obtained. Resistance was graduated as in the other apparatus, by means of a brake.

For patients afflicted with weak feet, with abduction and pronation, we used boards (Fig. 4) on which men received systematic exercises in their bare feet. Short strips of 2 by 10 lumber, 12 inches long, were cut down into double inclined planes of 120 degrees, with the apex upward. The distal end of the board was cut to a point forming an angle of 120 degrees, and this point was notched out into a semicircle. In this way, dorsal and plantar flexion were easily obtained from the metatarsophalangeal joint, when the man stood on the board with his feet parallel and 3 inches

apart, and his toes over the distal end of the board, while the incline placed the feet in adduction and supination.

For the same purpose, a long runway was constructed in the shape of a double inclined plane, with the apex pointing upward at an angle of 120 degrees, and the men were instructed to walk along this incline with feet parallel, or toeing slightly inward.

APPARATUS FOR THE UPPER EXTREMITY

In considering apparatus for the upper extremity, we first attempted to construct exercisers. The available materials consisted of discarded pulleys, rope and old shell casings filled with sand for weights. Handles were made from broom sticks and No. 6 galvanized iron wire. Three types were constructed: The first, in which the pull was from above downward and required only two pulleys, firmly attached to the ceiling, over which the rope was suspended with the weights and handles on either side. The second, in

which the pull was on a horizontal plane and required four pulleys. The first two were attached to the wall, 4 feet from the floor, and 2 feet apart. The second two were suspended from the wall 3 feet above and 6 inches to the outside of the vertical plane of the lower pair. The rope extended from the handles through the lower set of pulleys, then through the upper set, and to the shell casings. In the third type, the pull was from below upward, and also required four pulleys. The first two pulleys were attached to the floor at the junction of the wall and 3 feet apart, and the second two were attached to the wall 6 feet above and 6 inches to the outside of the vertical plane of the lower ones. From the handles, the rope extended first through the lower set of pulleys, then through the upper set, and finally to the weights.

For exercising the deltoid muscle and for producing circumduction of the shoulder joint, we employed a large fly-wheel, 30 inches in diameter, salvaged from a washing machine (Fig. 5). This wheel revolved on an axle which was fixed at one end to a metal bracket, a part of the original washing machine. It was mounted

on a wooden offset 5 feet from the floor, and in such a way that the axle projected horizontally at right angles to the wall. A wooden handle was inserted into the rim, and a wooden brake was applied against the rim, the pressure being regulated to suit the needs of the patients.

An apparatus for pronation and supination exercise of the forearm was thus constructed: A piece of two-by-four about 20 inches long was trimmed down at each end to leave two cylindrical projections like the handles of a rolling-pin (Fig. 6). It was mounted on a pair of wooden brackets fastened to the wall, 30 inches from the floor, in a position similar to that for a roller towel rack, and was then perforated in the center at right angles to its long axis, a hole being made of the right size to receive snugly the shaft of a sawed-off shovel handle, which was pushed through it with the handle on its near side, and the shaft projecting toward the wall. Two wooden pins driven through the shovel handle, one on either side of the crosspiece, fixed the

carpometacarpal joint rested on the edge of the support. The patient grasped a discarded screw driver in his hand, and placing the shaft between the spokes, propelled the wheel. Thus, the desired circumduction was obtained.

#### APPARATUS FOR GENERAL EXERCISE

For the purpose of obtaining general exercise, a rowing machine was suggested. Two uprights were built to the floor out of two-by-fours 30 inches high, 4 feet apart and 4 feet from the wall (Fig. 8). Oars were constructed out of two-by-fours, 3 feet long, the ends of which were whittled down for handles. The oars were pivoted to the uprights through their centers by means of discarded motor valve stems. Two pulleys were fastened to the wall at the same height and immediately behind the distal ends of the oars, and two more placed 3 feet above and 6 inches outside of the vertical planes of the lower set. Ropes were tied to the distal ends of the oars and extended through the

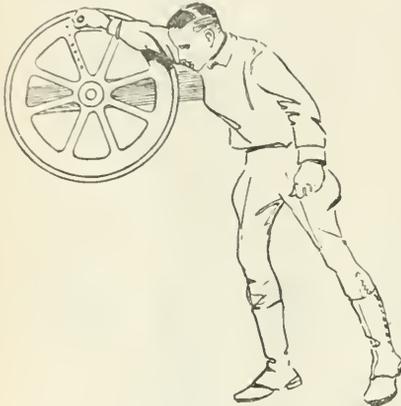


Fig. 5.—Shoulder circumduction machine.

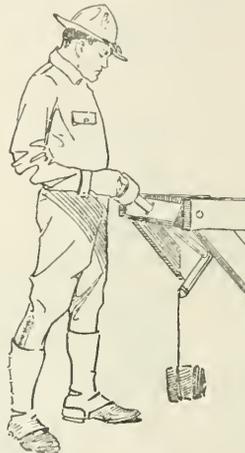


Fig. 6.—Pronation and supination apparatus.

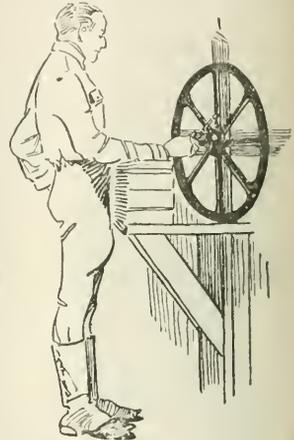


Fig. 7.—Wrist circumduction apparatus.

shovel handle in this position without preventing its free rotation in the hole. At the distal end of the shovel handle, and at right angles to it, there was attached a stout lever arm 6 inches long, and from this a weight was suspended. Whereas this machine was devised merely for pronation and supination exercises by rotating the shovel handle, the roller bearing permitted an adjustment for the height of the man.

We constructed another appliance, similar in every detail to the pronation and supination machine, with the exception that the shaft of the shovel handle moved in a large oval opening, thus giving the handle a wider range of movement.

To produce circumduction at the wrist, we mounted a wheel with its axle on a wooden bracket in the same position as the wheel in the shoulder circumduction apparatus, with the exception that the axle was 3 feet high (Fig. 7). The wheel was 12 inches in diameter, and it also was obtained from the reclamation department. A wooden arm support was mounted on a level with the axle, at right angles to the plane of the wheel, and 12 inches away from it. The arm was fixed to the support by means of straps in such a position that the

lower pair of pulleys, then through the upper pair to the two shell casings filled with clay as weights. A seat was mounted behind the oars with three foot-rails in front. Four rollers attached to the bottom of the seat permitted free backward and forward motion on a wooden track. The novelty of this device proved to be quite attractive to the men, and they took great advantage of it.

#### COMMENT

The purpose of this brief review of the practical application of well known scientific principles in the crude apparatus devised will be served if I have been able to demonstrate the early approach thereto to the larger field which concerns us now as orthopedic surgeons, namely, the application of the principles of vocational training and reeducation to the wounded soldiers returning to our reconstruction hospitals. It is believed that the success attained in the service at Camp Cody will be encouraging to those who may be called on to make an effort at rehabilitation in centers where modern means of vocational training may not be readily available.

## ABSTRACT OF DISCUSSION

DR. ZABDIEL B. ADAMS, Boston: I had an opportunity of going to a school in France, just outside of Paris, where the French were reclaiming the men who had been slightly wounded or who had been discarded in the draft; and there, the apparatus used was very much the type that has been described in the paper—that is, apparatus that was made out of practically anything found on the premises. They had a few things that have not been thought of, apparently, in this country—at least, not described in this paper—which were original and simple. One of these was a double inclined plane, which they used to increase the flexion of the hip, knee and ankle. It consisted of a plane made of two boards, about ten or twelve inches wide, sloping up to 33 cm. in the center, and about eighteen feet long. The men took hold of a rail attached to the wall and, putting one foot on this inclined plane, and keeping the other on the floor, would start with the foot at a low level on the plane, and gradually push the lame foot up and swing back and forth; so that when they got to the top of the inclined plane, they would have complete flexion of the knee, ankle and hip. Then they had a very fine apparatus for limbering up the hand, consisting of a wooden bottle; and for supination and pronation, a machine something like that described here, with a handle like a shovel, which they twisted. They used, also, the chest weights and rowing machine.



Fig. 8.—Rowing machine.

DR. RUDOLPH S. REICH, Cleveland: We had a great many other devices there that I did not describe. We felt that by improvising apparatus we could construct almost anything that the condition we happened to be dealing with might require. We could improvise apparatus that would be applicable to any condition that we were confronted with. Another thing that I should like to mention is the practical application of this to civilian orthopedic work. Many hospitals cannot afford to buy expensive apparatus; and very good articles can, I think, be constructed, which will serve the purpose very successfully, although they may, perhaps, not be quite so elaborate as the purchased apparatus.

**The Rat.**—A recent bulletin of the U. S. Public Health Service discusses the increasing deprivations of rats. It is estimated that there is one rat at least for every person in the United States. The annual cost of the rodents is probably \$180,000,000 per year. However, the rats are not only a severe economic loss, but also a public health menace, since they have been incriminated as carriers of several diseases; for example, plague and more recently tetrohemorrhagic spirochetosis. Rats are frequently found infected with intestinal parasites, such as tapeworm and with trichina. It is stated that there are three kinds of rats in this country included in the survey. Chief of these is the brown or Norway rat, which has largely superseded the other varieties. The primary measure suggested for destroying rats is the rat-proofing of buildings.

## Clinical Notes, Suggestions, and New Instruments

### A MODIFICATION OF ANDREW'S BOTTLE OPERATION FOR HYDROCELE

DEWELL GANN, JR., A.M., M.D., D.Sc., LITTLE ROCK, ARK.  
Visiting Surgeon, City Hospital

This modification differs from the original only in the skin incision, evacuation of the contents of the sac, and delivery of the testicle. Some time ago it occurred to me that an incision beginning over the cord, near the spine of the pubis, extending outward and upward along the ligamentum inguinale, might have certain advantages over the usual anterior scrotal incision of the older operations:

1. With this procedure it is not necessary to hold the scrotum in the gloved hand in order to draw the skin tense over the hydrocele while making the skin incision. Since, because of its very nature, the scrotal tissue is difficult to sterilize properly, this lessens the liability of infection. Some infected wounds of scrotal tissue heal readily; some do not. If the incision is made in such a manner as not to involve the scrotal tissue, the convalescence may be more rapid.

2. The incision over the cord obviates the careful dissection necessary when approaching the hydrocele through the scrotal tissue. When the cord is exposed, slight traction with gauze will bring the funicular portion of the sac into the lower angle of the incision. Gentle pressure with the index finger will indicate a point of fluctuation. A needle is introduced at this point without danger of injury to the cord, testicle or epididymis. The contents of the sac are withdrawn, and the testicle and sac, of any size, may be delivered without the least difficulty. If the needle is left in the sac during and after its delivery, the identification of the tunica vaginalis testis resolves itself into a simple matter.

3. The operation is completed in accordance with the technique of the usual Andrew bottle operation, and the testicle is returned to its former bed.

305 Boyle Building.

### EXFOLIATIVE DERMATITIS, COMPLICATED WITH CELLULITIS, OBLITERATIVE ARTERITIS AND GANGRENE OF TOES, DUE TO ARSPHENAMIN(?)\*

HENRY A. JONES, M.D., HOWARD, R. I.  
Superintendent, State Infirmary

S. J., colored woman, aged 28, married, was arrested, Oct. 30, 1918, and sent to the house of correction for six months on a charge of lewdness and wantonness. She was a strong, robust young woman without any special organic trouble. Her blood gave a Wassermann test of ++++ by cholesterin and ++++ by alcoholic extract of guinea-pig's heart. Specific trouble of any known character was denied. Nov. 15, 1918, she was given 0.3 gm. of arspenamin intravenously, in the left arm, and some of the drug entering into the adjoining tissues set up a marked local inflammation, with contraction of the tendon of the biceps. This condition of contraction called for energetic treatment by massage and mechanotherapeutics, such as carrying a weight in the hand and daily increasing the load to overcome the tendency to contract. In connection with this local infection she had severe systemic disturbance. The second injection was given, Jan. 31, 1919, and no severe reaction was noted, nor was there from the third and fourth. February 24, she reacted badly to the fifth injection, and the left arm showed a neuritis and inflammation. After the sixth treatment of 0.3 gm. of arspenamin, March 7, the patient showed an eczema of the skin, which gradually became more marked, and showed desquamation of the skin in large flakes, especially about the

\* Case presented at the Clinic held at the State Infirmary, Howard, R. I., for the Annual Meeting of the Kent County Medical Society, June 19, 1919.

hands and feet. The skin previous to the desquamative process was of a glowing, dusky red, and a sharp rise in temperature was noted. A diagnosis of exfoliative dermatitis was made and corroborated by Major Harry W. Kimball, member of the Public Health Service and director of venereal clinics at Rhode Island. Between the dates of March 7 and April 6, the patient had suffered greatly from pain in both feet resembling rheumatism, and a marked cellulitis made its appearance. The face, hands and feet were the worst affected. This trouble finally cleared up with medication of alcohol dressings. The pain and numbness in the limbs became localized in the right foot; numbness and tingling were prominent with a marked puffiness of skin over half of the dorsum of the foot, involving the proximal ends of the toes. A darkened, fan-shaped area developed, spreading over the skin of the four greater toes. This became more boggy, and broke down with the tissues beneath looking gangrenous. In spite of medicaments, this process became more firmly localized, involving the four larger toes, and the tip of the little toe.

The gangrene soon assumed the characters of the dry type with a fair line of demarcation at the metatarsal joint. May 1, the four toes were amputated. The tissues of the foot were gangrenous and "porky" in character, and hardly any hemorrhage occurred. No hemostatic forceps were needed. The flaps were sutured with catgut, and heat was applied to the feet. We were under the impression at the time of operation that a secondary or Listranc operation would have to be performed because of the bloodless condition of the tissues, even beyond the line of demarcation. During etherization the patient had a peculiar tremor which was most marked in the lower limbs, and more especially the left, and the opinion was that this might be epileptic in character, as the patient seemed to be of a neurotic type. The tissues, since the operation, have healed very slowly, responding best to an ointment containing red mercuric iodid, other dressings causing a painful burning sensation of the stump. At this date (July 16, 1919), she can get about with the aid of a cane, is in good physical condition apparently, and on April 6 her Wassermann test proved negative.

## COMMENT

In looking up the causes of the obliterative arteritis, which in this case evidently took place in the dorsalis pedis artery, we find that authors consider this condition rare. Allbutt<sup>1</sup> says:

"In amputations that have been practiced it has been noticed that the arteries do not bleed and the wound heals with difficulty unless the amputations have been made high above the seat of mortification. . . . The condition is rare; syphilis in some of the cases appears to have been the principal etiologic factor. The symptoms are various according to the arteries affected and the rapidity of the process of occlusion; if it be gradual there is time for the establishment of collateral circulation, and there is no functional defect."

In the case herewith recorded, the process was fairly rapid and the destruction of tissue complete. In those cases of obliterative arteritis that are mentioned by various authors, larger vessels are as a rule affected. We were inclined to believe this condition might have been due to syphilis, as suggested by Allbutt; but in the discussion that followed the presentation of this case to our clinic, Dr. Kimball gave it as his opinion that the obliterative process was caused by the

lodgment of arsenic in the circulation and tissues, and the case as reported by Latham<sup>2</sup> would bear him out in this statement; also the last Wassermann test of the patient, which was made, April 6, 1919, gave a negative reaction. This would lead us to the supposition that the cause was not syphilitic, but a case of arsenical deposition in the system.

## THE EASY PENETRATION OF URETHRAL STRICTURES

OPERATING URETHROSCOPE OF THE GERBINGER TYPE

MAXIMILIAN STERN, M.D., NEW YORK

It is a mistake to make repeated and protracted efforts to penetrate an inflammatory stricture of minute caliber with filiforms and sounds, in a patient suffering with acute retention of the urine. He is generally in an anxious and desperate state, in consequence of hours of futile efforts on his part to void, and frequently because of the efforts of others to pass instruments.

To have at hand an instrument with which the penetration of a stricture becomes certain of accomplishment is a great comfort. This operating urethroscope consists of an ordinary endoscopic tube, slightly longer than those in ordinary use, into which the three essential working parts are inserted in one compact bundle. This bundle comprises the telescope, which is of the direct vision type, the light carrier, and the cannula or instrument channel. The bundle fits into the tube accurately by means of a water-tight sleeve, so as to permit of focusing backward or forward with the telescope and also the rotation of the inner bundle in efforts to catheterize a stricture from various angles, without the loss of water at the ocular end. This is an important feature, water pressure within the tube being essential. Dilatation of the stricture orifice with water makes it easy of identification and instrumentation, especially when bands or a cribriform opening

are present. The cannula is so constructed that the catheter or filiform is always directed toward the center of the field, so that by revolving the inner bundle while holding the tube firmly against the face of the stricture, one can approach it from any angle with a catheter. This is an advantage, because the lumen may be tortuous and the orifice eccentric.

The fact that all the moving parts are included in the inner bundle makes the necessary manipulations possible without changing the position of the tube against the face of the stricture.

I have selected a urethral catheter rather than a filiform so that it may be fixed to the glans penis and be allowed to remain in the bladder for twenty-four or forty-eight hours. In this way, drainage into a receptacle is accomplished and the patient can obtain hours of undisturbed sleep.

The instrument here illustrated is also applicable to all the purposes of a direct vision cystoscope.

219 West Eighty-First Street.

2. Latham, J. R.: Exfoliative Dermatitis Due to Arspaneniam, J. A. M. A. 73:14 (July 5) 1919.

**Nasal Breathing.**—Every parent, as soon as he learns that a child has nasal obstruction, should have the child examined and treated by a physician and should take the necessary steps to restore the nasal breathing. Nasal breathing is Nature's safeguard against infection and lowered vitality.—*Pub. Health*, Michigan, September, 1919.

1. Allbutt, T. C., and Rolleston, H. D.: A System of Medicine, New York, the Macmillan Company, 6: 301, 1905.

BATHS FOR BURNS

DAVIS FORSTER, M.D., NEW SMYRNA, FLA.  
Resident Surgeon, Forster Sanatorium

REPORT OF CASE

A boy, aged 16, burned in an explosion on a gasoline launch and having come through fire to make his escape, was brought by automobile 50 miles, wrapped in a sheet, to the hospital, and was admitted at midnight, July 13, 1919. He was burned on the brow, both ears, the face, nose, mouth, neck, left forearm and hand, right arm, forearm and hand, including the axilla and across the back, down to and on the buttocks and posterior surfaces of the thighs, abdomen and the anterior surfaces of the thighs to the knees. It will be seen that the only uninjured parts by which the patient could be handled were his right arm, both legs below the knee, and his hair, of which he had a large mop. He was well saturated with a hypnotic, and when aroused was delirious.

He was cleansed with surgical solution of chlorinated soda (Dakin's solution), wrapped in packs of this constantly renewed, and after finally being dried, was coated with paraffin applied with a cotton mop. Parts were covered with large meshed paraffin gauze, which was found unsuccessful, as the constant rolling of the patient caused the stiff wax-laden gauze to become detached. Therefore a light meshed dressing gauze was substituted with better results. The patient was dressed daily with the paraffin, encouraged to drink water freely, was kept on a strictly milk diet, administered every three hours, and had one-fourth grain of morphin sulphate as his condition required.

He voided scantily at twelve hour intervals, the urine being of a syrupy consistency. The bowels were moved by enema. He gradually became more and more septic, the stench being overwhelming. Green flies gathered on the screen outside of his window. The temperature went to 102, pulse 146, respiration 39.

On the fifth day, acting on a suggestion for hot boric acid fomentations, we decided to place the patient in a bathtub full of warm 2 per cent. boric acid solution, which we maintained at a temperature of between 90 and 100 F., warming to the patient's desire and cooling when he seemed exhausted.

He remained in the bath one hour, and on being removed, voided 16 ounces of urine. We felt that he had absorbed a large amount of fluid through his denuded tissue and that the flushing of the kidneys was a happy accompaniment of the mechanical cleansing. When he was taken from the solution, the bleeding parts, particularly the buttocks, were coated with an ointment having a petroleum base, while the rest was treated with paraffin after drying. If the surface is not dried, the application is very painful.

The results of the immersion were so favorable that the next day we kept him in the solution three hours, detaching dead skin and large sloughs. The baths continued daily, changing from boric acid solution to physiologic sodium chlorid solution. The sloughing on the right side of the neck was so extensive that it was feared that a permanent contracture would hold the head in the one-sided position the patient constantly maintained; but gradually the condition improved.

It was remarkable to see the skin come in over the raw surfaces, growing as much as an inch in a day to cover a surface as large as two spread hands. The immersion assisted in detaching adherent particles of dressing and debris, thus avoiding the rubbing which would have detached tender growths of epithelium.

At the end of three weeks the patient was on his feet, walking in the sunshine, and in four weeks was discharged "rough healed" with only the right ear malleated, which had an abscess of the cartilaginous structures.

We have since treated a less severe case with as satisfactory results.

1 New Horizon Collection of Medical and Surgical Therapy, issued under the Surgeon-Generals of the United States and the British Armies 5: 780.

ACCIDENTAL PERFORATION OF THE UTERUS DURING CURETTAGE, WITH LACERATION OF THE SMALL INTESTINE

REPORT OF CASE WITH OPERATION AND RECOVERY

JOHN T. WILLIAMS, M.D., BOSTON  
Assistant Visiting Surgeon, Boston City Hospital; Assistant in Gynecology, Medical School of Harvard University

Accidental perforation of the uterus during curettage is undoubtedly of frequent occurrence, but for obvious reasons it is seldom reported. It may happen at the hands of a skillful surgeon, and if proper asepsis has been maintained, and the perforation is recognized immediately, harm seldom results. If, however, the perforation is not recognized as soon as it is made, the operator may continue to curet through the perforation, bringing down a loop of intestine (usually ileum), and, as in the case to be reported, severing the bowel from its mesentery before identifying it.

REPORT OF CASE

Mrs. R., aged 27, had had several previous miscarriages. The Wassermann reaction was + + +. June 29, 1919, being about three and a half months pregnant, she started to miscarry. She was curetted at her home by a local physician, who perforated the uterus, drew down a loop of small intestine, severed it from its mesentery, and tore it completely across before he recognized what he had done.

The patient was admitted about one hour later to the gynecologic service of the Boston City Hospital, where I saw her. She was in good condition, not bleeding, but had several inches of lacerated intestine protruding from the vulva. The abdomen was immediately opened, and the conditions found were these: The ileum was completely torn across about 12 inches from the cecum. The proximal portion had been separated from its mesentery for a distance of 12 inches and passed down through a ragged opening about 1 inch in length in the fundus uteri near the right cornu. The free edge of the mesentery was lacerated, ragged and bruised in appearance. There was a small amount of bloody fluid free in the peritoneal cavity, but no feces.

The loop of ileum that had been separated from its mesentery was resected, the part that passed through the perforation being tied off and withdrawn from below to avoid contamination of the peritoneum by dragging up through the abdomen the portion that had projected from the vulva. The lacerated distal end of the bowel and the bruised margin of the mesentery were trimmed away to get clean-cut tissues to bring together. An end-to-end anastomosis was done, the Connell suture of catgut, reinforced by a continuous suture of Pagenstecher to the peritoneum, being used. The edges of the rent in the uterus were trimmed away into clean tissue, and the perforation was closed with interrupted catgut (one layer). A perforation in the distal portion of the ileum about the size of a pinhead was found and closed by a purse-string suture of Pagenstecher. The peritoneum was carefully cleaned by gentle mopping with moist sponges. A cigaret wick was passed to the pelvis. The abdomen was closed.

As the absence of bleeding was taken to indicate that the uterus was empty, nothing was done to the uterine cavity, and the patient was quickly put to bed and the Murphy-Fowler treatment instituted. She made an untroubled recovery. The drain was shortened on the fourth, fifth and sixth days, and was entirely removed on the seventh. There was no drainage from the wound except serum, and the patient left the hospital on the eighteenth day, well except for a granulating sinus at the site of drainage one-half inch in depth.

483 Beacon Street.

**Public Health Nursing.**—Although a visiting nurse began work in Liverpool sixty years ago, as late as 1901 there were only fifty-three visiting nursing associations and 136 visiting nurses in this country. In 1915 there were 2,066 associations and 4,893 visiting nurses.—*Bulletin*, State Board of Health of Rhode Island, August, 1919.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY,  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### THE NEW PHARMACOPEIA

In May of 1920, work on a new revision of the United States Pharmacopeia will be commenced. Now is the time to gather information for use on that occasion. Physicians are invited to call attention, through this department, to changes that should be made in the next Pharmacopeia. In the past, physicians have taken altogether too little interest in pharmacopeial revisions. They have permitted pharmacists and laboratory workers to model the pharmacopeia, and then the practitioners have complained when they did not find the official book to their liking. Let us have a more general participation of the medical profession in the coming revision.

### PRACTICAL CLINICAL PROGRESS

If every busy practitioner would publish once or twice in his life some fact—not opinion—in therapeutics, not generally known and that he has established beyond the possibility of any doubt, what a mine of practical information would accumulate! A tremendous amount of knowledge of the greatest possible importance to suffering humanity is lost, because it is buried with its possessors. This is not due to lack of altruism on the part of the medical profession—for who of all men is more altruistic than the doctor—but to the fact that the rank and file of physicians is literarily inarticulate. While some write too much, many publish too little.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1287)

#### CATHARSIS AS A CAUSE OF CONSTIPATION HABITUAL CONSTIPATION

In the cure of habitual constipation, cathartics, if properly used, are of help. While some who do not accept patients unwilling to submit to a regular course of treatment covering a period of from six to seven weeks, may well say that they have not used medicines in the curative treatment of constipation for many years, and that the results obtained from the non-medicinal plan—which includes diet, mechanotherapy, hydrotherapy and electrotherapy—have been vastly superior to those accomplished by drugs, yet many patients are unable or unwilling to undertake such prolonged courses of treatment. The knowledge that descending dosage of cathartics, accompanied by appropriate regulation of hygiene, will often cure habitual constipation without recourse to physical therapy, is of practical importance. For this purpose cascara sagrada is the remedy *par excellence*. The treatment amounts to a gradual weaning of the patient from the cathartic habit, as contrasted with the sudden breaking in on this habit by the acathartic method.

Cases that resist the gradual dose reduction might still be cured by recourse to physical therapy, which should be offered as soon as it becomes evident that the simpler method failed, but not before. To speak of this to the patient earlier would be a tactical error, as it would undermine much of the patient's confidence in the treatment, and with this its psychotherapeutic value. It must be admitted that there are cases in which all these methods fail. This intractable form must be treated along the line previously mapped out for constipation of the disabled individual.

#### CATHARTICS IN "INTESTINAL TOXEMIA"

That cathartics must be of value to promote the elimination of disease-producing poisons from the intestine is self-evident. No one disputes this proposition. The dispute arises over the question: When does the intestine harbor such poisons? The intestinal tract is endowed with wonderful safeguards against intoxication, not the least among which is the inspissation of the intestinal contents and the formation of scybala from which absorption practically does not occur. Indeed, to whatever extent cathartics interfere with the formation of scybala they contribute to intestinal toxemia, not only because absorption from liquid or semifluid contents is much more active than from solid material, but also because such contents form better culture mediums for bacteria, partly by reason of their fluidity and partly by reason of the fact that they are richer in nutritive material for bacteria. The doctrine of Adolf Schmidt,<sup>22</sup> "No diarrhea with increased peristalsis without secretion of a decomposable fluid by the intestinal membrane," applies to diarrhea produced with therapeutic intent as well as to diarrhea occurring from other causes. It is a well known clinical fact that intoxication phenomena are much more prominent in diarrhea than in constipation, and that there are people who feel weak and miserable, as though poisoned, for a few days after purgation. Of course, this increase in autointoxication may be merely temporary, to be followed by improvement, for, as Herschell and Abrahams<sup>23</sup> say, both castor oil and saline purgatives greatly increase autointoxication for some hours, the excretion of ethereal sulphates rising very considerably. It then commences to fall until it is reduced much below normal. The explanation is, of course, that the purgative stirs up the intestinal contents, and the poisons are absorbed into the circulation.

The theory that toxic intestinal contents are responsible for disease has been so abused as a "cloak for ignorance" that the terms "biliousness" and "autointoxication" are practically taboo in strict scientific discussion. "Biliousness," which once was considered a well established disease entity, the successful treatment of which, by the use of "chologogues," was one of the cherished dogmas of medicine, has become so unpopular of late that one searches in vain for even the word "biliousness" in the index of modern books on gastro-enterology or on the practice of medicine. Adami<sup>24</sup> concludes that the term "gastro-intestinal autointoxication" is pernicious, and not to be employed by any self-respecting member of the medical pro-

22. Schmidt, Adolf, quoted by Aaron, C. D.: *Diseases of the Digestive Organs*, Philadelphia, Lea & Febiger, 1918, p. 238.

23. Herschell, G., and Abrahams, A.: *Chronic Colitis*, New York, Longmans, Green Co., 1914.

24. Adami, J. G.: *Chronic Intestinal Stasis*, Brit. M. J. 1: 183 (Jan. 21) 1914.

\*This is the third of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

fession, save for so limited a set of conditions that for ordinary purposes it may safely be expunged from the medical vocabulary. Still, it remains a clinical fact, abundantly substantiated, that a very large number of symptoms have been relieved by catharsis. With many a physician it is a rule of practice when in doubt to "open the bowels." Alvarez,<sup>25</sup> who rejects the doctrine of the chemical causation of these symptoms, admits that symptoms such as mental haziness or "dopiness," malaise, headache, spots before the eyes, coated tongue, and poor appetite, are often instantly relieved by a bowel movement. He explains these symptoms as due to the effect of afferent nerve impulses, coming from a distended overactive or wrongly acting bowel, on a particularly sensitive nervous system. According to him, also, ripples of reverse peristalsis carry more than the usual amount of bile back into the stomach and up into the mouth, depositing gastric and perhaps intestinal contents on the back of the tongue, and giving rise in this way to the coat on that organ—sometimes even bile-stained—the bad taste and the bad breath. He believes that the relief obtained by taking calomel is not due to any action on the liver, but to a restoration of the normal downward currents in the intestine. Be that as it may, we must conclude that cathartics do frequently relieve symptoms due to abnormal conditions within the bowel, and that they must therefore be looked on as an important diagnostic aid in our hands. Of course, the proper curative treatment of the symptoms due to chronic intestinal stasis is that of the accompanying constipation, and this requires differentiation of type and etiologic treatment, rather than chronic catharsis.

#### CATHARTICS IN DIARRHEA

In the treatment of diarrhea, cathartics play, at most, a minor rôle. Of course, they might "assist nature" in certain cases, especially of stercoral diarrhea, that is, diarrhea due to retained fecal masses, and in the fermentative form. On the other hand, in gastrogenic and in nervous diarrhea they are useless and may be harmful. Before using cathartics in diarrhea we should, therefore, ask ourselves, first, whether the cause is located in the intestine; and, secondly, whether nature requires our assistance. Hill's<sup>26</sup> common sense statement regarding purgation in infantile diarrhea also has decided bearing on the treatment of diarrhea in the adult:

It is a mistake to give a purge as a routine in every diarrheal disease. If there is any harmful material in the intestine which is not coming out as fast as it should, a purge ought to be given; otherwise not. It is not rational to purge a baby which is already having a good many loose stools a day, and whose intestine is emptying itself of toxic material as fast as it possibly can. In such cases, castor oil or calomel adds insult to injury. On the other hand, a baby who is seen at the onset, who has fever, and who has not yet been emptied by diarrhea, ought to be purged at once; and it is often striking to see how the temperature will drop and how much more comfortable the baby will be after a good cleaning-out.

#### CONCLUSIONS

1. With the average adult, a daily bowel movement is not a necessity for a state of health.

2. Cathartics are habit-producing drugs, admissible only in case of temporary disturbance due to harmful material in the intestine, and in those suffering from an intestine disabled by local or general disease or debility, who in default of curative measures may have to be provided with a habitual evacuant. Especially obnoxious is the habitual use of purgatives in childhood.

3. Mild laxatives and enemas should replace the more drastic drugs. The mildest is the best, and the patient should be carefully fitted with the cathartic he needs.

4. Acute abdominal pain, unless accompanied by diarrhea, contraindicates catharsis. On the other hand, some patients with a chronic tendency to abdominal pain may keep themselves comfortable by suitable catharsis.

5. Cathartics are useful as a means of diagnosis for the determination of the degree to which symptoms are due to disturbance within the intestine.

6. Routine purgation, be it preoperative, postoperative or postpartum, be it employed in the treatment of diarrhea, apoplexy, dropsy or uremia, is undesirable.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

**ALBUTANNIN.**—Tannin Albuminate Exsiccated.—A compound of tannic acid and albumin, thoroughly exsiccated, and containing about 50 per cent. tannic acid in combination. It was first introduced as tannalbin.

**Actions and Uses.**—Albutannin is astringent. Its use is based on the assumption that the tannin compound would pass the stomach largely unchanged and thus the astringent action be exercised in the intestine where the compound would be decomposed by the intestinal fluid, slowly liberating the tannic acid. It is not likely to produce gastric disturbance. It is used in diarrhea, particularly in that of children, and in phthisis.

**Dosage.**—From 1 to 4 Gm. (15 to 60 grains) in powder or tablets followed by water. For infants the dose is from 0.3 to 0.5 Gm. (5 to 8 grains) in gruel or other mucilaginous liquids.

Albutannin is prepared by precipitating 1 part of a 10 per cent. solution of egg albumin with 6.5 parts of a 10 per cent. solution of tannic acid, washing the precipitate with water until the washings run only faintly to ferric chloride, drying it on porous tiles, powdering and heating the product to about 110 C. for six hours.

Albutannin is a creamy yellow or light brown, odorless, crystalline powder, containing about 50 per cent. of tannic acid. It is practically insoluble in water or alcohol, but slowly soluble in alkaline fluids, which decompose it into its components.

Shake 0.1 Gm. of albutannin for one-half minute with 10 Cc. of water and filter. To the filtrate add one drop of ferric chloride test solution. Only a light blue coloration is produced (*see tannin acid*). Incinerate 0.5 Gm. albutannin. Not more than 6 per cent. of ash remains.

**Albutannin-Calco.**—A nonproprietary brand complying with the standards for albutannin.

Manufactured by The Calco Chemical Company, New York. No. 175 patent or trademark.

**Albutannin-Merck.**—Merck and Company have adopted the name albutannin for the product accepted as tannin albuminate exsiccated Merck (*see JOURNAL A. M. A., March 1, 1919, p. 653*).

<sup>25</sup> Alvarez, W. C. Origin of the So Called Autointoxication Symptoms. *J. A. M. A.* 72: 8 (Jan. 4) 1919.

<sup>26</sup> Hill, L. W. The Etiology and Treatment of the Diarrheal Diseases of Infancy. *J. A. M. A.* 72: 1633 (June 7) 1919.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 1, 1919

## SOME EFFECTS OF FOOD RESTRICTIONS IN EUROPE

In an elaborate review of the effect of war-time food conditions in Germany on the nutrition and health of her people, Professor Determann<sup>1</sup> concludes that the most significant consequences of the war diet are chargeable to its small fuel value. Emaciation, weakness and decreased resistance to present or acquired disease have increased mortality and morbidity in an amazing degree, especially among older persons and in large cities. In confirmation of the untoward effect of the lowered calory intake we now have the added testimony of Professor Loewy<sup>2</sup> of Berlin, who admits that the outcome of the enforced dietary conditions has demonstrated that the views accepted with respect to the metabolism of energy in peace time apply with equal truth during war.

What were the outstanding features of the rations supplied to the people of the Central Empires toward the end of the war period? They were low in protein. During prewar days the nitrogenous foods formed a liberal component in the German dietary, approaching the standards of 100 gm. and more a day that have been observed to exist in most civilized countries. At the end of three years of war, Loewy found that the poorer classes in Berlin were reduced to a protein consumption of less than half this figure, though in the rural districts better conditions prevailed despite the monotony of the country diet, in which bread and potatoes predominated. The diet was also poor in fats, which were largely replaced by carbohydrates. Whereas in peace time the latter constituted scarcely more than 60 per cent. of the calories of the ration, by April, 1916, they had increased to 68 per cent., on the average, and amounted to 70 per cent. or more in April, 1917. A diet of this composition is inevitably largely vegetable in origin, rich in cellulose, devoid of stimulating properties and, as further details show, in the present instance, limited in variety.

War edema, presumably associated with insufficient food and particularly with deficiency in the protein intake, has been widely observed. Hernias and displacements of internal organs have been a frequent consequence of emaciation. Lactation has been unsatisfactory among child-bearing women. Gastro-enteric disorders, rickets, deficiency diseases and delayed growth have affected the welfare of children. Tuberculosis has increased its ravages. Eclampsia is reported by Determann to have become less frequent in occurrence; diabetes and cancer also have not increased under the war-time restrictions. All in all, however, it is a sinister picture that each new report presents, for the truth is no longer camouflaged to mislead an enemy.

## THE INFECTED WOUND

The result of the intensive study of war wounds has been a better insight into the biology of infected wounds, which, in turn, has led to improvements in methods of treatment. Although most of the really important factors were known before the war, the great emergency brought them into practical general knowledge in a way that would otherwise have been impossible. For the first twelve to twenty-four hours following injury, the so-called preinflammatory stage, infecting organisms are confined to the surface of the wound. If, during this period, the wound surface can be excised (débridement), healing by primary intention is the rule and chemical treatment is useless at this stage. The importance of this phase of treatment has recently been emphasized by Duval,<sup>3</sup> who has shown that wounds of joints, once considered the most vulnerable of all tissues to infecting organisms, may be safely closed without drainage after débridement.

When wounds are seen after the preinflammatory stage has passed and the bacteria have penetrated deeply into the tissues, there is no known short cut by which they may be eliminated. This factor, recently discussed by Flemming,<sup>2</sup> furnishes a fertile field for investigation. It appears to have been demonstrated that the two important natural agencies combating infection are the blood and tissue fluids and the leukocytes. The blood and tissue fluids exert their influence because of their alkalinity and their antitryptic power. The importance of the alkaline reaction of the fluids is well illustrated by the fact that Welch's bacillus grows a thousand times better in "acidosed" serum from a gas gangrene patient, that is, a serum which has lost nearly all its alkalinity, than it does in normal serum. The influence of the antitryptic power of the serum also may be readily demonstrated. In serum of normal or raised antitryptic power, streptococci alone grow freely when planted in small numbers; staphylo-

1. Determann, H.: Die Bedeutung der Kriegsernährung für Stoffwechsel und Gesundheit. *Zschr. f. physiol. u. diätet. Therap.* 23: 147 (April) 1919.

2. Loewy, A.: Statistische Erhebungen über die Kriegskost im dritten Kriegsjahre. *Zschr. f. physikal. u. diätet. Therap.* 23: 81 (March) 1919. Loewy, A., and Bralme, C.: Untersuchungen über Art und Wirk. org. d. Kriegsernährung, *ibid.* 23: 169 (May) 1919.

3. Duval: Treatment of War Wounds of Joints, *Surg., Gynec. & Obst.* 29: 222 (Sept.) 1919.

2. Flemming, Alexander: The Action of Chemical and Physiological Antiseptics in a Septic Wound, *Brit. J. Surg.* 7: 99 (July) 1919, Humberian Lecture, Feb. 12, 1919.

cocci and some diphtheroids multiply to a lesser extent. Serum of reduced antitryptic power, however, furnishes a suitable culture medium for an abundant bacterial flora.

The ability of leukocytes to destroy bacteria has been repeatedly demonstrated, and they are probably the chief agents in the removal of bacteria from infected wounds. They appear to exert a twofold influence: They are strongly antibacterial; yet, when they emerge on the surface of a wound, they readily disintegrate, setting free a proteolytic enzyme which, in turn, neutralizes the antitryptic properties of the wound liquids, thus making them better culture mediums for bacteria. At first sight, this appears to be distinctly detrimental. As a matter of fact, the liberation of proteolytic enzymes in this manner is of salutary benefit; it is nature's method of performing débridement. It is largely through the activity of the leukocytic protease, derived probably from the neutrophil granules of the polymorphonuclears,<sup>2</sup> that necrotic tissue and blood clots are cast from the wound. With the separation of the sloughs, the wound is bathed in exudate of a degree of alkalinity and an antitryptic titer approaching that of normal serum. The serosaprophytes, therefore, rapidly disappear. The leukocytes, no longer caused to disintegrate *en masse*, cease to reduce materially the antitryptic property of the wound liquids, and exert their maximal antibacterial power, the wound becomes relatively aseptic, and healing progresses at the maximal rate. The influence of infection on the rate of healing has been graphically demonstrated by Carrel and Hartmann<sup>3</sup> and by Du Noy.<sup>4</sup> These authors found that the curve representing the diminution in the size of an aseptic wound while it cicatrizes is regular and geometric; the intervention of an infection in such a wound greatly decreases the rate of healing and may stop healing entirely.

The third factor is the character of the walls of the wound. When they are overhanging and noncollapsible, as is the case frequently in compound fractures, and especially when the tract of exit is narrow and the wound cavity relatively large, infection persists and can be permanently eradicated only by operative obliteration of the cavity.<sup>5</sup> Of course, sequestrums require removal; but if sequestromy is not accompanied by wide removal of the unyielding wall of the cavity, so as to permit its being filled by the collapse of surrounding soft tissues, healing will be difficult.

The rôle of antiseptics in the treatment of wound infection is problematic. Flemming believes that all solutions that are at all effective have no appreciable bactericidal titer in the wound, but that they act as mild tissue irritants leading to increased leukocytic

emigration and to more abundant flooding of the wound with normal tissue fluids, in this way hastening the separation of sloughs and the elimination of bacteria. He regards the antiseptic method of Carrel, for instance, as fundamentally dependent on the same principles as that of the so-called physiologic method of Sir Almroth Wright. It is perhaps too early to consider the question settled, but the data and the arguments based thereon in support of this idea are exceedingly attractive.

#### INFECTIOUS ABORTION IN CATTLE

Since Bang's discovery of a characteristic microorganism associated with so-called "contagious abortion" in cattle, it has become customary to attribute the disease to *Bacillus abortus* described by him. The assumption that this is the sole or even the predominant etiologic agent concerned with a malady that occasions enormous economic losses has diverted attention away from the microbial cause and toward prevention or cure. Aside from the indirect interest that bovine disease represents in relation to human welfare, and particularly when the milk supply is involved, the bacillus of contagious abortion in cattle has lately been discussed as a possible agent of more direct menace in childhood.

The newer studies at the Department of Animal Pathology of the Rockefeller Institute for Medical Research, Princeton, N. J., under the leadership of Theobald Smith,<sup>1</sup> bring unexpected evidence that contagious abortion may involve something more than Bang's bacillus. They include the discovery of a spirillum of definite morphologic and cultural characteristics designated by Smith as *Vibrio fetus* and found associated in a considerable series of cases with what is commonly known as infectious abortion in cattle. He properly maintains that the isolation in pure culture of a definite morphologic entity, a vibrio, with practically the same biologic characters, from a series of cases of the same clinical complex establishes a presumption in favor of the specific identity of the organism and also in favor of the inference that such organisms are etiologically related to the diseased condition. It might be assumed that *Vibrio fetus* found in the fetal membranes is merely an invader from the more external genitalia or from the blood after the fetus has been damaged by other agencies. However, the fact that disease of the fetal membranes has been produced experimentally by injection of pure cultures of the vibrio strengthens the presumption that it may be a true cause of infectious abortion.

The new investigations indicate that many cases of abortion in cattle occur without evidence of the pres-

3. Wells, Chemical Pathology, Ed. 3, 1918, p. 31.  
4. Carrel, A., and Hartmann, A. J. Exper. Med. 24: 429 (Nov.) 1916.

5. Du Noy, P. L. J. Exper. Med. 24: 401 (Nov.) 1916.

6. White, Chronic Traumatic Osteomyelitis, New York, 1919, p. 10.

1. Smith, Theobald, J. Exper. Med. 28: 261, 1918. Smith, Theobald, and Taylor, Maria S. Dod. 30: 79 (Oct.) 1919. Smith, Theobald, Dod, Taylor, and Smith, F. W., Little, R. H., and L. Florence, Jour. 1920, p. 341.

ence of Bang's bacillus. In general, *Bacillus abortus* is associated with first pregnancies, and its presence rapidly diminishes in frequency in later ones. Apparently an immunity to this bacillus may become developed in cattle, whereupon *L'ubrio fetus*, and, perhaps to a far less degree, miscellaneous septic and pyogenic micro-organisms, may become the inciters of abortion in later pregnancies. If these conclusions become substantiated by further studies, it will become clear that abortions in cattle are attributable to a variety of infections and noninfectious agencies. Even now it seems established, however, that the udders of a relatively high percentage of cows become infected with *Bacillus abortus*, probably during their first abortion disease. In this way the relation of this micro-organism to the milk and consequently to human health is worthy of consideration.

### HOSPITALS FOR CONTAGIOUS DISEASES

The general attitude toward hospitals for contagious diseases seems to be undergoing a gradual evolution. We are getting away from the idea that such hospitals are "pest houses" and "necessary evils," whose chief function is to serve as a place of confinement for persons who might endanger the public. We are coming to look on them more as places where sick persons may secure needed care, which would not be possible in their homes, as is the case with noncontagious medical and surgical cases in a general hospital. Usually conditions that make impossible proper isolation at home also preclude suitable medical and nursing care there. Hospitals for contagious diseases are specially designed for those with very limited means and for those living in hotels, boarding and rooming houses. The value of hospitals as a means of eradicating contagious diseases through isolation has made a strong appeal to sanitarians everywhere. However, experience in England and in this country has led such authorities as News-holme, Chapin and others to conclude that the hospitalization of persons with contagious diseases has failed to reduce their incidence materially. Chapin<sup>1</sup> says:

Hospitals are useful for protecting the family, for checking outbreaks in institutions, for receiving cases from lodging houses and hotels, for furnishing better medical service, and for relieving the overworked housewife in the families of the poor. It is an unnecessary expense to provide hospital accommodations for all cases of scarlet fever and diphtheria, or for 50 per cent. or even 80 per cent. That half or two thirds of the cases of these diseases can, for all practical purposes, be equally well cared for at home, is not unlikely.

In a hospital for contagious diseases, an occasional instance of crossed infection will occur even though every human effort is made to avoid it. This will be always one reason for home isolation and treatment, whenever they can be carried out satisfactorily.

In view of these facts, the statement of Stokes<sup>2</sup> in his interesting discussion of the organization and

methods of contagious disease services, that a hospital for contagious diseases is, like the police, a necessary evil whose principal justification is the convenience and safety of the well public, is only partly true. The ancient idea that a hospital for contagious diseases is a "pest house" and a source of danger to those living near it has largely influenced the location of such institutions in a community. Abundant experience has shown that the same considerations should determine a convenient and central location for a hospital for contagious diseases as for any hospital for acute illness. An intimate connection with a general hospital is economical from an administrative and operative standpoint, and except when the contagious disease hospital is very large, it may properly be located in one building of a general hospital group. Such a location enables the patients in emergencies and complications to benefit by the services of specialists, and has a tendency to raise the level of the character of the medical work in the hospital. In contrast to this, a hospital for contagious diseases that is situated in an isolated place, near the edge of a large city, operates under very serious disadvantages, both from an economic and a scientific standpoint. Hospitals for contagious diseases were formerly constructed on the same principles as general hospitals, and were often brought into disrepute by the frequency with which a patient entering with one disease contracted others in the institution.

Richardson<sup>3</sup> recently presented an able discussion of the construction of modern isolation hospitals. In efforts to combat mixed infections, the barrier and cubicle systems were introduced and are useful in old buildings with large rooms, but should not find a place in a building newly constructed at this time. The ideal hospital for contagious diseases consists of small rooms that accommodate single patients. This is insisted on by those who, like Richardson<sup>3</sup> and Wilson,<sup>4</sup> have had practical experience in hospitals for these diseases. The initial cost of providing toilet and bath tub for each room is more than offset by the advantage from the use of baths in treating patients and by the saving in work required of nurses and attendants. Each room should be supplied with a lavatory with mixed hot and cold water controlled by the foot. The liberal provision of windows and the introduction of glass into partitions prevents a building constructed in this manner from being unduly dark. With single rooms, cross infections can be practically eliminated, and diseases of various sorts can be cared for at the same time in varying proportion. All the space becomes available at all times. As with general hospitals, so those for contagious diseases should serve as training places for physicians and nurses. The medical graduate and the nurse are not fully prepared for the practice of their professions if they have had no practical experience in the treatment of contagious diseases. The con-

<sup>1</sup> Chapin: Sources and Modes of Infection, 1910.  
<sup>2</sup> Stokes, J. H.: Pennsylvania M. J. 12: 729 (Aug.) 1919.

<sup>3</sup> Richardson, D. L.: Mod. Hosp. 12: 108, 1919.  
<sup>4</sup> Wilson: Pub. Health Bull., 1918, No. 95.

tagious diseases furnish the medical student with as great a variety of medical experiences as do those of a general hospital. Without a careful training in contagious diseases, a nurse is not qualified for institutional or public health work and her field of activities is necessarily limited. Pupil nurses should receive this part of their training toward the end of their course, after they are familiar with aseptic technic. No pupil who is careless in her work should be allowed to continue. Before a person enters on this work, diseased tonsils should be removed; serious organic disease of any kind would naturally exclude any person from the work. By immunizing those who are susceptible to diphtheria, as determined by the Schick test, and by the use of gauze masks, rubber gloves and aseptic methods, the danger of contracting the diseases with which the nurses are associated is largely eliminated. To repeat. It is important that the profession and the laity should appreciate that the hospital for contagious diseases is not a nuisance but an institution of real service; that it furnishes innumerable problems for solution by the research worker, and that its clinical material should be utilized for the instruction of medical students and nurses so that patients suffering with contagious diseases among the people may receive prompt and efficient medical and nursing care, at the same time that effective measures may be instituted for protecting the well from infection.

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### Current Comment

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#### THE STYLES IN SUICIDE AND HOMICIDE

Primitive man, when stirred by some primeval instinct to remove himself or some neighbor permanently from the community, adopted the means at hand. His body, or that of his neighbor, shortly after he had entered on the resolution, would be found at the foot of some cliff, from which it had fallen; or perhaps he would disappear into the depths of the sea, or, as with the Hawaiians, into the fuming crater of a volcano. With the coming of science, methods began to be refined. It is reported that the ancient Egyptians were skilled in securing the deadly prussic acid from the peach; Nicander (204 B. C.) described the use of snake venom, opium, henbane and other popular methods of seeking the Great Beyond. Socrates drank the hemlock, and Cleopatra succumbed to the sting of the asp. In more modern times arsenic became popular, reaching the height of refinement in the seventeenth century. At this period the infamous Fofana at Venice prepared vials of arsenous oxid for general sale, and herself concocted weird and unusual combinations for the secret use of arsenic by those high in political and ecclesiastical circles. Since the advent of firearms, these have steadily maintained a reasonable popularity as suicidal and homicidal agencies in view of their notorious ease of procurement and increasing facility of operation. The adoption of hanging—a rather

awkward procedure requiring four ingredients, a victim, a noose, something to hang it from and something to step from—is rather common. And we must not forget asphyxia, which the statistics list separately from hanging. Here we have an increasing vogue, although the advent of electric light in place of gas makes the method not so generally available. Modern man, in place of leaping from a cliff, sometimes seeks the easily available upper floors of city skyscrapers and thence projects himself into eternity. However, poisoning has lost but slightly in popularity. In ancient days the fame of poisoner and poisons was spread by word of mouth. The newspapers establish the style in modern times. Every one remembers when phenol—popularly called carbolic acid—was the deadly elixir of choice. Domestically used to aid the unesthetic bedbug to shuffle off this mortal coil, it sometimes found its way to the family medicine chest and was available for human extermination. The demise and the method were duly recorded in the daily press, thus increasing the popularity. Latterly, since the advent of mercuric chlorid for certain domestic uses, this poison is conveniently at hand. Not only is it convenient but there exists for it an alluring propaganda. Thus, when a Georgia banker took mercuric chlorid by mistake and lay dying, the anxious reporters hung around the lethal chamber ready to report each new development in the struggle. Through the tremendous notoriety given to this case, mercuric chlorid was introduced as an available poison. It became one of the six best sellers. Pharmaceutical houses wrote "danger" on the bottle, put the tablets on strings, put warning attachments on the cork and tried other safeguards. And when the case of the Georgia banker faded from memory it seemed that these safeguards had had the desired effect. Now suddenly comes another intimate tragedy for yellow-journalistic fancy. Reams of paper are filled with the weeping of the hysterical journalistic sob sisters—sobsysterical writing, one might call it. And do the safeguards placed around the drug have any effect? Not a bit. The styles in suicides and homicides, as even styles in dress, are influenced by newspaper publicity.

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#### THE CAUSE OF INFLUENZA AND ITS BEARING ON TREATMENT

The striking thing about the etiologic studies of influenza which were made last year was the lack of uniformity in the results obtained. Reports that filtered through from Germany indicated that Pfeiffer himself was unable to find constantly the bacillus which he first discovered in 1894 and which had been generally regarded as the cause of the disease. While some investigators still regarded as favorable the evidence that the bacillus of Pfeiffer was the etiologic factor, others were unable to find it constantly in any large percentage of patients. Most physicians who observed the characteristic clinical picture presented by the disease and reflected that the bacillus of Pfeiffer had been found every year since its discovery in uncharacteristic, upper air passage infections, became skeptical as to its etiologic relationship to true epidemic influenza. Exten-

sive inoculations with preventive vaccines prepared from the Pfeiffer bacillus led to somewhat discordant results, but, on the whole, the results supported the view that the vaccination with this organism did not produce immunity to influenza. During 1918, Nicolle and Lebaillly stated that they had discovered a filtrable virus in influenza cases, and later on, certain British observers confirmed this finding. The work of Bradford, Bashford and Wilson<sup>1</sup> is the most extensive and the most convincing that has appeared on this subject. These observers were able to obtain a filter-passing virus from patients with influenza; they were able to cultivate it outside the body, and succeeded in reproducing the disease in the lower animals and in continuing the transmission beyond the first generation. They thus complied with all the postulates of Koch. Attention is now again called to their work, because opportunities will be afforded this fall and winter for a careful test. The discovery and the propagation of the micro-organism causing a disease is not always the most difficult step in reaching satisfactory treatment, but it is essential, and is likely to be the turning point in the conquest of the disease.

#### THE NATIONAL HOME FOR LEPERS

In January, 1917, Congress passed a law providing for a national leprosarium, and made an initial appropriation of \$250,000. The law provided that the leprosarium should be under the control and supervision of the United States Public Health Service. A commission was immediately appointed by the Service to select a site for the institution. After spending many months in investigating suggested sites in various parts of the country, it selected an island lying off the coast of Florida, in the Gulf of Mexico. From all accounts the location is ideal in every respect. Now Florida is tremendously excited over the fact that that state has been selected, although the actual site is on an island and therefore isolated from the mainland. According to the newspapers, the governor of the state is taking the lead in the opposition and, apparently, is fathering an active crusade against the project; he has even threatened to remove from office certain local officers who favor it. Headed by the governor, a delegation has been to Washington to protest against the selection. Of course, all this foolish opposition is based on the idea that the leprosarium will injure the state as a health and pleasure resort, disregarding, evidently, the fact that a leprosarium which has existed for some time in California has not eliminated that state as a pleasant and attractive place to live in. The old biblical horror of leprosy dies hard. While it is true that leprosy is mildly contagious, the disease is easily controlled by segregation. It is safe to assume that the commission did not select the location without due consideration, and it is hoped that the government will not be stampeded from its choice by a popular prejudice based on ignorance of the facts concerning the disease.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Poison Act Violation Charged.**—Four additional charges of violation of the State Poison Act were said to have been placed against Dr. Paul R. Lanz, Oakland, October 1, by operatives of the Pharmacy Board. The complainants alleged that Dr. Lanz forged their names to prescriptions used by him to obtain narcotics from the local drug stores. Dr. Lanz was released under bonds of \$6,000.

**Personal.**—Jean J. A. Van Kaathoven, Major, M. C., U. S. Army, who commanded Base Hospital No. 35, Los Angeles, has been cited by General Pershing for "exceptional meritorious and conspicuous service, overseas."—Dr. Etta G. Gray, Los Angeles, president of the Medical Women's National Association, has been sent to Serbia and the Near East to investigate conditions and arrange for the establishment of hospitals where needed.—Dr. Paul E. Bowers, Whittier, has been appointed superintendent of the Northern Indiana Hospital for the Insane, Logansport.

### CONNECTICUT

**Intensive Mental Hygiene Campaign.**—The Connecticut Mental Hygiene Society, the first organization of its kind in the world, is conducting an intensive campaign for the amelioration of mental health. The staff has been completely reorganized and Dr. William B. Terhune, New Haven, has been placed in charge as medical director. He is assisted by several social workers with psychiatric training, and clinics are being conducted in New Haven, Waterbury and Hartford. The work is rapidly being extended and other clinics will be opened in the near future.

**Society Meetings.**—The twelfth semiannual meeting of the Connecticut State Medical Society was held in connection with the semiannual meeting of the Tolland County Medical Society at the State Training School and Hospital, Mansfield Depot. The chief addresses were on "The Care of the Feeble-minded," by Dr. Charles TenEyck LaMoire, superintendent of the Training School, and "Some Remarks on the Diagnosis of Mental Defects" by Dr. Arnold Lucius Gesell of Yale University.—The welcome-home reception to the medical men of Middlesex County who served their country during the great war was held by the Middlesex and Central County Medical Association, in Middletown, October 9. Seventeen members of these associations were in the military service.

### ILLINOIS

**Hospital Name Changed.**—The German-American Hospital, Chicago, changed its name, October 20, to the Diversey Parkway Hospital.

**Personal.**—Dr. Thomas J. O'Malley, Chicago, after an extended service as major, M. C., U. S. Army, at Camp Merrit, N. J., has been discharged from the military service.

**Institute of Medicine Meeting.**—At the meeting of the Institute of Medicine of Chicago, October 30, the program was devoted to the presentation of the results of new research by some of the younger research workers of Chicago.

**Illegal Practitioner Fined.**—Miss Agnes Sewczyk of 4542 South Laflin Street, Chicago, was arrested by the Illinois Department of Registration and Education for practicing midwifery without a license and was fined \$25 and costs.

**Harrison Act Violators.**—Victor Modine was held for October 11, by Judge Carpenter, Chicago, under bond of \$5,000 on charges of violating the Harrison Narcotic Act. Modine was arrested in 1917, and while released under bond of \$3,000 fled to Canada. He was recently expelled from Canada and arrested when he crossed into the United States.—Louis Deryer, alias James B. King, was arrested, October 25, on the charge of selling opium, and was released under a cash bond of \$10,000.

**Venereal Disease Peril.**—Drs. Harold N. Moyer, Hugh T. Patrick, Harry A. Kraus, Gustav Kolischer, James Whitney Hall, John Leeming, William O. Krohn and G. Frank Lydston appeared before Judge Joseph P. David in the superior court to testify in a habeas corpus suit brought to obtain the

<sup>1</sup> Bradford, Bashford and Wilson: *Quart. J. Med.*, 12: 259 (April) 1919.

release of two girls arrested by members of the morals squad and held in the Lawndale Hospital. All of these physicians agreed that venereal diseases should be subject to the same regulations as other contagious diseases.

#### KANSAS

**Health Car.**—The health car Warren, belonging to the Kansas State Board of Health, has been taken from Topeka to Manhattan, and thence will go to Clay Center, Clyde, Cuba and other towns. Dr. Caroline A. Carr is in charge.

**Medical Society Organized.**—At a meeting held in Garden City, September 19, the Finney County Medical Society was organized and a charter was applied for. The following officers were elected: president, Dr. William J. Stilson; vice president, Dr. Charles Rewerts; secretary, Dr. Ronald M. Troup, and treasurer, Dr. Theodore F. Blanke, all of Garden City.

**Drive to Secure Medical School.**—Business men of Rosedale, headed by Dr. Clifford C. Nesselrode, Leneza, have inaugurated a campaign to raise \$32,000 to buy suitable land for administration building, laboratories and lecture halls for the medical department of the University of Kansas, in order to guarantee the retention and continue the use of the gift of Dr. Bell.

#### MARYLAND

**Personal.**—Dr. J. Fred Hempel, Baltimore, in charge of the Pasteur department of the state board of health, has been appointed assistant commissioner of health, to succeed Dr. William T. Howard, who will go to the Johns Hopkins School of Hygiene as an instructor. Dr. Hempel assumes his new duties, November 1.—Dr. William G. MacCallum, Baltimore, professor of pathology in Johns Hopkins Hospital, has returned after several months spent in Peru, Panama and the West Indies in the study of malaria and other tropical diseases.

**Campaign for Healthier Schoolchildren.**—Under the direction of Dr. E. V. McCollum of the Johns Hopkins School of Hygiene and Public Health, a campaign for healthier schoolchildren has begun in Baltimore. Three women skilled in child betterment work in the public schools of other cities began the work of weighing and measuring 10,000 children in seven Baltimore public schools. The effect on them of a special program of eating, sleeping and care of the body will be noted and they and their personal records of gain in weight and general health will be pointed to as evidences of what science can do for a whole community. It will also demonstrate the value of the School of Hygiene and Public Health, of which Dr. William H. Welch, Baltimore, is president. The results will then be published for the benefit of the rest of the 80,000 schoolchildren of the city. The actual business of improving the condition of the children will not begin for a month as it will take at least that long to weigh and measure the entire 10,000 and record the figures on individual charts. It is planned to continue this work for one year, and Dr. McCollum hopes to demonstrate the supervision of the instruction of all schoolchildren in food values just as they are taught to read and write will be of advantage to the city.

#### MASSACHUSETTS

**Ether Day.**—The seventy-third annual exercises of Ether Day were held at the Massachusetts General Hospital, October 16, the address being delivered by Dr. Richard C. Cahot, Boston.

**Personal.**—Dr. Robert Bayley Osgood, Boston, has been appointed instructor in surgery for three years; Edward Allen Boyden, Ph.D., assistant professor of comparative anatomy for five years, and Dr. William Lorenzo Miss, Baltimore, assistant professor of preventive medicine for one year, in Harvard University.

**New Officers.**—Holyoke Medical Association held its first meeting since the war, October 8, and elected Dr. Irvin H. Farr, Holyoke, president; Dr. Robert E. Cleary, Holyoke, vice president, and Dr. Frederick A. Mead, Williamansett, secretary-treasurer.—At the annual meeting of the Northern Berkshire Medical Association, Dr. George I. Curran, North Adams, was elected president, and Dr. George H. Thompson, North Adams, secretary.

#### MISSOURI

**Typhoid Epidemic.**—It is asserted that an epidemic of typhoid in Concordia, Sweet Springs and other towns in that vicinity resulted from the use of ice taken from ponds contaminated by neighboring cesspools.

**New Association Organ.**—The Missouri Tuberculosis Association announces the appointment of Mrs. Emily Newell Blair as director of the newspaper publicity service of the association and editor of a monthly magazine to be called "Fairplay" which the association purposes establishing early next year.

**Medical Library Donated.**—Dr. Herbert S. Hill, Springfield, has presented his medical library to the Greene County Medical Society. This is the second donation of medical works received by the Greene County Medical Society, the late Dr. H. L. Porter of Seneca, having directed that his medical library be given to that society.

**Personal.**—Dr. Cardinal B. Woolsey, Braymer, is completing a new building for the Woolsey Hospital.—Dr. Ralph H. Major of Kansas City, professor of pathology and bacteriology in the University of Kansas School of Medicine, has accepted a position on the staff of the Henry Ford Hospital at Detroit.—Dr. M. C. McMurry, Paris, was operated on for appendicitis in the Woodland Hospital, Moberly, recently. He is now convalescent.

**Veneral Disease Division Established.**—A division of venereal diseases has been established by the state board of health and placed under the direction of Dr. Richard L. Russell, Humansville, who has had much experience in this work. He will shortly begin a campaign against venereal diseases and will visit many communities throughout the state to organize clinics and direct effectual measures to combat the venereal disease menace.

**Medical Legion Post Organized.**—Walter Reed Post No. 136, of the American Legion, composed largely of members of the medical and dental professions, was organized at St. Louis, October 3. The officers are: Drs. Fred W. Bailey, St. Louis, post commander; William T. Coughlin, St. Louis, vice post commander; John F. Hardesty, adjutant, and Clyde P. Dyer, finance officer. Drs. Major G. Seelig, St. Louis, and J. P. Harper were elected delegates to the state convention.

**Major Gilles in St. Louis.**—Major H. D. Gilles of the British Medical Corps was the guest of the Association of Surgeons of St. Louis and the St. Louis Dental Society, October 17, and spoke of the work done in plastic surgery in treating wounds of the face during the great war. The lecture was illustrated with lantern slides showing the operations and methods of treating the injuries. Major Gilles was in charge of one of the largest reconstruction hospitals in the British army during the war.

**Postgraduate Meeting.**—The postgraduate meetings inaugurated by the council of the Missouri State Medical Association this season have proved very satisfactory. The meeting at Springfield was held in conjunction with the Southwestern Missouri Medical Association, and that at Cape Girardeau with the Southeastern Missouri Medical Association. Meetings were also held at Excelsior Springs and at Moberly. The attendance has been very encouraging and the programs have roused great enthusiasm for this method of exchange of thought. Each meeting represented a councilor district comprising from three to ten counties, invitations being extended to surrounding counties in other districts, and was held under the immediate direction of the councilor for the district.

**Mental Hygiene Survey.**—The survey of the state to ascertain the status of the insane and feeble-minded has begun. At the request of Governor Gardner, sponsored by the Missouri State Medical Association, the Missouri State Mental Hygiene Association and other bodies, the National Committee for Mental Hygiene has secured the services of Dr. Samuel W. Hamilton of New York to make the survey, and he has arrived to begin the work. His headquarters will be located in the state house at Jefferson City. He will investigate every phase of the question and make the information gained accessible to the governor so that the policies of the state toward the care of the insane and feeble-minded may be based on ascertained fact. It is estimated that about a year will be consumed in making the survey.

#### NEBRASKA

**Northwestern Physicians Meet.**—The Northwestern Nebraska Medical Society met at Valentine, September 25, for the first time in two years, and reorganized, electing the following officers: president, Dr. Robert H. Foster, Norfolk, vice president, Dr. Alfred G. Rasek, Valentine, and secretary-treasurer, Dr. William B. Ely, Ainsworth. The next meeting will be held at Norfolk.

**Personal.**—Dr. Ira H. Dillon, Auburn, has been appointed chief of the bureau of health by the secretary of the department of public welfare of Nebraska, succeeding Dr. William F. Wild, Lincoln, resigned.—Dr. James D. Case, superintendent of the Lincoln State Hospital for the Insane, has resigned and has been succeeded by Dr. David G. Griffiths, at present superintendent of the Institute for Feeble-Minded Youths, at Beatrice. Dr. H. B. Stewart, Hastings, has been appointed to succeed Dr. Griffiths.

### NEW YORK

**Personal.**—Dr. Henry L. K. Shaw, Albany, formerly director of the division of child hygiene, has been appointed a consultant of the New York State Department of Health.—Dr. Matthias Nyeoll, Jr., New York City, has been appointed a member of the advisory committee of the International Exposition of Municipal Equipment, recently established at Grand Central Palace, New York City.

**Health Scoring Among Cities Resumed.**—Last year the health department prepared a score card for the health activities of the various cities of the state. Dr. Charles C. Duryee, Schenectady, state sanitary supervisor, was detailed to interview health officers and mayors of cities for the purpose of scoring this work. The results are most gratifying. Great interest has been aroused and many improvements have been instituted. The score card has been improved and it is proposed to make a second round of interviews with mayors and health officers.

**Mobile Child Welfare Station.**—In order to stimulate interest in child welfare and other health work the Westchester County Chapter of the American Red Cross has equipped a model welfare station in the interior of an auto truck and has sent this exhibit to a large number of towns in Westchester County. When it arrives in a community it is placed under the direction of the local public health nurse, the state and county health nurses attached to the exhibit acting as her assistants. In this way great interest is stimulated in the various localities. Meetings are held in the evenings at which health films are shown and at which the health officer in the community is the speaker. Little Mothers' leagues have been organized in nearly every town visited.

**Sanitary Supervisors' Conferences Resumed.**—The conferences of sanitary supervisors and health officers in the various districts of the state, which it was impossible to continue during the past two years on account of the war activities, have been resumed this fall. During September and October the fifteen sanitary supervisors held in their districts one or more conferences with their health officers. One of the aims of the conferences has been to urge the 750 municipalities which have adopted the uniform sanitary code to adopt certain amendments which will bring the code up to date. Another measure presented at these conferences was the uses that could be made of the public health nurse in rural districts.

**Pneumonia a Reportable Disease.**—Dr. Hermann M. Biggs, commissioner of health, has sent an open letter to the physicians of this state reminding them that the Sanitary Code requires that all cases of pneumonia shall be reported to the local health authorities as soon as diagnosis can be made. In the reports, lobar and bronchial pneumonia should be differentiated. The letter calls attention to the fact that recent reports of deaths indicate that many deaths are recorded where no cases have been reported. The state department of health, while it does not expect a recurrence of respiratory diseases such as was experienced last year, believes many cases of pneumonia will occur and asks the cooperation of physicians in reporting cases so that the department and local health authorities will be in a position to take prompt action.

### New York City

**Personal.**—Dr. Simon Flexner was the principal speaker at the first fall meeting of the New York Association of Biology Teachers held, October 24.—Dr. Jose Castillo, Jr., Sao Paulo, Brazil, is visiting New York for the purpose of studying health organizations.—Harry H. Warfield, Capt., Sanitary Corps, U. S. Army, and until recently attached to the base hospital at Camp Meade, Md., has been appointed superintendent of the Peck Memorial Hospital, Brooklyn.

**Red Cross to Keep Base Hospitals.**—The Metropolitan Committee of the Red Cross Roll Call announces in connection with the third Red Cross Roll Call which begins on November 2, that it will keep the eight base hospitals which it organized in this city during the war. It is pointed out

it can only be prepared to meet the great disasters of peace such as floods, earthquakes, epidemics, etc., by a fully organized and equipped series of base hospitals. Eight New York City base hospitals were organized at the following institutions, most of which have given assurance that they will be kept intact for emergency: Bellevue, Presbyterian, Mount Sinai, New York Post Graduate, Roosevelt, Lenox Hill and the Metropolitan.

**Hospitals Seek Million Dollar Fund.**—The United Hospital Fund announces that during the week of November 17 an intensive campaign will be conducted from the new headquarters of the fund, at 261 Madison Avenue, to raise \$1,000,000 to help meet the deficit of the forty-six hospitals that participate in the fund. The money will be divided among the hospitals on the basis of the free work carried on in these institutions. The money is to be apportioned by a committee headed by the mayor and composed of the presidents of the chamber of commerce and the Merchant's Association, Otto T. Barnard, Cornelius N. Bliss, Jr., Arthur Curtiss James and James Speyer. A recent report of the United Hospital Fund shows that the hospital facilities of New York are such that only one person in ten seriously ill in this city is getting hospital care. The report also reveals the fact that 2,000,000 New Yorkers, half of them with serious ailments, needed hospital treatment last year which they were unable to obtain on account of the underequipment of the city.

### NORTH CAROLINA

**Hospital Notes.**—Dr. Robert T. Ferguson, Gaffney, announces that he is to build a private hospital in that city to be known as Dr. Ferguson's Private Sanatorium.—A modern hospital to be known as the Wilmington Hospital will be built in Wilmington by Drs. J. T. Haggard and John F. Miller. The building will have fifty rooms, each with a private bath, and will be fireproof.

**State Bureau of Infant and Maternal Hygiene.**—The state board of health will establish in a short time, with the cooperation of the American Red Cross, a bureau of infant and maternal hygiene, the expense of which will be born jointly by the state and the American Red Cross. This bureau will be an enlargement of the department recently conducted by the board under the direction of Mrs. Kate Brew Vaughan. The personnel will consist of a state director of nursing, and two assistant supervising nurses with the necessary clerical help.

**Personal.**—Dr. Benjamin K. Hays, Oxford, formerly secretary of the State Board of Medical Examiners and for the last four years secretary of the state medical society, has accepted service with the National Association for the Prevention of Tuberculosis and will engage in field work designed to instruct the discharged soldiers now in civil life outside of institutions, how to best conduct their fight against the disease.—Drs. L. C. Todd and Hamilton W. McKay have been appointed members of the staff of the Crowell Urological Clinic, Charlotte.—Dr. Edward Jenner Wood, Wilmington, has sailed for England, where he will study for a degree in tropical medicine.—Dr. S. Westray Battle, Asheville, entertained the members of the Buncombe County Medical Society at a dinner, October 20.—Dr. Kemp P. Neal, Monroe, has returned from service abroad and has located at Raleigh.—Dr. Benjamin E. Washburn, Raleigh, who has been for three years supervisor of rural sanitation in North Carolina, will leave the state, January 1, to take up his new duties in Jamaica under the International Health Commission.

### OHIO

**Professor Dreyer in Cleveland.**—Prof. Georges Dreyer, professor of pathology in Oxford University, delivered a lecture at the medical library, Cleveland, October 27, under the H. M. Hanna lecture fund of the Western Reserve University School of Medicine.

**New Regulations for Sanatorium.**—Under a law which has just gone into effect, the board of governors of the Mount Vernon State Sanatorium are privileged to accept anywhere from \$5 to \$25 per patient for board, room and medical services. Under the old law, \$5 was the only weekly fee that could be accepted. The per capita cost at the present time is \$14.10 a week.

**Trachoma in Scioto County.**—An antitrachoma campaign, conducted by the state board of health, has been completed in Scioto County. During this campaign, 10,577 schoolchildren were examined, about evenly divided between the schools in the city of Portsmouth and those in rural districts.

Of these, 179 were said to have been suffering from trachoma. About five sixths of these cases were found in the rural schools.

**Personal.**—Dr. Clarence W. Russell, Springfield, is reported to be seriously ill with heart disease at the home of his sister in Burton.—Dr. Lloyd D. Trowbridge, Piqua, slipped and fell, October 1, fracturing his left leg at the ankle.—Dr. Emmett L. Hooper has been appointed first assistant physician, Dr. Freeman A. Osborn, second assistant physician, and Dr. Andrew F. Holmes, third assistant physician of the Athens State Hospital.

**Hospital Notes.**—The trustees of the Masonic Home, Springfield, have accepted plans for a new \$500,000 hospital with a capacity of 175 patients. An auditorium with a capacity of 150 wheel chairs will be a feature.—The Hinde-Ball Mercy Hospital, Mount Vernon, was opened to the public, September 15.—Lancaster Municipal Hospital opened a training school for nurses, October 1.—The Toledo Newsboys' Association has rented a private room at the Toledo Hospital for the use of any member of the association who is sick or hurt.

**Grading for Health Work.**—The grading of 102 health districts of the state for the purpose of fixing the salary to be paid to the district health commissioner has been established by the state civil service commission in compliance with the Hughes act, which revises the local health administrative organization. Salaries will increase automatically after specified periods of efficient service. Applications for non-assembled, competitive examinations for health commissioners of the general districts will be received until noon, November 15. Of all municipal districts, Cleveland is the only city in Grade 1, and the health commissioner will receive a salary of \$6,000. There are four Grade 2 districts in which a salary of \$5,000 will be given. In Grades 3, 4 and 5 the salaries are respectively, \$4,000, \$3,000 and \$2,000 a year.

**Smallpox.**—The state department of health in a current circular states that smallpox is more prevalent in Ohio than in disease-ridden Serbia. Through medical aid from other countries, Serbia is now free from smallpox for the first time in five years; Ohio reports 119 cases in September. From January 1 to October 1, 3,292 cases were reported, and others have been added this month. "Ohio is in need of methods similar to those pursued in Serbia," said the department's statement. "Smallpox is one of the most easily preventable diseases. Our records show that a case in a person who has recently been successfully vaccinated is exceedingly rare. Any community which desires to rid itself of smallpox, as war-ravaged Serbia has done, can accomplish this result in a month by general vaccination of the population."

## PENNSYLVANIA

**Typhoid Fever.**—There have been reported on the Fourth Street Extension, West Newton, nineteen cases of typhoid fever, said to have been contracted from the use of water from an old well.

**Authorities on Insane Meet.**—The association of trustees and medical superintendents of state incorporated hospitals for the insane and feeble-minded of Pennsylvania met in Pittsburgh, October 17. The following officers were elected: Dr. Clyde R. McKinniss, Bridgeville, president; Dr. Ralph L. Hill, superintendent of the Allegheny County Hospital, vice president, and Dr. Q. N. Copp, physician-in-chief and administrator of the Pennsylvania Hospital Department for Mental Diseases, Philadelphia, secretary.

**Personal.**—Dr. Charles W. Sheldon, Tioga, has been appointed district medical director with supervision over the counties of Tioga, Potter, Bradford, Lycoming and Sullivan.

—Dr. J. Bruce McCreary, Shippensburg, has been appointed supervising medical director for Perry, Franklin, Adams and Cumberland counties. Dr. McCreary has also been appointed medical director of the Mount Alto Sanatorium, succeeding Dr. Frederick C. Johnson, who has been granted leave of absence.—Dr. Raleigh K. Huggins, Pittsburgh, has been appointed dean of the faculty of the School of Medicine of the University of Pittsburgh, succeeding Dr. Thomas S. Arlathout, resigned.—Dr. George Burton Stull has been appointed surgeon to the Harrisburg Hospital and medical director of the Harrisburg public schools.—Dr. Samuel P. Longstreet, Scranton, who has been seriously ill with pneumonia, is reported to be convalescent.—Dr. John A. Hawkins, Pittsburgh, Lieut.-Col., M. C., U. S. Army, after twenty-six months in the army, of which thirteen months were spent in France, has returned home.—Drs. Calvin L. Johnstonbaugh, Bethlehem, and Irvine D. Metzger, Pitts-

burgh, have been reappointed by Governor Sprout, as members of the bureau of medical education and licensure.—Dr. William L. Estes, South Bethlehem, has been appointed chief of the genito-urinary dispensary of South Bethlehem.

## Philadelphia

**Plant Memorial Trees.**—Six red oak trees were planted, Saturday, October 24, at the Pennsylvania Hospital in memory of members of Base Hospital No. 10, who gave their lives in France.

**Medical Club Reception.**—The Medical Club of Philadelphia gave a reception in honor of Hon. William C. Sprout, governor of the state of Pennsylvania, October 17, at the Bellevue-Stratford Hotel.

**Medical Society Gives Dinner.**—A testimonial dinner to Dr. Henry D. Jump, president-elect of the Medical Society of the State of Pennsylvania, was given by the West Philadelphia Medical Association at the Hotel Rittenhouse, October 28.

**Sugar for Druggists.**—The shortage of sugar has been seriously affecting the compounding of medical prescriptions in which sugar is used, so that Dr. Wilmer Krusen, medical director of Public Health and Charities, has issued an appeal to dealers and wholesalers in sugar to permit for medical purposes a 100 per cent. allowance to druggists.

**Dispensaries Reopened.**—After being closed for more than a year, the Medico-Chi dispensaries have been reopened to the public in conjunction with the state dispensaries. Cooperating with the state dispensaries through Dr. Edward Martin, head of the state department of health, and Dr. Alexander C. Abbott of the hygiene department at the University of Pennsylvania, the Medico-Chi clinics have been improved with new and up-to-date equipment.

**Personal.**—Dr. Edwin S. Cooke has been appointed first assistant of the State Genito-Urinary Dispensary.—Dr. Samuel T. Orton has been secured as head of the new psychopathic hospital at Iowa City, which is being erected at a cost of \$150,000.—Dr. Charles J. Hatfield has been reelected chairman of the Southeastern Chapter of the American Red Cross.—Dr. William Harvey Perkins sailed for Chiang-Moi, Siam, October 30, to do medical missionary work in the Presbyterian Hospital there. During the war Dr. Perkins was a lieutenant in the medical corps, stationed at Base Hospital No. 20, France.

**Occupational Therapy School Opens.**—The opening session of the School of Occupational Therapy was held in its new quarters, 2131 Spruce Street, October 19. This is the only institution of its kind in the state for the training of aides in the new profession of "healing by occupation." There are courses in weaving, stenciling, block printing, modeling, bookbinding, woodcarving, toy making and basketry. Through the cooperation of the Philadelphia General Hospital and the Pennsylvania Hospital the students are insured good hospital training under skilled supervision, and further prepared for their work by a course of lectures by eminent physicians, surgeons and psychologists.

## SOUTH CAROLINA

**New County Officers.**—At the annual meeting of the Lexington County Medical Society, held in Lexington, October 6, Dr. John H. Mathias was elected president, Dr. Daniel R. Kneece, Pelton, vice president, and Dr. James J. Wingard secretary (re-elected).

**New Training School.**—At the opening exercises of the present session of the Medical College of South Carolina, the addition of another school was announced to be designated as the Training School of Nurses of the Medical College of South Carolina. This is an entirely new feature and is expected to attract many students.

**Scholarship Awarded.**—The governor has announced the award of scholarships in the Medical College of South Carolina, Charleston, to the following appointees: Ashley B. Haight, Charleston; John D. Bunch, Clarks Hill; Arthur Kennerly, Greenwood; M. C. Patton, Fountain Inn; W. M. Jones, York; John Melver Wilcox, Darlington, and James Furman Herbert, Columbia.

**Hospital Notes.**—It is understood that a new hospital to be known as the Orangeburg Hospital will be opened by Dr. Charles A. Molliey, formerly assistant to the surgeon at the Fennell Infirmary, Rock Hill.—The Mullins Hospital has been incorporated with a capital stock of \$50,000 by Drs. French A. Smith, Frank L. Martin, Johnson H. Smith and Lonnie M. McMillan, all of Mullins.

**Personal.**—Dr. Robert H. Crawford, Rock Hill, has been awarded by the King of Greece the Medal of Military Merit for distinguished services with the American Red Cross in combating an epidemic of typhus fever.—Dr. Henry B. Malone, Chester, has been appointed chief of the internal medicine department of the Pryor Hospital.—Dr. Frank D. Mower, Newberry, has been commissioned lieutenant-colonel on the staff of Governor Cooper.

**Veneral Disease Prevention.**—A venereal clinic has been established in Columbia under the care of Dr. Charles V. Akin. It will take over the work previously done at the Columbia Hospital. The clinic will be located on the second floor of the old police station.—During the fiscal year of 1919-1920, the state board of health will expend \$32,953.42 in combating venereal disease in South Carolina. One half of this sum has been appropriated by the general assembly and the other half by the federal government. Of this amount, \$28,600 is to be devoted to the treatment of cases, \$1,926 for administration, \$1,200 for repressive measures, and \$1,227.42 for education and publicity.

#### CANADA

**Federal Health Department Created.**—A bill recently has been passed by the Canadian House of Commons creating a federal department of health and providing for a minister of health and advisory committee. The authority of the department will extend to all matters affecting health within the jurisdiction of the Dominion of Canada.

**Personal.**—Dr. Robert R. McClenahan, Hamilton, Ont., district officer of health from Toronto to Niagara Falls, has been appointed medical officer to take charge of the venereal diseases campaign in Ontario with headquarters in Toronto, under the provincial board of health.—Dr. Wilfrid T. Grenfel, C. M. G., the Labrador medical missionary, has recently been in Toronto.

**Hospital News.**—The method of caring for the insane in the province of Manitoba is now undergoing a radical change. Persons suspected of being mentally unsound will be admitted to psychopathic wards of general hospitals to receive immediate expert treatment. Subsequently, these patients, if found suitable, will be sent to either the hospital for the insane at St. Kirk or to Brandon. Specially trained nurses and interns will be provided and reports of each case will be forwarded to the superintendent of hospitals in Winnipeg.

**Canadian Medical Association.**—By a new arrangement the *Journal of the Canadian Medical Association* loses the services of Sir Andrew Macphail as editor, and substitutes an editorial board. Dr. Alexander D. Blackader, Montreal, is the chairman of this board; Dr. William W. Francis, assistant editor, and Dr. Maude E. S. Abbott, acting editor. Besides, there is a subeditorial board appointed by provincial associations. The former publisher has been bought out, but the journal will still be issued from Toronto.

**Some Drug Importations Into Canada.**—In 1915 Canada imported 80 ounces of cocaine. This advanced from year to year until in the official year 1919, there were imported 12,333 ounces at a cost of \$142,123. The morphin importations in 1915 amounted to 259 ounces; in 1919, 30,087 ounces at a cost of \$179,195. Crude opium imported amounted to 7,248 pounds in 1915; in 1919, 34,263 pounds, at a cost of \$534,555. Every province the last three or four years has enacted prohibitory liquor legislation; and a year or two ago manufacture and importation of alcoholic liquors was prohibited. A bill has recently been introduced into the Canadian House of Commons controlling drug importations.

#### GENERAL

**Western Surgical Association Change of Meeting Date.**—The time for the next meeting of the Western Surgical Association which will be held at Kansas City, Mo., has been changed to December 5 and 6.

**Southern Medical Association Meeting.**—The annual meeting of the Southern Medical Association will be held in Asheville, N. C., November 10 to 13, under the presidency of Dr. Lewellys F. Barker, Baltimore.

**Honorary Fellowship for Surgeon-General.**—It is announced that the Royal College of Surgeons of Edinburgh has conferred a honorary fellowship on Major-Gen. Merritte W. Ireland, Surgeon-General of the Army.

**Women Physicians Pass Resolutions Favoring Prenuptial Physical Examinations.**—The International Conference of Women Physicians in session in New York, at its meeting,

October 24, passed resolutions advocating that couples contemplating matrimony present themselves for physical examination before wedlock. A resolution asking the conference to denounce tobacco smoking as an evil was voted down.

**Appropriations for Maternal and Infant Care.**—Senator Morris Sheppard of Texas has introduced a bill in the United States Senate carrying large appropriations for the public protection of maternity and infancy, and authorizing the Children's Bureau of the Department of Labor to cooperate with the various state health agencies in the promotion of maternity and infancy care. Several similar bills are pending in the Senate and House, but no action has been taken.

**No Action on Public Health Legislation in Senate.**—Efforts to get action on public health legislation in the United States Senate during the past week were unsuccessful. The Senate called up a measure to create a department of tuberculosis in the United States Public Health Service, a bill to appropriate \$1,000,000 for the prevention and study of influenza, and a bill to appropriate funds for caring for drug addicts. By failure to obtain unanimous consent, the measures were passed by for consideration later.

**Eye, Ear and Throat Men Elect Officers.**—At the twenty-fourth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, held recently in Cleveland, the following officers were elected: president, Dr. Lee M. Frazer, Buffalo; vice president, Dr. Hal Foster, Kansas City, Mo.; secretary, Dr. Luther C. Peter, Philadelphia; treasurer, Dr. Secord H. Large, Cleveland, and chief of directors, Dr. Clarence Loch, Chicago. The twenty-fifth annual meeting will be held Oct. 14-16, 1920, at Kansas City, Mo.

**Amendments Offered for Control of Venereal Disease.**—An effort to add amendments to House Bill 5123 to prevent transmission through the mails of advertisements relating to the treatment of venereal diseases and certain sexual disorders is to be made in the House of Representatives. The amendments would extend the prohibitory mailing features of the measure to other diseases such as kidney diseases, bladder trouble, skin and blood diseases. The measure was introduced by Congressman Halvor Steernerson of Minnesota.

**New Mississippi Valley Officers.**—At the annual meeting of the Mississippi Valley Medical Association, held in Louisville, October 21 to 23, Chicago was selected as the place of meeting for 1920, and the following officers were elected: president, Dr. Frank B. Wynn, Indianapolis; vice presidents, Drs. Chauncey W. Dowden, Louisville, and Frank Smithies, Chicago; secretary, Dr. Henry Enos Tuley, Louisville (re-elected), and treasurer, Dr. Samuel C. Stanton, Chicago (re-elected).

**Bequests and Donations.**—The following bequests and donations have recently been announced:

City Hospital, Winston-Salem, N. C., \$240,000 for improvements in the hospital, including a five-story fireproof building, by the will of R. J. Reynolds, Winston-Salem.

Columbia, Pa., Hospital, \$1,000, by the will of Benjamin F. Hiestand, Marietta, Pa.

Methodist Home for the Aged and Infirmary, Bala, Pa., \$3,000 and a residence; Methodist Orphanage, Philadelphia, \$3,000, and Methodist Hospital, Philadelphia, \$500, by the will of Elizabeth E. Kilburn.

Christ Church Hospital, Philadelphia, \$30,000, by the will of Mary Wright.

**New Officers for Railway Surgeons.**—At the sixteenth annual meeting of the American Association of Railway Surgeons, held in Chicago, October 12-17, the following officers were elected: president, Dr. Robert McConaughy, York, Neb.; vice presidents, Drs. Isaac F. Harter, Stronghurst, Ill.; Paul E. Gardner, New Hampton, Iowa; George W. Thompson, Winamac, Ind.; treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa (re-elected); secretary-editor, Dr. Louis J. Mitchell, Chicago (re-elected), and executive board, Drs. Samuel C. Plummer, Chicago, and David Y. Roberts, Louisville, Ky.

**Mayo Clinic Physicians Meet.**—The second annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic was held at Rochester, Minn., October 8 and 9, under the presidency of Dr. Harold L. Foss, Danville, Pa. The following officers were elected: president, Dr. Clarence G. Toland, Los Angeles; vice president, Dr. Francis G. Aud, Cecilia, Ky.; secretary, Dr. Harold L. Foss, Danville, Pa.; assistant secretary, Dr. Archibald H. Logan, Rochester, Minn.; treasurer, Dr. Arthur H. Sanford, Rochester, Minn., and board of governors, Drs. Edward S. Judd, William F. Braasch and Donald C. Balfour, all of Rochester, Minn.

**Clinical Congress Elects.**—At the annual meeting of this organization, held October 23, the following officers were

elected; president, Dr. George E. Armstrong, Montreal; vice presidents, Drs. Rudolph Matas, New Orleans, and Horace Packard, Boston; regents for term expiring in 1921, Drs. Alexander Primrose, Toronto; Albert J. Ochsner, Chicago; George W. Crile, Cleveland; Harvey Cushing, Boston; George L. deSchweinitz, Bethlehem, Pa., and William J. Mayo, Rochester, Minn.; regents for term expiring 1922, Drs. John M. T. Finney, Baltimore; James B. Eagleston, Seattle; Charles H. Mayo, Rochester, Minn.; J. Bentley Squier, New York, and Dr. Walter W. Chipman, Montreal.

**Women Physicians Organize.**—As a result of the conferences of women physicians that have been in session in New York City from September 15 to October 25, a permanent organization has been formed, called Medical Women's International Association. The headquarters for the present will be at the office of Dr. Esther C. P. Lovejoy, 637 Madison Avenue, New York City. The following officers have been elected; president, Dr. Esther C. P. Lovejoy, New York City; vice presidents, Dr. Christine Murrell, London, L. Trillier-Landry, Paris, and Kristine Much, Christiania, Norway; corresponding secretary, Dr. Martha A. Welpton, San Diego, Calif.; recording secretary, Dr. Marie Feyler, Lausanne, Switzerland, and treasurer, Dr. Ellen C. Potter, Philadelphia.

**New Electro-Therapeutic Officers.**—At the annual meeting of the American Association of Electro-Therapeutics and Radiology, held in Philadelphia, September 9-12, under the presidency of Dr. Frank B. Granger, Boston, the following officers were elected: president, Dr. William Martin, Atlantic City, N. J.; vice presidents, Drs. Virgil C. Kinney, Wells-ville, N. Y.; S. St. John Wright, Akron, Ohio; Mary L. H. Arnold Snow, New York; William T. Johnson, Philadelphia, and John H. Burch, Syracuse; treasurer, Dr. Emil Heuel, New York (re-elected); secretary and registrar, Dr. Byron Sprague Price, New York (re-elected), and trustees, Drs. J. Willard Travell, New York; Frederick DeKraft, New York; Frank B. Granger, Boston; Frederick H. Morse, Boston; William L. Clark, Philadelphia, and Edward C. Titus, New York.

**Bacillus Botulinus Poisoning in Detroit.**—Cases of botulism have been reported in Detroit causing the deaths of five persons and severe illness of two others. At a dinner party, October 18, infected olives were eaten by four diners and a waitress. Of this group one guest and the waitress died. The hostess and another guest became ill and one guest escaped entirely. The olives were also eaten by three members of the household, and of this group all died. The bacillus botulinus was recovered from both the liquor and the olives. The Detroit Department of Health found that the "Curtis Brand" of ripe olives were at fault. On the basis of this information food inspectors immediately placed a ban on the sale of this particular brand. Some 7,000 jars were seized at once and the eighth jar of this lot examined was found to contain a similar organism. On the basis of this finding the entire supply of this brand of olives in Detroit was condemned as unfit for food. Nearly 20,000 jars have been attached.

**Distinguished Service Medals for British Surgeons.**—At the convocation of the Clinical Congress of the American College of Surgeons, October 24, Major-General Ireland conferred distinguished service medals on Sir Anthony Bowlby of London and Sir Robert Jones of Liverpool, after reading a letter from Secretary of War Baker in which he regretted that the President's illness made it impossible for him to make the presentation himself. The citations accompanying the awards were as follows:

Sir Anthony Bowlby: For exceptionally meritorious and distinguished services to the United States. An eminent consulting surgeon, and while serving with the British Expeditionary Forces in France with untiring zeal he devoted his time and energy toward cooperating with and unreservedly placing at the disposal of the American Expeditionary Forces his eminent talent, broad experience and knowledge of general principles in preventing wastage among our forces from wounds and disease. His research work in wound bacteriology and vaccination resulted in the saving of many lives among our sick and wounded.

Sir Robert Jones: For exceptionally meritorious and distinguished services to the United States. An eminent orthopedic surgeon and chief of the division of orthopedic surgery in the British Army service, he placed at the disposal of the medical service of the American Expeditionary Forces his eminent talents and broad experience in standardizing methods of treatment of the sick and wounded, and took an active personal interest in class instruction of American medical officers in this very important branch of surgery.

**Prohibition Enforcement Act of Interest to Physicians.**—The prohibition enforcement act, to make effective the prohibition constitutional amendment, carries sections of interest to the medical profession. It provides that no one but a

physician holding a permit to prescribe liquor shall issue any prescription for liquor. This must be after physical examination of the patient if this procedure is possible and, if this course is impracticable, the prescription can be issued on the best information obtainable that the liquor is necessary as a medicine for the ailment. Not more than a pint of spirituous liquor to be taken internally can be prescribed for use by the same person within a period of ten days. No prescription can be filled a second time when spirituous liquor is included in it. Official blanks for filling these prescriptions are to be provided, and these blanks must be used in all cases, except in emergencies. Physicians are to obtain licenses from the Internal Revenue Service. The use of liquor is also permitted in the manufacture of medicinal preparations manufactured according to stated formulas: "patent," patented and proprietary medicines unfit for beverage purposes; toilet, medicinal and antiseptic preparations unfit for beverage purposes; flavoring extracts and syrups unfit for beverage or intoxicating purposes. Permits are required to manufacture these articles but not to sell them. Substantial fines are prescribed for violations, which are increased with recurring offenses.

## FOREIGN

**Personal.**—Dr. Edward Hindle, Kingsley Lecturer and Bye Fellow of Magdalene College, Cambridge, assistant to the Quick Professor of Biology, has been elected to the chair of biology in the School of Medicine, Cairo, Egypt.

**French Gratitude Medal for American Physicians.**—The *Journal officiel* of Sept. 24, 1919, publishes a list of American physicians and surgeons to whom the silver Médaille de la Reconnaissance française had recently been awarded. The list is reproduced in the *Presse médicale* of October 4.

**New Medical Building in Spain.**—The Physicians' Association of Madrid has under consideration the building of a new eight story building which will serve as a home for the different medical societies of Spain. The estimated cost of this Palacio de Ciencias Médicas, as it is to be called, is about \$1,300,000.

**Deaths in the Profession Abroad.**—Dr. E. Bonardi, professor of medical pathology at the University of Pavia and member of the lower house of parliament.—Dr. N. Berend, professor of children's diseases at the University of Budapest, killed in a riot.—The *Nederlandsch Tijdschrift* mentions also the death of Prof. F. Niszl of the Institute for Psychiatric Research at Munich.

**The Dejerine Endowment.**—The widow of the late Professor Dejerine of Paris and Mlle. Dejerine have endowed a fund in charge of the Société de neurologie at Paris in memory of the eminent neurologist who was one of the founders and long president of the society. The income is to be devoted to promote scientific research, clinical or experimental, in the field of neurology, especially to aid those who have distinguished themselves by original research to publish their works with the desirable extent and illustrations, or to facilitate further research by better instrumental or experimental equipment. The funds disposable are to be given exclusively to works the first results of which have been previously communicated to the society. The research worker may or may not be a member of the society, or have worked in collaboration with some member of the society. A further provision states that the funds disposable may be attributed year after year to the same work at the discretion of the society. The candidates may apply for aid from the fund directly or through the intermediation of some member of the society. The works may be published by the society in its official journal, the *Revue Neurologique*, or independently, within two years, and the works may compete for prizes offered elsewhere. It is anticipated that the fund will be increased later by donations or appropriations. The first award will consist of 2,000 francs. Application should be made to the Commission du fonds J. Dejerine de la Société de neurologie de Paris.

## LATIN AMERICA

**Sanitary Works in Uruguay.** A cablegram from Montevideo announces that the secretary of public works has proposed that an American company be given the contract for the execution of a plan of sanitary works for the whole country. It is estimated that the cost will amount to \$19,000,000.

**Fiftieth Anniversary of Mexican Medical Society.**—The Sociedad Médica Pedro Eschericho of Mexico City held a gala session, August 4, to commemorate the founding of the society fifty years before. The president, Dr. José Truete

y R. A., spoke on the life and work of the physician's wife, and Dr. A. Lopez Hernandez on the progress in medicine during the half century since the society was founded. The society publishes a journal, *El Observador Médico*, which has just entered on its third series of volumes. The editorial staff consists of Drs. R. Lopez, Santiago Ramirez and L. S. Viramontes. An editorial in a recent number, signed by Dr. Ramirez, laments the free rein given to quacks of all kinds in Mexico and urges the necessity for organized resistance on the interest of the public. The publishing of a popularly written journal to educate the public in regard to the dangers of quackery is suggested. Dr. Ramirez added: "The medical education of society should be initiated; the need for it is great, from the millionaire to the minister. Society in Mexico is absolutely ignorant of medical culture. For the public, the physician, the cook, the tradesman, all rank alike as regards medicine." There is some agitation in favor of founding a physicians' club, the Casa del Médico. The editorial adds that if this should become a fact, "it should be born with a whip in its hand to lash the commercialists. It is rumored that certain commercialists were already on hand at the meeting to discuss arrangements for the proposed club."

## Government Services

### MEMORIAL DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

#### ALABAMA

Birmingham—Dabney, W. C. (M.)  
Edmundson, H. C. (L.)  
Rosen, G. W. (M.)  
Sniard, E. C. (L.)  
Barnsville—Walker, L. M. (L.)  
Cullman—Culpepper, R. A. (L.)  
Fairhope—Godard, C. G. (L.)  
Mobile—Sleeker, E. S. (M.)  
Tuscaloosa—Dixon, R. E. (L.)  
Tuscumbia—DesPrez, L. W. (C.)

#### ARKANSAS

Rush—Drennan, S. A. (M.)  
Scranton—Blair, A. A. (C.)  
CALIFORNIA  
Alcatraz—Yemans, H. W. (M.)  
Downey—Zindon, D. B. (L.)  
Pescadero—Williams, J. C. (L.)  
Long Beach—Scott, L. D. (C.)  
Shippley, E. H. (C.)  
Los Angeles—Butka, L. J. (C.)  
Hammack, R. W. (C.)  
Orbison, T. J. (C.)  
Orville—Whiting, F. M. (L.)  
Palo Alto—McDowell, A. E. (L.)  
San Diego—Irones, R. B. (C.)  
San Francisco—Barbour, N. P. (C.)

Ewing, E. E. (L.)  
Fleissner, C. M. (C.)  
Ghidella, E. J. (L.)  
Hatch, E. D. (L.)  
Howe, L. P. (L. C.)  
Leach, C. N. (C.)  
Myre, S. L. (C.)  
Reardan, F. B. (C.)  
Walford, J. M. (M.)  
Tulare—Chilson, W. C. (C.)

#### COLORADO

Denver—Goldhammer, S. S. (L.)

#### CONNECTICUT

Bridgeport—DeWitt, E. N. (L.)  
Danbury—Desing, W. C. (C.)  
Hartford—Grant, L. S. (L.)  
Lysan, E. J. (L.)  
Maitlen, S. (L.)

#### DELAWARE

Dover—Behen, W. C. (L.)

#### DISTRICT OF COLUMBIA

Washington—Adams, F. D. (L.)  
Dollman, C. M. (M.)  
Hill, A. J. (L.)  
Johnson, P. B. (C.)  
Kerr, H. H. (L. C.)  
Muffett, D. B. (L.)  
Reuter, F. A. (C.)

#### FLORIDA

Lakeland—Griffin, J. D. (M.)  
Wilson, J. F., Jr. (C.)

#### PENNSYLVANIA

McMillan, D. W. (M.)  
Pine Barren—Clark, W. A. (C.)  
Tampa Baldwin, R. E. (C.)  
GEORGIA  
Atlanta—Collier, T. J. (C.)  
Lowery, R. R. (C.)  
Columbus—Brooks, H. W. (L.)  
La Fayette—Coulter, R. M. (C.)  
Macon—Simons, J. M. (M.)  
Rome—Simmons, R. O. (C.)  
Vienna—Lupo, C. W. (L.)

#### IDAHO

Castleford—Schwarz, T. E. (M.)  
Paris—Moore, C. O. (M.)  
ILLINOIS  
Anna—Campbell, J. A. (C.)  
Aurora—Geypell, W. C. (C.)  
Bath—Maughn, H. S. (C.)  
Beardstown—Harris, H. H. (L.)  
Chicago—Adams, C. (C.)  
Crittchell, W. C. (C.)  
Berger, J. M. (M.)  
Calvin, A. B. (L.)  
Carothers, R. C. (C.)  
Cutler, J. H. (L.)  
Davies, H. E. (L.)  
DeBoer, W. (M.)  
Harrall, R. W. (L.)  
Hayes, D. F. (C.)  
Herricksen, K. J. (C.)  
Herrmann, C. B. (L.)  
Kelly, R. M. (C.)  
Koons, J. E. (L.)  
Korby, G. J. (C.)  
Levinton, N. D. (L.)  
McGregor, D. E. (L.)  
Martin, H. W. (L.)  
McGuire, J. W. (C.)  
Murray, W. K. (M.)  
Phifer, F. M. (M.)  
Robison, J. A. (M.)  
Strauss, S. G. (C.)  
Tarnowsky, G. (C.)  
Wheaton, C. L. (M.)  
East Moline—Mayos, G. E. (C.)  
Egan—Howell, J. A. S. (C.)  
Fremont—Buchanan, N. (L.)  
Georgetown—Smith, E. M. (M.)  
Hoopston—Weaver, A. C. (L.)  
Jacksonville—Norris, F. A. (C.)  
Kincaid—Miller, R. J. (C.)  
Naperville—Spreng, R. W. E. (L.)  
Olney—Wroughton, E. J. (L.)  
Peoria—Boughland, W. L. (C.)  
Ramesey—Staff, J. (C.)  
Rock Island—Weiss, J. M. (C.)  
Shipman—Stone, C. A. (C.)

#### INDIANA

Arlington—Finlay, F. H. (L.)  
Bloomington—Akin, R. A. (M.)  
Blountsville—Gardoe, V. (L.)  
Brazil—Sourwine, C. C. (C.)

Bremen—Denson, R. C. (M.)  
Bristow—Coulter, P. J. (L.)  
Loridon—Daniel, J. C. (C.)  
Drift Wayne—Fauve, A. E. (C.)  
Hammond—White, H. J. (C.)  
Indianapolis—Ox, C. E. (L.)  
Deer, B. E. (L.)  
Solomon—R. A. (C.)  
La Porte—Kimball, G. W. (C.)  
Muncie City—Hecher, O. L. (L.)  
New Albany—Shacklett, H. B. (C.)  
Vergt, C. F. (L.)  
Ockle—Lock, F. C. (C.)  
South Bend—Whitehill, J. E. (L.)  
Terre Haute—Burnside, L. A. (C.)

#### IOWA

Arlington—Hazard, C. M. (L.)  
Barnes City—Paradise, J. A. (L.)  
Baxter—Hunt, G. C. (L.)  
Chariton—Kuhn, L. C. (C.)  
Clinton—Fackrice, K. (M.)  
Davenport—Black, C. E. (C.)  
Des Moines—Osborn, J. W. (C.)  
Stuart, A. B. (C.)  
Elion—Gandy, T. (L.)  
Fairbank—Ward, I. W. (L.)  
Iowa City—Hobby, E. E. (M.)  
Marne—Lyon, C. W. (C.)  
McClelland—Nielsen, F. W. (C.)  
Millsburg—Amick, B. (C.)  
Missouri Valley—Lusk, E. B. (C.)  
Montour—Corns, W. (L.)

#### KANSAS

Emporia—Harvey, C. C. (C.)  
Gridley—Stockett, M. L. (C.)  
Lansing—Faulkner, I. T. (C.)  
National Military Home—Kraft, C. (C.)  
Sedgwick—Buley, D. G. (C.)  
Valley Falls—Mann, F. P. (C.)

#### KENTUCKY

Allen—Mayo, H. H. (C.)  
Danville—Rawson, V. (L.)  
Hardsburg—Beard, H. J. (L.)  
Harned—Moorman, E. (C.)  
Lakeland—Ryder, W. E. (L.)  
Lexington—Macquire, J. D. (C.)  
Livingston—Walker, E. M. (C.)  
Louisville—Dunne, E. L. (C.)  
Paducah, R. (M.)  
York, J. B. (C.)  
Madisonville—Robinson, L. B. (C.)  
Owensboro—Phillips, C. C. (M.)  
Water Valley—Bard, C. B. (L.)

#### LOUISIANA

Lake Providence—Hamley, W. H. (C.)  
New Orleans—Bahn, C. A. (M.)  
Baton, T. W. (L.)  
Belden, W. T. (C.)  
Rudolf, T. R. (C.)  
Sulphur—Lyons, S. B. (C.)

#### MAINE

Portland—Ridlon, B. D. (M.)  
Wright, C. S. (C.)

#### MARYLAND

Baltimore—Bochs, C. J. (M.)  
Clark, F. H. (L.)  
Cross, G. G. E. (L.)  
Cross, R. Z. (G. L.)  
Finney, W. P. (L.)  
Hanna, B. S. (C.)  
Krause, L. A. M. (L.)  
Ostro, M. (C.)  
Pearlstein, P. (L.)  
Reese, S. O., Jr. (L.)  
Reifschneider, C. A. (L.)  
Schapiro, A. (M.)  
Stigward, A. G. (M.)  
Bowie—Lancaster, G. E. (L.)  
Denton—Brumbaugh, B. B. (L.)

#### MASSACHUSETTS

Boston—Austin, A. E. (M.)  
Kau, E. V. (L.)  
Parker, H. F. (C.)  
Brookline—Wynn, W. G. (L.)  
Cambridge—Chase, D. E. (C.)  
Chester—Lanpher, H. A. (L. C.)  
East Norfolk—Moore, F. P. (L.)  
Fitchburg—Ferguson, A. W. (L.)  
Fort Banks—Crandall, W. M. (C.)  
Framingham—Blanchard, W. B. (L.)  
Groveland—Bagnall, E. S. (C.)  
Lynn—Liman, J. (L.)  
Medway—Wyman, J. H. (C.)  
New Bedford—Provost, R. G. (C.)  
Newtownville—Clark, C. W. (L.)  
Somerville—Finnerly, C. W. (L.)  
Westboro—Jordan, M. M. (C.)  
Winthrop—Grainger, E. J. (L.)

#### MICHIGAN

Ann Arbor—Alair, V. (L.)  
Battle Creek—Wroble, C. G. (C.)  
Detroit—Horton, C. (M.)  
Baskerville, R. J. (C.)  
Deinet, W. A. (L.)  
Holmes, A. D. (C.)  
Keunedy, W. V. (L.)  
Luskler, A. F. (C.)  
O'Brien, W. A. (L.)  
Shelby, C. (L.)  
Taylor, P. B. (C.)  
Flint—DeSomosky, V. H. (M.)  
Ionia—Kison, V. H. (C.)  
Lansing—Barnes, D. (L.)  
Mumth—Leece, R. H. (C.)  
Muskegon—Egan, A. B. (L.)  
Norway—Van de Erve, W. (L.)  
Phoenix—Kellijer, J. L. (C.)

#### MINNESOTA

Albert Lea—Kamp, B. A. (C.)  
Anoka—Jones, F. R. (C.)  
Aunon Falls—Hank, L. P. (C.)  
Colorado—McHugh, R. J. (C.)  
Minneapolis—Dahl, J. A. (L.)  
Mach, F. B. (C.)  
St. Cloud—Cusker, C. (C.)  
Urbur, R. J. (L.)  
Northfield—Asses, J. Jr. (C.)  
Rochester—Murray, G. A. (L.)  
St. Paul—Munstock, A. E. (C.)  
Swanson, J. (L.)  
Wykoff—Walker, J. D. (C.)

#### MISSISSIPPI

Fort Adams—Lemkowitz, D. G. (M.)  
Hattiesburg—Betha, W. R. (M.)  
Natchez—Benoist, E. E. (C.)  
North Carrollton—Hays, H. R. (L. C.)

#### MISSOURI

Clayton—Mackey, D. E. (M.)  
DeKalb—Shelton, W. J. (L.)  
Edina—Jurgens, H. J. (C.)  
Riley, F. H. (L.)  
Frankford—Kennedy, J. J. (C.)  
Joplin—Royer, D. J. (L.)  
Kansas City—Florian, A. J. (M.)  
Thomas, H. S. (L.)  
Kennett—Egbert, T. H. (L.)  
Luray—Dungerfield, V. S. (L.)  
Moberly—Sweeney, J. D. (C.)  
Princeton—Buren, C. R. (C.)  
Rich Hill—Insley, H. W. (M.)  
St. Louis—Bell, H. H. (M.)  
Bradley, J. M. (C.)  
Broadhead, W. C. (C.)  
Doris, R. P. (L.)  
Freeman, J. M. (L.)  
Landree, J. C. (L.)  
Mader, J. L. (L.)  
Pulliam, M. J. (C.)  
Tate, L. L. (C.)

#### MONTANA

Butte—Phillips, J. H. (L.)

#### NEBRASKA

Belgrade—Bruttell, O. A. (C.)  
Blair—Hurstien, L. L. (L.)  
Gretina—Bisbeck, L. C. (L.)  
Harrison—Cramer, L. L. (L.)  
Lincoln—Parks, C. W. (L.)  
Normal—Koyak, H. (C.)  
Omaha—Srb, A. F. (L.)

#### NEVADA

McDermitt—Chaney, O. J. (C.)

#### NEW HAMPSHIRE

Hanover—Parker, C. (C.)  
Plymouth—Bell, E. L. (M.)

#### NEW JERSEY

Camden—Smeley, W. G., Jr. (L.)  
Dennisville—Way, C. W. (M.)  
Dumont—Christman, R. A. (L.)  
East Orange—Russell, A. B. (C.)  
Haskell—Grigg, E. L. (L.)  
Jersey City—Sherwood, F. D. (L.)  
Kenilworth—McCormick, H. D. (C.)  
Newark—Burne, J. J. (L.)  
Kell, T. T.  
Tidaback, J. D. (L.)  
Paterson—Curtis, D. A. (L.)  
Verona—Bush, A. C. (L.)

#### NEW MEXICO

Alamogordo—Holmes, J. G. (C.)  
Roswell—Ingalls, H. A. (L. C.)

#### NEW YORK

Binghamton—Squires, C. A. (M.)  
Brookport—Nesbitt, E. N. (L.)  
Brooklyn—Cohen, B. L. (L.)  
Greenglen, I. (C.)  
Harden, F. (L. C.)  
Hendleson, S. (L.)

Brooklyn—Herriman, F. R. (M.)  
Kohlenberg, M. (L.)  
Lesser, L. E. (L.)  
Mays, A. T. (C.)  
Robertson, R. S. (L.)  
Weiss, B. (C.)  
Wharton, R. J. (C.)  
White, B. D. (L.)  
Wronker, S. L. (L.)  
Buffalo—Beune, C. W. (L.)  
Bott, W. J. (C.)  
Shirley, A. R. (L.)  
Strong, L. J. (L.)  
Catskill—Bove, C. F. W. (C.)  
Dunkirk—Schee, N. L. (L.)  
Gloversville—Pannaeci, E. E. (C.)  
Hornell—Robbins, F. G. (M.)  
Ithaca—Baldreger, F. C. (L.)  
Kingston—Hutchins, C. P. (M.)  
Lancaster—Swierat, I. V. (L.)  
Madison—Forward, A. J. (L.)  
Monticello—Besemer, A. (L.)  
Mount—Brown, E. W. (C.)  
Mount McGregor—Latané, H. A. (L.)  
Mount Vernon—Lyon, D. O. (C.)  
Newburgh—Reed, C. B. (M.)  
New York—Adams, E. (C.)  
Alter, J. E. (C.)  
Barnes, E. J. (M.)  
Carroll, J. D. (L.)  
Cecil, R. L. (C.)  
Danville, C. (Col.)  
Conboy, J. E. (M.)  
Cornwall, L. H. (C.)  
Firmale, E. J. (C.)  
Fred, N. (C.)  
Dealy, F. N. (C.)  
Dursey, H. C. (L.)  
Fay, W. (L.)  
Field, C. W. (C.)  
Golomb, J. (L.)  
Harrington, J. J. (C.)  
Kamin, E. L. (C.)  
Henes, E. Jr. (C.)  
Lee, E. W. (M.)  
Lott, Y. C. (C.)  
Mahoney, A. W. (L.)  
McGant, W. S. (C.)  
Meyer, M. A. (L.)  
Myers, A. H. (M.)  
Oppenheimer, R. H. (L.)  
Patterson, P. M. (M.)  
Perkins, C. W. (C.)  
Riley, E. J. (M.)  
Radaphy, J. B. (C.)  
Sanders, T. M. (C.)  
Sasover, L. (L.)  
Scheinman, S. (L.)  
Schreier, F. C. (L.)  
Schreck, H. D. (M.)  
Slversky, A. (C.)  
Slovak, M. L. (L.)  
Soper, A. E. (C.)  
Taft, L. H. (C.)  
Unger, A. (C.)  
Weigel, E. P. (C.)  
Niagara Falls—Rieger, E. M. G. (L.)

Newood—McNulty, F. T. (L.)  
Palauque—Hicks, E. L. (C.)  
Pahkeepsee—Sanderson, R. (M.)  
Schenectady—Wozniak, J. L. (L.)  
Shay—O'Brien, C. (L.)  
Slaten Island—Smith, A. (L.)  
White Pine, Jr. (L.)  
Wolfeaven—Bislan, I. B. (L.)  
Wolfeaven—Hubbard, A. W. (L.)  
York—Morrissy, J. G. (L.)

**NORTH CAROLINA**  
Bell—McLean, C. E. (C.)  
Boarman—Mott, H. F. (C.)  
Carr—Carr, C. B. (C.)  
Statesville—Davis, J. W. (L.)

**NORTH DAKOTA**  
Bismark—Fisher, A. M. (L.)  
Grand Forks—Brazill, A. F. (C.)  
Fargo—Rieser, G. L. (L.)

**OHIO**  
Alden—McDowell, O. C. (L.)  
Care—Blame, R. H. (M.)  
Cincinnati—Dunn, A. H. (M.)  
Cincinnati—Hale, P. Jr. (L.)  
Wesley, M. J. (L.)  
Wesley, H. B. (L.)  
Cincinnati—Meyer, M. P. (L.)  
Cincinnati—Tucker, J. P. (L.)  
Cincinnati—Griff, E. J. (M.)  
Hays, L. A. (L.)  
Dayton—Cane, C. W. (L.)  
Wassa, H. H. (L.)  
Delaware—Pattie, F. D. (L.)  
Fremont—Fleming, A. J. (M.)  
Hillsdale—Rice, R. B. (L.)  
Knox—Furly, F. P. (L.)  
Lorain—Kainick, T. J. (L.)  
Mount Vernon—Harrar, C. H. (L.)

St. Mary's—Deerhake, W. A. (C.)  
Toledo—Beverly, S. S. (L.)  
Tenney, C. F. (M.)

**OKLAHOMA**  
Altus—Garnett, D. L. (C.)  
Carmen—Healey, J. E. (L.)  
Drumright—Sims, W. P. (C.)  
El Reno—Clark, F. T. (M.)  
Guyton—Lee, D. S. (C.)  
Oklahoma City—Cochran, F. A. Jr. (L.)  
Vincent, D. W. (C.)  
Sapulpa—Wetzel, G. H. (C.)  
Tar River—Sibley, W. A. (L.)  
Tulsa—Browne, H. S. (C.)  
Woody, W. W. (C.)

**OREGON**  
Bridal Veil—LePevre, S. E. (L.)  
Gorvadales—Shearer, J. E. (L.)  
Portland—Butler, F. E. (C.)  
Gamble, E. J. (L.)  
Hamilton, W. B. (L.)  
Sheldon, S. H. (C.)  
Story, L. F. (L.)  
Yamhill—Carouth, H. E. (C.)

**PENNSYLVANIA**  
Berwick—Hensyl, W. C. (M.)  
Cynwyd—Corson, E. F. (M.)  
Danville—Milligan, A. M. (L.)  
Easton—Colem, W. L. (L.)  
Fisher, R. A. (L.)  
Hazleton—Kudlich, M. H. (L.)  
Homesead—Norris, S. A. (C.)  
Jamestown—Bailey, G. H. (C.)  
Lancaster—Spangler, C. C. (L.)  
McKees Rocks—Minnick, W. C. (C.)  
Muncy—Weigle, H. S. (L.)  
New Brighton—Beitseh, W. F. (C.)  
New Milford—Park, W. E. (C.)  
Philadelphia—Arnett, J. H. (L.)  
Dorham, R. E. (C.)  
Euter, O. R. (L.)  
Goodman, R. (L.)  
Hawkins, D. B. (L.)  
Kinderman—Haw, L. W. (L.)  
Langdon, R. L. (L.)  
Levy, A. (L.)  
Llewellyn, C. F. (C.)  
Wilmington, C. P. (C.)  
Maus, J. P. (C.)  
McCutchon, M. (L.)  
Medley, J. E. (M.)  
Pike, C. E. (L.)  
Rafter, D. (L.)  
Ray, D. P. (C.)  
Shelly, J. A. (L.)  
Walker, H. C. (L.)  
Yale, A. W. (M.)  
Yaskin, J. C. (C.)  
Pittsburgh—Alexander, I. H. (M.)  
Laurent, F. V. (L.)  
Levy, S. (C.)  
Steele, P. B. (C.)  
Westervelt, H. C. (M.)  
Pottsville—Striegel, J. G. (M.)  
Pottsville—Buck, L. W. (M.)  
Rutledge—Smith, N. D. (M.)  
Shenandoeh—Austra, J. J. (L.)  
Miller, J. C. (C.)  
Turtle Creek—Eberly, F. J. (C.)  
Uniontown—Fresher, H. J. (L.)  
Vandergrift—Hicks—Bis, J. A. (C.)  
Wilmington—Zimpher, R. (C.)  
York—Hartman, L. M., Jr. (C.)

**RHODE ISLAND**  
Astonishing Means, P. C. (L.)  
Providence—Burns, J. T. (L.)

**SOUTH CAROLINA**  
Camden—Stevens, C. L. (C.)  
Columbia—Galloway, T. C. (C.)  
Lake View—Jesse, W. R. (C.)  
Harting—Harr, E. W. (C.)  
Kilgusville—Sims, C. E. (L.)  
Kilgusville—Team, B. G. (L.)  
Union—Sarratt, S. G. (L.)  
Wilmington—Fisher, F. E. (M.)  
Windsor—Johnson, W. R. (C.)

**SOUTH DAKOTA**  
Conde—Herman, I. R. (L.)

**TENNESSEE**  
Bearon—Peterson, H. L. (C.)  
Cincinnati—Williams, D. N. (L.)  
Cowan—Marable, J. H. (C.)  
Harting—Brazill, A. F. (C.)  
Kortown—Bewery, E. B. (L.)  
Kerrville—Flaussen, R. B. (L.)  
Knox—McParterson, R. F. (M.)  
Memphis—Ferguson, S. E. (C.)  
Schubert, B. L. (L.)  
Nashville—Gruber, F. M. (L.)  
Signal Mountain—Marshall, C. R. (L.)

**TEXAS**  
Abilene—Mathews, W. J. (C.)  
Anson—Hudson, F. E. (C.)  
Austin—Tharp, R. A. (L.)  
Axtell—Liddell, G. M. (C.)  
Bertram—Hall, J. L. (C.)  
Big Springs—Buchanan, L. C. G. (C.)  
Burnet—Brownlee, C. H. (L.)  
Dallas—Dorman, J. H. (M.)  
Hastings, L. E. (C.)  
El Paso—Buder, A. H. (C.)  
Farmersville—Wright, W. C. (L.)  
Fort Worth—Parrish, G. C. (L.)  
Withers, I. A. (M.)  
Galveston—Wall, D. P. (C.)  
Houston—Handly, L. P. (L.)  
Logue, L. J. (C.)  
Smith, C. T. (C.)  
Williams, W. O. (C.)  
Hutto—Bundy, O. T. (L.)  
Keene—Cooke, C. C. (C.)  
Lakeside—Langworthy, G. L. (C.)  
Lockney—Jones, D. P. (L.)  
Manchaca—Currie, R. F. (L.)  
Marshall—Murchison, S. R. (L.)  
Odessa—Wilson, R. G. (C.)  
Paris—Stark, E. H. (M.)  
Roby—Allen, R. R. (C.)  
San Angelo—Oliver, R. A. (C.)  
San Antonio—Burkes, D. C. (L.)  
Johnston, L. (L.)  
Sherman—Ricks, H. C. (C.)  
Sweetwater—Taylor, W. F. (L.)  
Temple—Vaughan, T. D. (L.)  
Temple—Goeh, F. B. (L.)  
Tessing—Holt, C. Z. (C.)  
Unionville—Hagar, D. C. (C.)  
Victoria—Ament, L. G. (L. C.)  
McMullen, O. S. (C.)  
Waco—Brooks, C. H. (L.)  
Favland, D. M. (C.)  
McGlosson, I. L. (M.)  
Schenck, C. P. (C.)  
Westville—Frazier, L. (C.)

**UTAH**  
Magna—Bird, A. A. (C.)  
Ogden—Inzerbretsen, P. C. (L.)  
Springfield—Dunn, F. (C.)

**MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY**

**CALIFORNIA**  
Glendora—Chamberlin, H. H.

**GEORGIA**  
Hemerville—Dame, L. H.

**MASSACHUSETTS**  
Nantucket—Dickson, S. H.

**NEW YORK**  
New York—Luttinger, D.

**IRRINGTON**  
Rutland—Grinnell, W. H. (L.)  
South Royalton—Munsell, C. P. (L.)  
Swanton—Pierce, H. L. (L.)  
West Rupert—Smith, C. H. (L.)

**VIRGINIA**  
Amherst—Strode, B. E. (L.)  
Harrisonburg—Harris, L. S. (C.)  
Hollins—Black, A. J. (L.)  
Lynchburg—Lugin, J. J. (L.)  
North—Kellam, C. D. (C.)  
Portsmouth—Lugin, J. J. (L.)  
Portsmouth—Oast, S. P. (L.)  
Staunton—Phelps, W. M. (L.)  
Stuart's Draft—Wagner, I. R. (L.)  
Urbanna—Jones, W. P. (C.)

**WASHINGTON**  
Port Gamble—Klanke, E. G. (L.)  
Seattle—Hewettson, J. W. (C.)  
Spokane—Bryne, J. G. (M.)  
Ghering, R. J. (L.)  
Tacoma—Allen, R. A. (M.)  
Walla Walla—Cowan, H. C. (L.)

**WEST VIRGINIA**  
Egdon—Scherr, A. A. (L.)  
Franklin—McCoy, G. P. (L.)  
Hansford—Whaley, H. E. (L.)  
Morgantown—Edmondson, R. H. (M.)  
Richwood—Flora, E. F. (L.)  
Williamson—Hatfield, J. E. (L.)  
Worthington—Hildreth, B. H. (L.)

**WISCONSIN**  
Eau Claire—Baird, J. C. (L.)  
Fulton, H. A. (C.)  
La Crosse—Reay, G. R. (C.)  
Milwaukee—Bauer, W. W. (C.)  
Jenner, A. G. (C.)  
Norwalk—Allen, J. S. (L.)  
Osseo—Crane, M. C. (C.)  
Platteville—Pretis, W. W. (M.)  
Superior—Sanders, A. G. (C.)  
Wausawato—Koch, B. F. (L.)  
Whitewater—Midgley, A. E. (M.)  
Winneconne—Hughes, C. W. (M.)

**NEW YORK—Montague, J. F.**  
Weston, C. G.  
Syracuse—Ehegartner, L. W.

**PENNSYLVANIA**  
St. Petersburg—Texter, E. C.

**TEXAS**  
Dallas—Schaub, G. A.

Foreign Correspondence

MEXICO LETTER

MEXICO CITY, Oct. 19, 1919.

The Mexican Medical Association

The Mexican Medical Association held recently a general meeting at which the directing officers presented the by-laws that they have prepared pursuant to the powers conferred on them. The work of the association will be divided into five sections; namely, medical ethics, scientific publications, mutual protection, social and physical culture, and propaganda. All physicians duly licensed and practicing their profession in good faith are eligible to membership. Those that signed the proceedings at the first session will be considered as founders. It was decided that the homeopath could not belong to the association, not because it was intended to display any sectarianism, but because this belonging to that school here are generally very ignorant. The meeting was attended by physicians from the different states who represented the physicians of their respective localities. The president Dr. Gregorio Mendizábal, delivered an address in which he advised that Mexico should follow the methods through which medical education has reached the wonderful development it has attained in the United States, with which development he is personally acquainted through his various visits at the universities of that country. In view of the number of applications for admission already received and those that are expected from the different

states, the creation of the National Medical Association may already be considered a success.

#### Tabardillo (Typhus Fever) Transactions

The transactions of the Congreso Nacional del Tabardillo, which met here last January, have been published in a 457 page volume. This publication is due to the interest displayed by the president of the congress, Dr. Terrés, who has even advanced some funds for this purpose. The proceedings have already been distributed to the members who paid the membership fee and in addition will be sent to anybody forwarding the price of the book, namely, 15 pesos (about \$7.50). Orders should be addressed to the treasurer, Dr. Ernesto Cervera, Avenida Uruguay, No. 77, Mexico City. This rather high price should not cause surprise in view of the fact that book publishing is very expensive here, among other reasons because of the import duties on paper.

#### Journal Resumes Publication

The organ of the society "Pedro Escobedo," *El Observador Médico*, which had been suspended for several years, has recommenced publication. The manager of this journal is Dr. Santiago Ramirez, 4 a. calle de Hidalgo, 129.

#### Yellow Fever

It is reported from the peninsula of Yucatan that new cases of yellow fever have occurred in the city of Merida. As a result of this, notwithstanding the repeated requests made by the merchants of that region, the quarantine established against the port of Progreso has not been raised. It is not known whether any investigations have been made to confirm the etiologic rôle of *Leptospira icteroides* or whether any trials have been made of the merits of curative and preventive serotherapy, or whether neo-arsphenamin has been tried as was done in the northern part of Brazil (*THE JOURNAL*, Sept. 27, 1919), although it would seem advisable to do all of these things.—The sanitary authorities of Cuba, according to the newspaper *El Día* of Havana, have sent Dr. Mario Lebreto to our country so that he may make some studies, taking advantage of the opportunity presented by this epidemic.

There are rumors, not confirmed as yet, that there have been cases of the same disease in the port of Manzanillo on the Pacific coast, which would tend to make the situation more serious.

#### Regulating the Practice of Medicine

A large group of students belonging to the law, engineering, medical, odontology and military medical schools have presented a petition to congress advocating the passage of a law governing the exercise of the liberal professions, so that only those duly licensed may practice them. While it may seem strange, there have been some newspapers that have defended the alleged rights of the "amateurs" to practice the different professions, including medicine, which is the one that would seem most dangerous in the hands of the ignorant.

#### The Academy of Medicine

The Academy of Medicine held, October 1, the first session of this year, under the presidency of the president of the university, Dr. Macías; after the usual report by the secretary and the address of the retiring president, new officers were elected as follows: vice president, Dr. G. Diaz Lombardo (of the section on urology) who will occupy the presidency during the year 1920-1921, and second secretary Dr. Jesus Arroyo (of the section on internal medicine). According to the law-lays, Dr. Emilio Montaño, of the section on ophthalmology, became president for this year. To celebrate this event a banquet was held which, in addition to the members of the academy, was attended by the honorary members, Drs. Liccaga, Mendizabal, Villada, Ramirez de Arellano and Soriano.

In the meeting held, October 8, Dr. González Uruña presented a paper on the use of carbon dioxide snow for the treatment of lupus erythematosus and acne rosacea, presenting two patients nearly cured (one of lupus and the other of acne). Uruña, after mentioning the experiences of Swedish and American authors and his own, advocated this method of treatment for these diseases.—In the session held on the 15th, Professor Cordero, of the section on natural history, read a paper on the yeast of pulque which he has been able to isolate and grow, and which, when planted in unfermented maguey, produces an alcoholic aromatic liquor that does not possess the disagreeable smell and taste of pulque. He suggested the possibility of preparing a kind of

pulque that would be less harmful than that consumed at present by the poorer class of Mexico, and pointed out the possibility of using for therapeutic purposes the yeast of pulque instead of that of beer. Cordero exhibited also a sample of alcohol which could be used for pharmacologic and industrial purposes and is obtained through the fermentation and distillation of the maguey penca. These are the waste products which are left after pulque is manufactured and which are now thrown away.—The academy appointed as honorary member Dr. J. Ramón Icaza, who has belonged to the academy for more than forty-five years.—The department of sanitation has extended the courtesies of the bacteriologic laboratory to those members who wish to take advantage of the opportunities for research thus available.

#### The President of the University of Madrid

The newspapers have mentioned the fact that Dr. J. Rodriguez Carracido, a noted chemist and president of the University of Madrid, is a member of a Spanish delegation leaving soon for the United States. If this is true, the Spanish colony in Mexico will invite him to come to this country and deliver some lectures.

#### Monument to a Physician

Some steps have already been taken to erect a monument in honor of Dr. Belisario Dominguez in one of the cities of Chiapas, the state in which he was born. Dr. Dominguez was murdered in 1914 when he represented his state in the senate and public opinion has ever since attributed his murder to the dictator Huerta and some of his ministers.

#### LONDON LETTER

LONDON, Oct. 2, 1919.

#### Opening of the Medical Schools

The first opening of the session at the medical schools after the war, which is about to take place, marks a new epoch in medical education in this country—the inauguration of research clinics in the London hospitals. In previous letters this innovation has been described at the London Hospital (*THE JOURNAL*, April 12, 1919, p. 1091) and at Guy's Hospital (September 13, p. 849). At University College Hospital, Dr. T. R. Elliott has been appointed director of the medical clinic, and at St. Thomas', Sir Cuthbert Wallace. At St. Bartholomew's Hospital, Sir Archibald Garrod will preside over the medical, and Mr. G. E. Gaske over the surgical research departments. At Charing Cross Hospital, an institute of pathology for teaching and research has been established. It will have a staff of five medical teachers and investigators, of whom the principal will be Dr. W. W. C. Topley. The institute will carry on investigation and research in connection with the hospital, and give the medical students in the final years of their course a thorough grounding in pathology and bacteriology before they proceed to their specialized studies in medicine and surgery. Research work will have a foremost place in the activities of the institute, and the members of the staff will devote their full time to this and to teaching. In order that they may do this, their salaries have been arranged on a scale which will enable them to carry on their work without financial worry or anxiety.

It is anticipated that the number of students who will enter the medical schools will be greater than ever. This is due to two principal causes: A large number of youths have passed directly into the army from the secondary schools without the opportunity of choosing a profession, and the survivors are now in a position to select one. The government has undertaken to make generous grants toward the expenses of ex-service men who will take up medicine. This will induce many who might have done otherwise to take up the profession. The second principal cause of the influx is the return of those who had registered as medical students in 1914-1915 but had not attained a sufficiently advanced standard to entitle them to exemption from conscription. In a lesser degree the opening of most of the London medical schools to women students has tended to increase the roll. Of the twelve London medical schools, the only ones now not open to women are the Middlesex, Guy's, St. Bartholomew's and St. Thomas'. During the war, the shortage of male medical students and of male physicians in civil practice greatly increased the number of women students. The numbers of entry at the various medical schools cannot yet be given, but it may be stated that the new entries at the London Hospital are already more than 100, as against an average

of between seventy and eighty. During the second and third years of the war, fears were expressed that in four or five years there would be an insufficiency of physicians in the country, owing to conscription; but it is now considered that this will not occur. The Irish and Scottish medical schools were full of students all through the war. In the case of Ireland, this was due to exemption from conscription. In the case of Scotland, the reason was more creditable. It was due to the fact that Scottish boys at 16 are generally as advanced as English boys of 17 and 17½, and are thus in a position to begin professional studies at an earlier age. Not only is it believed that there will be no shortage of physicians, but it is feared by some that there is a possibility of the profession's being overcrowded—a condition that existed before the passage of the insurance act.

#### Reunion of the Tip of the Nose

Remarkable reports have been published from time to time of reunion of severed fingers, but few cases appear to have been recorded of reunion of a severed nose. Mr. J. O. Skevington, F.R.C.S., has reported a case in the *British Medical Journal*, which has also attracted attention in the lay press. A man was admitted to King Edward VII Hospital, Windsor. While he was grooming a restive horse, a skylight fell and, breaking, cut off the end of his nose. In addition to the tip, the part missing included about one third of the left ala and two thirds of the right ala, besides the lower part of the septum and a small portion of the upper lip. A messenger sent to the stable succeeded in finding the missing part, and about an hour after the accident it was sutured into place. Under a dressing saturated with physiologic sodium chlorid solution, primary union took place, and the resulting effect is very good.

#### Increased Fees of Physicians

The great increase in the cost of living and in the expenses of medical practice, such as the maintenance of cars, gasoline and chauffeurs' wages, has led to an increase in physicians' fees. This has taken place gradually first at one part of the country and then at another. The amount of the increase varies, but may be taken to average 50 per cent. Some consultants have raised their fees from \$10 to \$20. The question of an amended rate of remuneration for panel physicians is to be considered by a meeting held under the auspices of the British Medical Association. In London the ministry of health has decided to pay a war bonus to panel physicians on the following basis: (a) a payment of 30 per cent. of the physicians' insurance capitation fees for treatment (up to a maximum of \$750) in the case of every physician who shows that his total net professional income from all sources does not exceed \$2,500 a year; (b) a payment of 20 per cent. (up to a maximum of \$1,500) when the income exceeds \$2,500 but does not exceed \$6,000; (c) a payment of 15 per cent. (up to a maximum of \$1,300) in all other cases.

### PARIS LETTER

PARIS, Oct. 9, 1919.

#### The Advisory Committee of the Army Medical Corps

M. Clemenceau, minister of war, has decided to appoint a number of civilian physicians on the advisory committee of the army medical corps. He is moved to do this by reason of the eminent services that the civilian physicians rendered the army during the course of the war. In the selection of civilian physicians to act on the advisory committee such physicians, surgeons and pharmacists will be chosen as are well known and whose works are authoritative, even though they may not have acquired the highest rank from a strictly military standpoint.

#### Reorganization of the Special School of the Army Medical Corps

An order has been issued providing for the reorganization of the Ecole du service de sante militaire de Lyon. The purpose is to develop a maximal efficiency among the physicians, surgeons and pharmacists of the army medical corps.

In accordance with this order, the selection of candidates for this school, as provided for by competitive examinations, will henceforth be made from among students of all grades of scholarship. The youngest students may be enrolled in the army medical corps, and yet continue their studies in their original medical schools, which are thus called on to compete in the training of army physicians. The presence of approved candidates will not be required at Lyons except during their last years of study. New rubings facilitate also

their admission to externships and internships in civilian hospitals, and permit them to perform these duties under the same conditions as their civilian associates. As a recompense for those students who shall have been admitted to an internship in a hospital, they will be entitled to certain special privileges as affecting their career. Thus, prospective army physicians and pharmacists will in all respects have the benefit of the same educational advantages and of the same scientific resources as the civilian students. Students promoted to the rank of *medecins aides-majors* will no longer, on leaving the Ecole de Lyon, proceed directly to the Ecole d'application de medecine et de pharmacie militaires du Val-de-Grace, as they did formerly, for their further training, but will first spend a year of service in the large military hospitals. It is thought that after they have participated in real military life for a certain length of time they will be better prepared in every respect to profit by the specialized instruction of the Ecole d'application du Val-de-Grace.

#### Organized Endeavors to Increase the Birth Rate of France

The Congrès de la natalité française, organized under the patronage of the presidents of the French chambers of commerce, convened at Nancy, September 25 to 28. At this inaugural meeting, M. Auguste Isaac, honorary president of the chamber of commerce of Lyons, set forth in detail the working program of the society. Dr. Jacques Bertillon, president of the Alliance nationale pour le relèvement de la natalité française, gave some very impressive statistics in support of the conclusions of M. Isaac.

Among the reports presented to the various committees of the congress we note especially the reports on the campaign against tuberculosis and insanitary dwellings, on infants' nurseries and day nurseries for working mothers in factory towns, on the propaganda against depopulation, on the creation in each community of a birth rate promoting bureau and of study centers, presided over by competent persons, with a view to improving moral and social standards, and on the necessity of making a special appeal to all associations that are interested in contributing to this movement for the uplift of France. Other subjects that came up for discussion were: the different forms of legislative action; the question of indemnities for excessive family burdens; military service; aid to unmarried mothers, and the law pertaining to succession.

#### Enlargement of Medical School

The minister of public instruction has filed a bill with the chamber of deputies providing for an appropriation of 5,500,000 francs for the securing of suitable territory and for the erection of buildings required by the Faculté de médecine de Paris in its plan of enlargement.

#### Men Disabled by the Loss of Limbs in the War

An assembly of men who have become disabled through the loss of limbs in the war, and of men who have received medical discharges for other reasons, together with war widows, took place recently at Bar le Duc, under the presidency of M. Maginot, of the chamber of deputies, and a number of resolutions were passed, the principal ones of which demand that (1) a certificate showing the nature and origin of war wounds must be furnished at any time to those who may require such a certificate, if occasion should arise, also a duplicate must be furnished; (2) a time limit shall be established within which a pension case referred to a court of appeal must come to trial, in order that the payment of pensions in such cases may be accelerated.

In the same connection, M. Constant Verlot, deputy from the department of the Vosges, has filed a bill with the chamber of deputies which has in view the granting of special concessions to military pensioners and to civilian victims of the war who may wish to acquire small rural holdings. This bill provides that they shall be granted loans at 1 per cent. under the usual rate.

#### Changes in the French Population in 1918

The minister of labor has completed the birth and mortality statistics for France for the year 1918. These statistics show that the civil population of France decreased during the year 1918 by 389,575 not counting the war losses.

These statistics, based on civil records, continue to cover only the seventy-seven departments that were not directly affected by military operations. This is the same as it was during the first four years of the war. It will be the same

for the year 1919, and not until the beginning of 1920 will the statistics of all French territory, made complete by accession of Alsace and Lorraine, be included. If one compares the statistics of the years 1917 and 1918, for the seventy-seven departments of which account was taken, one will note that last year shows not only the persistence of an excess of deaths over births, but even an increase of the excess over that of the preceding year. In 1917, the population of the seventy-seven departments not invaded decreased 269,838, whereas the decrease in 1918 has risen to 389,575. This result is due to the considerable increase in the number of deaths during the second half of 1918, ascribable to the influenza epidemic; for the number of births showed a slight increase over 1917. A comparison of the statistics of the years 1917 and 1918 is given in the accompanying table.

DEMOGRAPHIC STATISTICS FOR THE YEARS  
1917 AND 1918

	1918	1917
Births	399,041	343,310
Deaths	788,616	613,148
Excess of deaths over births*	389,575	269,838
Marriages	177,872	158,508
Divorces	8,121	5,572

An analysis of the table reveals the fact that in 1918 there was: (1) an increase in the number of marriages; (2) a corresponding increase in the number of births, and (3) an increase in the number of deaths. This increase in mortality affects exclusively the second half of last year. During the first half of 1918, 316,077 deaths were recorded, as compared with 354,554 during the first half of 1917; and during the second half of 1918, 472,539 deaths were registered, as against 258,594 in 1917. According to the preceding figures, the number of civil victims claimed by the influenza last year may be placed at approximately 200,000.

#### Pupils of the Marine Medical Department

The auxiliary officers of the medical corps (physicians and pharmacists), and students of the Marine Medical Department, who entered the Ecole principale du Service de Santé de la marine de Bordeaux in 1913, who have not finished a year of military service and who have not finished their studies, will be debarked and sent immediately to the Ecole de Bordeaux, where they must report not later than Nov. 1, 1919.

#### Franco-American Amity

Mrs. William Astor Chanler, president of the "French Heroes' La Fayette Memorial Fund," and John C. Moffat, chairman of the executive committee of this society, recently received, at one of their offices, certain representatives of the French press, to whom they set forth the new plans and purposes of the American welfare societies, which intend to form a federation in order to concentrate their efforts and thus make them more effective. Mrs. Chanler and Mr. Moffat have been appointed as special delegates in France to acquire into the needs of the hour and to ascertain the best means of meeting the situation.

#### American Physicians Decorated

Among the physicians recently decorated with the Médaille de la Reconnaissance française for services devoted to the care of the wounded during the war appear the names of the following Americans: Drs. Charles Leach, Edward Case, William Johnston, David Edmond Smith, Alfred Malabre, Basilius Valdes and James Wyant.

#### Personal

M. Eugène Brieux, member of the French Academy, has been made, on the recommendation of the minister of war, commander of the legion of honor, with the following citation:

Exceptional distinctions: He devoted himself wholeheartedly, during a period of four years, to those blinded in war. He created and organized throughout the country numerous schools for their reeducation.

#### Death of Dr. Michel Gangolphe

Dr. Michel Gangolphe, agrégé professor at the Faculté mixte de médecine et de pharmacie de Lyon, formerly chief surgeon of the Hôtel-Dieu Hospital of this city, is dead at the age of 61. Gangolphe, who was one of the most brilliant pupils of Ollier and of Poncet, was known by his works on bone surgery and especially by a work, which has become an authority, on "Les maladies infectieuses des os" (Infectious Diseases of the Bones).

## Deaths

**Henry Weightman Stelwagon** \* the eminent dermatologist of Philadelphia; aged 65; died in Philadelphia, October 18, from angina pectoris. He was born in Philadelphia, and was graduated from the medical department of the University of Pennsylvania in 1865. After a term as intern in the Philadelphia (Blockley) Hospital he spent two years in Vienna and Berlin. He was physician in charge of the Philadelphia Dispensary of Skin Diseases from 1880 to 1890; instructor in dermatology in his alma mater from 1885 to 1890; clinical professor of dermatology in the Woman's Medical College of Pennsylvania, Philadelphia, from 1898 to 1907, and professor of dermatology in Jefferson Medical College since 1890. He was dermatologist to the Philadelphia Hospital from 1888 to 1915, and since that date consulting dermatologist. He was a member of the American Dermatological Association and president in 1900; also a member or honorary member of many dermatologic societies in this country and abroad. In addition to Dr. Stelwagon's textbooks on "Essentials of Diseases of the Skin," which first appeared in 1890, and his "Treatise on Diseases of the Skin," which appeared in 1901, he translated and edited Mraček's "Atlas of Skin Diseases." Dr. Stelwagon's death while in the full vigor of manhood is greatly to be deplored.

**Stephen Henry Lutz** \* Brooklyn; Dartmouth Medical School, Hanover, N. H., 1895; aged 47; president of the Kings County Medical Society; a member of the American Otological Society; American Laryngological, Rhinological and Otological Society; and American Academy of Ophthalmology and Oto-Laryngology; surgeon to the ear department of the Brooklyn Eye and Ear Hospital; otologist to the Bushwick Hospital; consulting laryngologist to the Bedford Dispensary; died at his home, October 17, from heart disease.

**James Frederick Smith** \* New York City; College of Physicians and Surgeons in the City of New York, 1882; aged 62; a fellow of the New York Academy of Medicine; a specialist on diseases of the eye, ear, nose and throat; assistant surgeon of the eye department of the Manhattan Eye, Ear and Throat Hospital, and a member of the staff of the Post-Graduate Nose and Throat Hospital; died at his home, October 18, from pneumonia.

**James Perry Duckett**, Anderson, S. C.; Jefferson Medical College, 1874; aged 68; a member of the South Carolina Medical Association; for several terms a member of the city council of Anderson, a member and for a time chairman of the local board of health; for fifteen years a member of the board of trustees of the city schools; and for several terms physician of Anderson County; died in the Anderson County Hospital, October 10.

**Matthew Charles McGannon** \* Major, M. R. C., U. S. Army, Nashville, Tenn.; McGill University, Montreal, 1885; aged 62; professor of surgery and clinical surgery in Vanderbilt University, Nashville; chief surgeon of the Woman's Hospital; and attending surgeon at the Vanderbilt Hospital and Nashville City Hospital; recently appointed surgeon-general of Tennessee; died at his home, October 9, from heart disease.

**Ernest Eugene Roberts** \* Sawtelle, Calif.; Marion-Sims College of Medicine, St. Louis, 1899; aged 49; who had served for about four years in the Philippine Islands as a contract surgeon, and was afterward commissioned lieutenant and captain, Medical Reserve Corps, and was honorably discharged, Feb. 17, 1919; was shot and killed in Los Angeles, October 11.

**Martin D. Foster**, Olney, Ill.; Eclectic Medical Institute, Cincinnati, 1882; Hahnemann Medical College, Chicago, 1894; aged 58; mayor of Olney in 1895 and 1902; for six terms congressman from the Twenty-Third Illinois District, and thereafter a member of the government commission to adjust war mineral claims in the Western states; died at his home, October 20.

**Alfred William Anderson** \* Lakewood, Ohio; Cleveland Homeopathic Medical College, 1902; aged 40; formerly chief officer of Lakewood; who was honorably discharged as first lieutenant, M. C., U. S. Army, Jan. 3, 1919; a member of the staff of the Lakewood Hospital for eleven years; died in that institution, October 12, from cerebral hemorrhage.

\* Indicates "Fellow" of the American Medical Association.

**Cornelius S. Van Riper**, Pasadena, Calif.; College of Physicians and Surgeons in the City of New York, 1859; aged 82; for forty years a practitioner of Paterson, N. J.; for three terms president of the Passaic County (N. J.) Medical Society and consulting surgeon to the Passaic and Paterson General hospitals; died at his home, October 9.

**Thomas Finlie Miller**, Glasgow, Ky.; University of Louisville, Ky., 1909; aged 34; a member of the Kentucky State Medical Society; who was honorably discharged as first lieutenant, M. C., U. S. Army, May 29, 1919, after having served with a medical unit in France; died at the home of his father in Tompkinsville, October 12.

**Porter Farley**, Rochester, N. Y.; College of Physicians and Surgeons in the city of New York, 1874; aged 79; a member of the Medical Society of the State of New York; a veteran of the Civil War; coroner of Monroe County, N. Y., in 1877 and 1883; twice president of the Rochester Historical Society; died at his home, October 18.

**Cushman Allen Sears**, Portland, Conn.; New York University, New York City, 1862; aged 79; a member of the Connecticut State Medical Society; medical director of Grand View Sanitarium, Windsor, Conn., in 1902; a member of the medical staff of Middlesex Hospital, Middletown, Conn.; died at his home, October 20.

**Matthew J. Rodermund**, Madison, Wis.; Bennett Eclectic Medical College, 1887; aged 65; notorious because of his expressed belief that smallpox was not contagious; died from heart disease, October 12, on a train near Chippewa Falls while en route to his home.

**John Jacob Lindsay**, Manchester, Iowa; Bellevue Hospital Medical College, 1883; aged 61; for ten years a member of the school board of Manchester and for a portion of that time president of the board; died in the State Hospital, Independence, Iowa, October 6.

**Harvey D. Hockenberry**, West Sunbury, Pa.; University of Wooster, Cleveland, 1879; aged 68, a member of the Medical Society of the State of Pennsylvania; for ten years medical inspector of Butler County for the state board of health; died at his home, October 8.

**Joseph Nicéphore Aubin**, Peshtigo, Wis.; Ecole de Médecine et de Chirurgie, Montreal, Que., 1894; aged 54; a member of the Wisconsin State Medical Society; died in St. Joseph's Hospital, Peshtigo, October 12, from pleurisy complicating typhoid fever.

**Albert Jefferson Peterson**, Goodwater, Ala.; Vanderbilt University, Nashville, Tenn., 1889; aged 60; a member of the Medical Association of the State of Alabama; secretary of the Coosa County Medical Society in 1910; died at his home, September 21.

**Charles M. Faulkner**, Montra, Ohio; Cincinnati College of Medicine and Surgery, 1883; aged 59; a member of the Ohio State Medical Association; died in the Cincinnati Sanitarium, College Hill, Cincinnati, October 5, from cerebral hemorrhage.

**William W. Robertson**, McComb, Miss.; Vanderbilt University, Nashville, Tenn., 1886; aged 55; postmaster of McComb; died on an Illinois Central train, while returning home from New Orleans, September 29.

**Joseph Hoyt Mosher**, Tuxedo, N. Y.; Fordham University, New York City, 1913; an intern at the White Haven (Pa.) Sanatorium in 1916 and 1917; died in that institution, October 17, from pulmonary tuberculosis.

**James Donat Graber**, Limerick Centre, Royersford, Pa.; Bellevue Hospital Medical College, 1870; aged 74; a member of the Medical Society of the State of Pennsylvania; died at his home, October 6, from heart disease.

**John F. Simmons**, Pine Bluff, Ark.; Jefferson Medical College, 1865; aged 86; a Confederate veteran; organizer and first president of the Simmons National Bank, Pine Bluff; died at his home, October 1.

**William Wilbur Williams**, Hilton, N. Y.; University of Buffalo, N. Y., 1881; aged 66; a member of the Medical Society of the State of New York; died at his home, October 16, from arteriosclerosis.

**Henry Washington Stephens**, Anaconda, Mont.; St. Joseph (Mo.) Medical College, 1893; aged 57; a member of the Medical Association of Montana; mayor of Anaconda in 1900; died at his home, October 12.

**Andrew Uren**, Hollywood, Calif.; University of Michigan, Ann Arbor, 1895; aged 61; for many years physician for the Montreal Mining Company, Montreal, Wis.; died at his home, about October 7.

**Joel Taylor Barker**, Danville, Ind.; Bellevue Hospital Medical College, 1870; aged 71; a member of the Indiana State Medical Association; died at his home, October 11, from arteriosclerosis.

**William F. Work**, Charlestown, Ind.; Eclectic Medical Institute, Cincinnati, 1875; University of Louisville, Ky., 1887; aged 69; died at his home, October 7, from cerebral hemorrhage.

**Daniel Peck Cook**, Clay Center, Kan.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1881; aged 67; died at his home October 2, from cerebral hemorrhage.

**Thomas A. Pope**, Cameron, Texas; Louisville, Ky., Medical College, 1870; aged 73; a veteran of the Civil War; twice postmaster of Cameron; died at his home, October 5.

**Charles William Fox**, Philadelphia; Long Island College Hospital, Brooklyn, 1865; aged 71; died at his summer home in York Harbor, Me., October 8, from myocarditis.

**William J. Rogge**, Portland, Ore.; Medical College of Ohio, Cincinnati, 1891; aged 64; died at his home, September 19, from cerebral hemorrhage.

**Samuel C. Hewitt**, Chatham, Ill. (license, years of practice, Illinois, 1878); aged 84; a veteran of the Civil War; died at his home, October 6.

**James M. Schee**, Halbur, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1881; aged 59; died at his home, September 19.

**William Johnson Hurt**, Waynetown, Ind.; Rush Medical College, 1873; aged 69; died at his home, October 8, from pneumonia.

**Edward Calvin Ballard**, Greenville, Ohio; Eclectic Medical Institute, Cincinnati, 1871; aged 70; died at his home, October 1.

**William Finley Semple**, Chicago; Rush Medical College, 1881; aged 58; died at his home, October 12, from angina pectoris.

**James Truman Dewey**, Cayesville, Mo.; Missouri Medical College, St. Louis, 1888; aged 68; died at his home, September 15.

## Marriages

**HARRY ARTHUR STECKEL**, Kings Park, N. Y., to Miss Carolyn E. Moon of Binghamton, N. Y., at Lake Mohawk, N. Y., September 29.

**HUGH J. DAVIS**, Capt., M. C., U. S. Army, Austin, Texas, to Miss Grace Reynolds Douglas, at Wilkes Barre, Pa., October 18.

**BENJAMIN PRESCOTT BURPEE**, Manchester, N. H., to Miss Marguerite Rose Burke of Greenfield, Mass., October 11.

**LAWRENCE OSMOND CRUMPLER**, Schoolfield, Va., to Miss May Paec Tallott of Danville, Va., October 15.

**FRANK THOMAS BRENE** to Miss Bessie Pearl Millard, both of Iowa City, at Red Wing, Minn., October 15.

**EDGAR ARTHUR DRAPER**, Cape May, N. J., to Miss Pauline Elizabeth Gaskins of Philadelphia, October 18.

**ROBERT LUCAS OZLIN**, Dundas, Va., to Miss Bertha Marjorie Kelly, at New York City, October 15.

**RICHARD LEE SILVESTER**, Washington, D. C., to Miss Susette Parran, at Port Republic, Md., October 25.

**LEO RAYMOND GORMAN**, Reading, Pa., to Miss Katherine McMullen of Catasauqua, Pa., October 11.

**SANFORD B. HOOKER**, Boston, to Miss Lillian Augusta Osgood of Claremont, N. H., October 11.

**DANA FLETCHER DOWNING**, Winceboro, Wis., to Miss Rose Emma Akus of Warren, Ill., October 18.

**FLOYD WILCOX McRAE, JR.**, Atlanta, Ga., to Miss Eleanor Deming Stott of Chicago, November 1.

**JAMES SAMUEL MITCHNER**, Edenton, Va., to Miss Bessie Williams of Arvonia, Va., October 16.

**ROY LAFAYETTE OWENS** to Miss Mary Veronica Murphy, both of Chicago, October 1.

**LELAND EGGLETON COFFER** to Miss Lujsita Leland, both of New York City, October 15.

**CHARLES ALLEN STONE**, St. Louis, to Miss Sylvia Lora of Toledo, Ohio, October 22.

**CORNELIUS JOSEPH CORORAN** to Miss Dora Kalk, both of Milwaukee, October 15.

### The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LARGELY BY THIS MEANS WITH OTHER MATTER TENDING TO AID INTELLECTUAL PRESERVING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

#### PINEOLEUM ADVERTISING METHODS

##### Capitalizing the Name and Position of the President of the American Medical Association

To the Editor:—Enclosed is a postal card which a physician in Oklahoma has sent me together with thirty-six cents in stamps. The envelope was addressed to me at the address of the Pineoleum Company. The post-office corrected the address and sent it to me. It is evident, therefore, that the physician in Oklahoma thought that I was sending these postal's as an employee of the Pineoleum Company, or, at least, was endorsing their products.

Kindly do me the favor to publish this letter in THE JOURNAL as a protest against the dishonesty of this method of advertising. What is quoted from an article that I wrote appeared originally in the *New York State Journal of Medicine* and was abstracted in THE JOURNAL of the American Medical Association of August 2, 1919. The obvious inference to be drawn from this postal is that I referred to the products of the Pineoleum Company in that article. I did not have the products of the Pineoleum Company in my mind. I never have used their products and never prescribed them.

This form of advertising is done with intent to deceive and did deceive the doctor in Oklahoma. It was therefore a successful falsehood, its success depending on the false use of the name of the President of the American Medical Association to bolster up the sale of the product.

I resent the use of my name in connection with the quack advertising of nostrum venders. The low, vulpine cunning of the method used is on the same level as the deceit and dishonesty which use this form of advertising to the injury of my name and reputation. As President of the American Medical Association I must insist that you protect me by publishing this letter in THE JOURNAL, giving it as widespread publicity as possible.

ALEXANDER LAMBERT.

[COMMENT.—"Pineoleum" is a "patent medicine" advertised in the cheapest and most effective way—by the aid of the easy going and complacent physician. In 1906 Pineoleum was being marketed by the Winslow Laboratory of New York City, which also put out three or four other nostrums—"Mormuh," "Egeriol," "Digestylin," and "Ford's Nucleo-Peptide." Pineoleum was advertised to the public then as it is advertised now, via the medical profession. Physicians are circularized and are offered a petty graft in the form of a cheap nebulizer and a sample bottle of Pineoleum. Some time ago the company seems to have developed a scheme whereby physicians could make money "dispensing Pineoleum nebulizer outfits at more than 140 per cent. profit." The Pineoleum concern for years has also polluted the stream at its source by attempting to get the secretary of the senior class of every medical school to distribute its free nebulizer outfits to members of the class and receive therefor 5 cents for each outfit distributed! The life history of Pineoleum is that of the typical nostrum. Epidemics, of course, are utilized as opportunities for pushing the product. In 1911 a card was sent out featuring "A Special LaGrippe Offer"; in 1916 the profession was circularized recommending Pineoleum as "The Ideal Prophylactic" in infantile paralysis; during the past year influenza has again been the selling point.

The case described by Dr. Lambert is not the first example of the misuse of names and statements of physicians. Last December the Pineoleum concern was sending out an advertising card in which Dr. McCoy of the United States Public Health Service was quoted as recommending Pineoleum as the "bulwark of prevention" and "battery of relief" in influenza. Of course, Dr. McCoy never said anything of the sort. A protest against this particular falsehood resulted in another card being sent out several months later by the Pineoleum people purporting to explain and apologize for the misquotations and putting the blame on the printer. The "apology" ended with a postscript (in larger and bolder face type than the body of the card) that urged physicians to "secure our liberal introductory advertising proposition on improved oil nebulizer outfits." From the standpoint of publicity for Pineoleum, the "explanation and apology" was doubtless as good an advertisement as the original card of misrepresentation.—En.]

#### LAVORIS

##### Report of the Council on Pharmacy and Chemistry

Lavoris was considered by the Council in 1913, and its proprietors—the Lavoris Chemical Company—were advised that the preparation was inadmissible to New and Non-official Remedies because of conflict with Rules 1, 4, 6, 8 and 10. No report was published at that time. As the preparation is still widely advertised to physicians, the Council has again examined Lavoris and authorized publication of the following report. W. A. PUCKNER, Secretary.

In recent years Lavoris has been widely advertised as "THE IDEAL ORAL ANTISEPTIC" particularly to the dental profession. A printed card sent out by the Lavoris Chemical Company in 1913 read: "LAVORIS, the Pyorrhea Remedy. The Original ZINC CHLORIDE Mouth Wash. One grain zinc to each ounce."

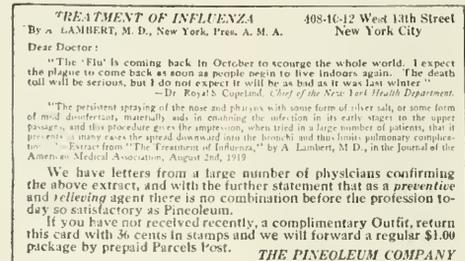
The card also gave a "formula" to the effect that each pint of Lavoris contained:

Zinc Chloride .....	1.040
Resorcin .....	0.520
Menthol .....	0.400
Saccharin .....	0.195
Formalin .....	0.195
Ol. Cassia Zeyl .....	0.780
Ol. Caryophyl .....	0.195

Advertisements now appearing in medical journals repeat the older "formula" except that resorcin is omitted. The formula while seemingly frank and open is in reality indefinite and misleading in that no denomination of weight is given for the various constituents. It is uncertain, for example, if the figures in the formula are intended to represent grains, grams or percentages of the several constituents. In view of the indefinite statement of composition, a chemical examination of Lavoris was undertaken in the A. M. A. Chemical Laboratory. The report of the laboratory follows:

Zinc.—This was determined electrolytically. Fifty c.c. gave 0.026 gm. zinc and 100 c.c. gave 0.0531 gm. zinc. The average is 0.0526 gm. zinc in 100 c.c. This is equivalent to 0.1102 gm. anhydrous zinc chlorid in 100 c.c.

Chlorid.—After decolorizing some of Lavoris with chlorid-free animal charcoal, the chlorid was determined by the Vollard method. Twenty-five c.c. Lavoris required 4.328 c.c. tenth-normal silver nitrate solution equivalent to 0.01535 gm. chlorid (chloridion) or 0.0614 gm. in 100 c.c. A second 25 c.c. of Lavoris required 4.112 gm. tenth-normal silver nitrate solution equivalent to 0.01458 gm. chlorid (chloridion) or 0.05832 gm. in 100 c.c. Average is 0.05985 gm. This is equivalent to 0.1150 gm. zinc chlorid in 100 c.c. This agrees closely with the foregoing zinc determination.



Postal card capitalizing the name and position of the President of the American Medical Association.

**Resorcin.**—The method of the U. S. Pharmacopoeia was used. The total bromin absorption of 25 cc. Lavoris was 3.68 c.c. tenth-normal bromin solution. This would be equivalent to 0.00675 gm. resorcin in 25 cc. or 0.02700 gm. in 100 c.c. In a duplicate test, 25 cc. Lavoris required 3.8 c.c. tenth-normal bromin solution equivalent to 0.00697 gm. resorcin or 0.02788 gm. in 100 c.c. Since oil of cinnamon absorbs bromin, 50 cc. of Lavoris was boiled until very little or no odor of the oil was noted, keeping the volume nearly constant by adding a little water from time to time, and the bromin absorption then taken. In one experiment, 0.30 c.c. of tenth-normal bromin solution was consumed, and in a duplicate no bromin was absorbed. This shows the absence of resorcin.

**Residue.**—On evaporating 25 cc. Lavoris on a steam bath and subsequent drying of the residue at 100 C., 0.455 gm. of residue was obtained. This is equivalent to 0.1820 gm. in 100 c.c.

**Saccharin.**—Saccharin was detected in the residue and ether-extract of the residue by its intense sweet taste when a little sodium bicarbonate was added to it.

**Formaldehyd.**—This could be detected by the Jarrison test. The color was not very pronounced and the quantity of formaldehyd was small.

**Oil of Cinnamon.**—The odor and taste of Lavoris is characteristic of cinnamon.

**Menthol and Oil of Cloves.**—The odor of menthol and of oil of cloves could not be detected, but no tests were made to demonstrate their presence.

The analysis thus indicates that the Lavoris of today contains no resorcin but does contain a small amount of formaldehyd, a little saccharin, and oil of cinnamon (menthol and oil of cloves could not be detected by the odor, but were not tested for). The analysis showed that the principal constituent of Lavoris is zinc chlorid, of which there is about 0.1 gm. per 100 c.c. (about  $\frac{1}{2}$  grain to the ounce).

The amount of zinc chlorid given in the published formula, i. e., 1.04, is meaningless because the unit of weight or measure is not given; furthermore the analysis shows that it is inaccurate for any unit of weight that might be assumed from the published figures. Since the amount of the most active medicinal ingredient is both indefinite and inaccurate, the composition of the preparation is essentially secret. Lavoris is indirectly advertised to the public by having included in the package a circular giving a list of diseases for which the preparation was recommended. The combination of zinc chlorid, formaldehyd and oil of cinnamon (assuming the menthol and oil of cloves to be present as flavors) in a mixture is irrational and likely to lead its users to ascribe a false and exaggerated value to the preparation. The name is objectionable in that it does not indicate the composition of the potent ingredients of the mixture, but instead suggests its use as a mouth wash.

From a standpoint of public safety, the most serious objection to Lavoris, however, lies in the many unwarranted therapeutic claims and suggestions. It is generally held that zinc chlorid solutions which possess a strength of from 1 to 200 up to 1 to 500 exercise a weak antiseptic action. The strength of zinc chlorid in Lavoris is approximately 1 to 1,000. The directions for its use recommend that Lavoris should be diluted. A dilution of 1 to 4 is recommended for a variety of mouth conditions while for cystitis irrigations and as a vaginal douche, it is recommended that one tablespoonful be added to a quart of warm water or salt solution. The strength of zinc chlorid in the last suggested dilution would approximate 1 to 64,000. It is evident that no antiseptic action could be expected from such dilutions.

The recommendation that diluted Lavoris be used for the treatment of coryza, nasal catarrh, hay fever, inflamed eyes, hemorrhoids and leucorrhoea is objectionable and irrational. Especially dangerous is the recommendation that members of a family exposed to diphtheria or scarlet fever should use Lavoris freely as a preventive. Such recommendations can but give a false sense of security and lead to the neglect of proved methods for preventing the spread of these diseases. Equally unwarranted is the recommendation that in gonorrhoea one teaspoonful of Lavoris to eight of warm water be used with a blunt end syringe.

The use of Lavoris as recommended would not only prove valueless in many instances but might lead to serious consequences because really valuable methods of prevention or treatment might be neglected. For these reasons the preparation is in conflict with Rule 6.

The Council declared Lavoris ineligible for New and Nonofficial Remedies.

## Correspondence

### "SELF-SACRIFICE IN THE WARFARE AGAINST DISEASE"

*To the Editor:*—On reading the letter of the Surgeon-General of the Navy in THE JOURNAL, October 25, with its account of the eighty-three enlisted sailors who, during the height of the terrible influenza epidemic in Boston, subjected themselves voluntarily and after having the danger fully explained to them, to experimentation with a view of promoting medical research which might help the surgeons in finding a remedy, I feel deeply impressed with the thought that honors should be conferred on these men—at least honorable mention of their names in THE JOURNAL or in some permanent public record. I do not know whether they would be entitled to the Carnegie hero medal, but no one could be more worthy of it. I hope the Surgeon-General can be interested in the matter. He pays a deserved tribute to the surgeons of the navy in this connection and truly calls these men "heroes in the fullest and most beautiful meaning of the word." Of course, the men should be consulted as to the making public of their names, and any who did not wish to be thus mentioned need not be. I am assuming there is no rule in the Navy against such action.

RICHARD DEWEY, M.D., Wauwatosa, Wis.

### METABOLISM AND SEX

*To the Editor:*—A recent editorial (THE JOURNAL, Aug. 23, 1919, p. 612) emphasizes the relationship obtaining between basal metabolism and sexual expression, as evidenced by Miles' account of the diminished sex activities of a group of men on a reduced ration experiment. As Miles intimates these results have been foreshadowed by Riddle-Riddle (Theory of Sex, Science, N. S. 46:19-24 [July 6] 1917; J. Washington Acad. Sc. 7:319, 2, 1917, for references to earlier papers) has revived the metabolic theory of sex through extensive experiments on pigeons in which he has affected the metabolism of the germs (egg yolks) through such measures as reproductive overwork and hybridity, thereby producing abnormal sex ratios, while the dietetic factor has been held constant (An excess of females is produced by overwork, and an excess of males from wide crosses.) He has further shown that when these sex reversals take place they are quantitative in nature (as measured by sex behavior and gonad size), just as chemical and calorimetric analyses of the ova show quantitative changes in the storage metabolism, coinciding with the severity of the method used to produce the change in sex ratios.

Drummond (Biochem J 12:25, 1919) has observed in his feeding experiments that when rats are kept on a diet deficient in water soluble B (vitamin) that the males exhibited a lowered sex activity, and indeed were sexually impotent, the testes showing degeneration. More recently Osborne and Mendel (J. Biol. Chem. 38:223, 1919) have observed that when yeast is given to rats as the only source of protein and water soluble B, the males thus fed, although grown vigorously to adult size, were with very few exceptions sterile.

R. McCarrison (Indian J. M. Res. 6:275 [Jan.] 1919; 550 [April] 1919) has measured the change in weight of the organs of pigeons on diets adequate except for water soluble B. His results are based on seventy-two control and 168 experimental pigeons, and the data show that the testes lose 93 per cent. of their weight, while the ovaries lose only 69

per cent. In simple manition when the birds die in twelve days or less, the loss in testes weight is 61 per cent. against 11 per cent. for the ovaries.

The nutritive deficiencies mentioned seem to affect the testes much more than the ovaries.

That the experiments also permit of a metabolic explanation seems evident from Dutcher's recent work: He has been able to alleviate, to a considerable degree, the symptoms of beriberi by therapeutic agents such as thyroid extract, tetelin and pilocarpin, which are known stimulants of metabolism.

It seems highly improbable that water soluble B, per se, is necessary in the formation of reproductive tissue, else we should expect to find it in these organs, but it is lacking. A more likely explanation is that its deficiency results in a level of metabolism insufficient for the differentiation and maintenance of male reproductive tissue, and if this level is sufficiently reduced, also for ovarian tissue.

That a change in metabolism due to internal secretions may convert differentiating ovarian tissue into testicular tissue has been brought out most beautifully by the work of Tandler and Kellar, and of Lillie in their studies on the freemartin, in which the hormones of the male fetus circulate through the female fetus, owing to an anastomosis of the blood vessels. If the juncture occurs later in fetal life, the female exhibits only masculine secondary characteristics and sterile ovaries; if earlier, the ovary itself contains testicular tissue, and it is probable that in cases in which the testicular hormone circulates through the female previous to the development of the ovary, a complete sex reversal may be effected.

But the effect of diet on sex is not restricted to a change in secondary sexual characteristics of the differentiated organisms, for if it is applied properly it can effect a true reversal of sex. As Lusk and others have shown that the ingestion of an abundant diet, and of protein foods in particular, leads to an increase in metabolism (specific dynamic action), we should expect that a change in diet which would yield a higher metabolic rate should also result in an increased production of males; and, indeed, such has been found to be the case in the lower forms of life.

Whitney, and Schull and Ladoff (*J. Exper. Zool.*, series of papers from 1914 on), demonstrated in *Hydatina senta* that it is the diet acting on the grandmother which determines the sex of the grandchildren. A continuous diet of the colorless flagellate, *Polytoma*, causes female grandchildren to be produced; and when an abundant supply of the active green flagellate, *Dunaliella*, is supplied, approximately 95 per cent. of the daughters became male producers. This work has been confirmed on five species of rotifers, and in every case the giving of an optimum food and in greater abundance has yielded similar results.

It may properly be asked at this point why it is, then, that feeding experiments on mammals with this object in view have in some cases yielded apparently positive results, but perhaps even more frequently negative results, so that the effect of nutrition and, in truth, the metabolic theory, have until recently been discredited among scientific men.

In answer to such criticisms it seems well to point out that Nature has protected herself against the effects of sudden change in sex ratio by environmental causes by setting aside an organ (the ovary) which resists any change in its metabolism except by unusual or prolonged pressures. The results in rotifers show that the diet does not affect the sex of the daughter, but only of the ova which are to differentiate and develop in the daughter's ovary. How, then, are we to expect significant changes in the sex ratios of higher forms in which the metabolism is more stabilized through the agency of internal secretions, by performing a feeding experiment lasting only a comparatively short time on, at most, a single generation? Riddle has been successful in the first generation, because his methods attack directly the metabolism of the ovary and the developing ova both previous to and during the chromosomal maturation period; and it is for this reason, in addition to others, that he has been compelled to abandon the chromosome theory as a causal explanation of his results. He considers the sex chromosomes as associated

phenomena in the determination of sex, developed possibly for the maintenance of the necessary metabolic levels.

The evidence at present would seem to indicate that the older experiments designed to test the nutritive factor must be repeated in view of our newer knowledge of nutrition relating to the physiologic values of the different amino-acids and the rôles played by the vitamins or food hormones. By approaching the problem in this manner we may possibly hope to explain the varying sex expressions of the different nationalities and the changed sex ratios which seem to follow war.

VICTOR K. LAMER, A.B., New York.  
Research Assistant, Food Chemistry, Columbia University.

#### "DESENSITIZATION OF PERSONS AGAINST IVY POISONING"

*To the Editor:*—As additional evidence supporting Dr. Schamberg's desensitization of persons against ivy poisoning (*THE JOURNAL*, Oct. 18, 1919, p. 1213), the following experiment tried on myself may not be without interest: Ever since reaching college age and living in cities, I have been very susceptible to dermatitis by contact with poison ivy plants during country excursions, and once was confined to the house for two weeks.

In 1910, before the outdoor season began, for about two months, twice a day, I took gradually increasing doses of tincture of rhus toxicodendron, starting with one drop and ending with a number now forgotten. I never had enough confidence in the possible immunization to come purposefully in contact with poison ivy, and previous experiences were too unpleasant to risk repeating, if avoidable. However, during that summer in portaging a canoe my bare arms unavoidably came in contact with much foliage of the plant. Contrary to previous experiences, no sign of dermatitis developed. Lack of opportunity for outdoor life prevented me from repeating the experiment in other summers.

One or two laymen of intelligent type have told me that they have seen ingestion of poison ivy leaves effect a cure and immunity from dermatitis venenata.

Dr. Schamberg's term "desensitization" implies that more is known of the mechanism of ivy poisoning than many admit. I am more inclined to think that his treatment increases one's "tolerance," whatever that may be, much as one becomes tolerant to nicotine, caffeine, alcohol, or even the sun's rays. Following one attack in a season, I have never experienced a second that same year. When a boy and living mostly in the country with plenty of poison ivy around, I was seemingly immune, though never purposefully handling the plant.

Frequently during the time I was taking tincture of rhus toxicodendron I experienced slight pruritus ani, either as a real effect of the drug, a psychic phenomenon, or just a coincidence.

M. W. LYON, JR., M.D., South Bend, Ind.

*To the Editor:*—The theory of establishing an immunity toward ivy poisoning by giving extractives of the plant internally, as recorded by Dr. J. F. Schamberg (*THE JOURNAL*, Oct. 18, 1919, p. 1213) is not new. Chewing the leaves of poison ivy has long been practiced by laborers (Dakin: *Am. J. M. Sc.* 4:98, 1829) and others in the belief that it would establish immunity against poisoning; many references are made to it in the literature. Some years ago Williams (*M. World* 20:482, 1902) advanced the conception of an antitoxin to rhus poisoning by giving the drug. He writes:

A decoction of the leaves of the plant, say about half a dozen leaves at a dose (or they may be simply chewed and swallowed), will cause an eruption of blebs, or water blisters, which contain an antitoxin that neutralizes the poison in the blood when the serum from them is resorbed. One or two doses is usually sufficient. . . . The remedy immunizes against the possibility of future poisoning by the plant.

Ford, as long ago as 1907 (*J. Infect. Dis.* 4:542, 1907), stated that he had established an immunity to rhus poisoning in guinea-pigs and rabbits by administering small but increasing doses of fluidextract of poison ivy. He found that from ten to twenty times the fatal dose could be given to immunized animals.

However, after long study of the subject I have little faith in any theory of immunity against ivy poisoning. The active substance in poison ivy (and poison sumach) is a brownish-red, liquid, nonvolatile resin, 0.001 mg. of which is sufficient to cause symptoms (Pfiaff: *J. Exper. Med.* 2: 192, 1897). The poison being soluble in alcohol, biologic tests with it may easily be made, the degree of irritation being controlled by variance in concentration and duration of application. The technic is simple and the patient's discomfort trifling. I have applied the purified resin from the poison sumach on one so-called immune, and the individual was poisoned (*Pharm. J.* 83:563, 1909), though it appeared that the skin of this subject was somewhat less sensitive than mine, my arm having been used as a control.

L. E. WARREN, Chicago.

**STANDARDS FOR BLOOD PRESSURE APPARATUS**

*To the Editor:*—In response to requests from several sources, the Aeronatic Instruments Section of the Bureau of Standards is undertaking the establishment of standard tolerances for blood pressure gages. In this connection, we are anxious to obtain the opinion of medical authorities as to what allowable error can be permitted in using these instruments.

It should be remembered that no instrument can be made absolutely accurate, and that even if it could, the personal equation of the user would still be a source of error. Consequently, some definite standard of accuracy should be established to be met by the manufacturer.

The information that the gages should be "as accurate as possible" will be of little assistance to us. What we should like is a statement that an error of a certain number of millimeters of mercury in the reading can be reasonably allowed.

We should appreciate also any general information which your readers can furnish on the subject of blood pressure gages, especially as to the principal difficulties encountered in their use and as to the type of gage which is preferred.

S. W. SLATTON, Washington, D. C.

Director, Bureau of Standards, Department of Commerce.

**THE RELATION OF THE NEUROLOGIST TO GROUP DIAGNOSIS**

*To the Editor:*—The ever increasing advances in medical science have placed such a burden of responsibility on the profession that a physician attempting a diagnostic study on his patient, alone and unaided, may well feel appalled and helpless. To overcome this apparent paradox, diagnostic clinics or groups are coming into being whose functions are to relieve the physician of the perplexities associated with cases of a difficult nature. The sick have accepted the idea without equivocation. Physicians will do likewise as soon as they fully appreciate its beneficent influence.

I am, of course, aware that physicians avail themselves of the aid given them by the laboratory and the specialist. This readily serves its purpose in a great many cases when the condition is obvious and interpretation simple. What I have in mind, in particular, is the vast number of patients presenting ill defined, vague clinical states who trudge wearily from specialist to specialist. Each specialist's own narrow point of view is injected into the case, and the relief which these patients seek, and which is their due, is more elusive than ever. Group diagnosis obviates the narrowness and correlates all diagnostic data, so that final correct interpretation is possible. The medical profession will be spared the just censure and mistrust of the patient, and the ever growing crop of cults and quackeries will cease to exist.

What is the relation of the neurologist to group diagnosis? I consider this to be a highly important one from several points of view. As a result of the great war, the prestige of the neurologist has been enhanced immeasurably. His opinion was eagerly sought in the great mass of organic disturbances that were the direct results of injuries, and for that

type of disorder, largely functional, and grouped under the misnomer "shell shock." His deductions were obviously of manifest importance, for it was he who had the final decision in hand to which side a certain type belonged. In civil practice, his rôle is no less important for we are all cognizant of the innumerable conditions that simulate visceral organic diseases, and which, in the final analysis, are caused directly by organic nervous diseases. Group diagnosis will prevent a patient with a tabetic crisis from being operated on needlessly; and this holds true for a large number of nervous affections whose onset and course are characterized by pains largely confined to the visceral organs. Repeated operations for a condition that does not exist will, naturally, be obviated. The neurologist himself, as the result of group study, will avoid the pitfalls that might otherwise cause him to interpret falsely a patient's complaint. He will not dismiss a case as functional, and then, very much to his chargin and humiliation, find that some one else has cured "functional" affection by proper operative procedures.

I realize that I have but briefly touched on the relation of the neurologist to group medicine. It is not the purpose of these notes to thrust unduly into the medical limelight the neurologic specialist. Each member of the diagnostic group has an equally important function to fulfil. His deductions in a given case bear a definite and important relation to the group as a whole. Inferentially, the deductions of the other members of the group either add greater value to his interpretations or repudiate them altogether. The manifest educational value of such an exchange of opinion hardly needs extended comment.

I trust that I have not created the impression that the conception of group diagnosis is largely the product of my own originality. On the contrary, there exist in the profession today forceful pioneers who have within recent years preached this radical innovation. The success of their endeavors is a matter of record. I have merely attempted to emphasize its importance to the medical profession, and to the ill who entrust themselves to their care.

CHARLES ROSENHECK, M.D., New York.

Neurologist, Hospital for Deformities and Joint Diseases, New York Diagnostic Clinic

**Queries and Minor Notes**

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

**COMPARATIVE VALUE OF ACETYL-SALICYLIC ACID AND ACETANILID AS ANALGESICS**

*To the Editor:*—There has been some controversy in our country medical society about the depressant effect of acetylsalicylic acid and about giving it for the relief of pain. I have been giving it in preference to acetanilid or antifebrin or any of the acetanilid compounds. I would like to have your opinion on this subject.

A. J. MYNATT, M.D., Lumb., Mo.

ANSWER.—There is no doubt that acetyl-salicylic acid has decided analgesic value. As it is more anodyne than sodium salicylate, some of it must be absorbed and act as the undecomposed acetyl compound. The mean toxic dose of acetyl-salicylic acid, that is, the dose at which either gastric or auditory disturbance is produced, was found by Hanzlik, in a clinical study, to be 165 grains for males and 120 grains for females, which might be roughly averaged at 140 grains. Depression of the circulation (collapse) or of the nervous system (coma) was not observed with such doses. A fatal case of what perhaps was aspirin poisoning is reported by F. W. Lewis, in which a dose of about 200 grains taken by an influenza patient in the course of six hours, on an empty stomach, was followed by death in two days, the cause of death having been hemorrhage from the small intestine, which was profusely and extensively inflamed and ulcerated. Vomiting and anemia, rather than primary depression of the circulation or of the nervous system, were the prominent symptoms during life. We must, therefore, conclude that acetyl-salicylic acid does not have a marked tendency to

produce depression. Assuming the average analgesic dose of acetylsalicylic acid to be 10 grains (though 5 grains often suffice) and the average dose at which toxicity is usually noted to be 140 grains, the figure 13 (10:140::1:14; 14-1=13), might represent the therapeutic zone; while 19 might be considered the margin of safety, if 200 grains be the minimal fatal dose of this drug. Of course, this does not take into account the unusual reaction to acetylsalicylic acid, characterized by the appearance, from ten to fifteen minutes after ingestion of 5 or 10 grains of the drug, of edema of the larynx or violent bronchial asthma—almost amounting to asphyxia in some cases—and of urticaria or angioneurotic edema. Though they are uncommon, a considerable number of such cases have been reported. We must conclude that acetylsalicylic acid does not have a tendency to produce depression, and that it is a comparatively safe drug; for, even in those cases of allergy in which alarming symptoms appeared, recovery invariably took place.

This cannot be said of acetanilid, which is a treacherous drug. While as much as 60 grains have been tolerated without ill effect, the same dose has frequently been followed by serious collapse, and in some cases by death. A dose of 10 grains would certainly represent a maximum therapeutic dose, for such amount has repeatedly produced toxic effects and may have contributed to a lethal result (even 5 grains are alleged to have caused death). While the analgesic dose of this drug, which might be placed at 2½ grains, is smaller than that of acetylsalicylic acid, and though acetanilid is therefore four times as powerful an analgesic as acetylsalicylic acid, its therapeutic zone is very much smaller: 3 vs. 13, and its margin of safety is relatively smaller still.

We may conclude, therefore, that the preference of acetylsalicylic acid over acetanilid, for the relief of pain, is well founded.

TREATMENT OF BURNS WITH PARAFFIN FILMS

To the Editor:—Please write me the details of the treatment of burns, by the Ambrine method, particularly as regards its use in a spray. Is a hot air drier essential? Kindly state equipment necessary and usual cost, also where to purchase.

R. M. WILEY, M.D., Salem, Va.

ANSWER.—The secret proprietary "Ambrine" was found to consist essentially of a plastic form of paraffin with a small amount of a fatty oil and an asphalt-like body (Ambrine and Paraffin Films, THE JOURNAL, May 19, 1917, p. 1497). "New and Nonofficial Remedies, 1919," lists two forms of "Paraffin for Films"—"Parresine," which retails for about 75 cents a pound, and "Stanolind Surgical Wax," which is less expensive. The lesions are carefully washed with some antiseptic solution, such as the hypochlorites or chloramin-T. They are then dried by blotting with gauze or by means of a jet of hot air. Meantime, the solid paraffin (or mixture) is heated and cooled to about 50 C. The melted paraffin is applied by means of a fine brush (or sprayed by a specially devised atomizer) directly on the wound and on the adjacent unwounded surface, forming a thin film. In some cases in which there is much pain, Sollmann and Beiter state that it may be more advisable to substitute a heavy coating of liquid petrolatum for the first paraffin film.) Over this is placed a fine layer of cotton, and it is coated with the paraffin. This in turn is covered with another layer of cotton, followed by a gauze bandage, which may be sealed by paraffin. Subsequently the lesions are cleaned in the same manner and again dressed. Sloughs and dead tissue are removed as found at the daily dressings.

The sprayers may be obtained from Max Woehner and Son Company, Cincinnati, the Abbott Laboratories, Chicago, or the DeVilbiss Manufacturing Company, Cleveland, who can supply current price quotations.

A reprint of certain articles on this general subject, from THE JOURNAL, will be sent on receipt of ten cents in stamps.

Mental Test of Sex Offenders.—Mental statistics for the first 900 persons examined by the social service department of the venereal disease division of the Michigan department of health illustrate that a large percentage of sex offenders are subnormal mentally. Of the whole number, 214 were feeble-minded and needed institutional care; 538 were feeble-minded but needed only supervision; twenty-seven were either insane or epileptic; ninety-four were normal; two were superior adults; in twenty-five cases the diagnosis was not completed.—*Social Hygiene Bull.*, October, 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

- ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.
- CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.
- DELAWARE: Dover, Dec. 9-11. Sec. Regular Board, Dr. P. S. Downs, Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 324 Washington St., Wilmington. Pres. Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.
- FLORIDA: Tampa, Dec. 12. Sec. Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.
- ILLINOIS: Chicago, Dec. 1-3. Mr. F. C. Dodds, Supt. of Registration, Springfield.
- KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.
- LOUISIANA: New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.
- LOUISIANA: New Orleans, Nov. 4. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Machesa Bldg., New Orleans.
- MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
- MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
- NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.
- NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.
- OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, State House, Columbus.
- SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Hooper, 1806 Hampton St., Columbia.
- TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.
- VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McCain Bldg., Roanoke.

Connecticut July Examination

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 8, 1919. The examination covered 7 subjects, and included 70 questions. An average of 75 per cent. was required to pass. One candidate was examined, and passed. Three candidates were licensed on credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
New York Homoe. Med. Coll. and Flower Hosp. ....	(1916)	78	
LICENSED BY ENDORSEMENT OF CREDENTIALS			
College	Year Grad.	Certificate from	
Hahnemann Med. Coll. and Hosp. of Chicago ....	(1904)	Mass.	
Atlantic Medical College .....	(1909)	Penna.	
Boston University .....	(1906)	New Hamp.	

Kentucky July Examination

Dr. A. T. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, July 1-3, 1919. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the twenty-five candidates examined, 21 passed and 4 failed. Eight candidates were licensed through reciprocity. One candidate, a graduate of Rush Medical College in 1918, was licensed on presentation of a certificate from the National Board of Medical Examiners. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Louisville (1916) 81, (1919) 81, 82, 83, 84, 84, 85, 85, 85, 86, 86, 87, 87, 87.			
University of Michigan .....	(1917)	91	
Meharry Medical College (1919) 70, 75, 75, 77, 79.			
Vanderbilt University .....	(1914)	82	

FAILED			
College	Year Grad.	Reciprocity with	
Meharry Medical College ....	(1917) 69, (1918) 57, (1919) 64, 64		
LICENSED THROUGH RECIPROcity			
College	Year Grad.	Reciprocity with	
University of Arkansas .....	(1918)	Arkansas	
College of Physicians and Surgeons, Chicago .....	(1898)	Illinois	
Loyola University, Chicago .....	(1917)	Illinois	
Johns Hopkins University .....	(1917)	Maryland	
University of Cincinnati .....	(1917)	Ohio	
Lincoln Memorial University .....	(1916)	Tennessee	
Universities of Nashville and Tennessee .....	(1910)	Tennessee	
Vanderbilt University .....	(1916)	Tennessee	

## Social Medicine, Medical Economics and Miscellany

### MEDICAL INSPECTION OF SCHOOLS

Taliaferro Clark, in a discussion on the medical inspection of schools (*Public Health Reports* 31:2013 [Sept. 5] 1919), outlines the potent advantages and the minimal requirements of an acceptable health supervision of schoolchildren. All endeavors to raise the standard of health of a given community naturally begin with the children. The value of medical inspection lies not only in the detection of remediable defects in the schoolchildren, but much more in the detection of remediable defects in the sanitary conditions with which the children are surrounded—ventilation, lighting, heating, construction of the individual desks, seating capacity of rooms, playgrounds and playground apparatus.

An outline is given of what an effective system of health supervision should provide, namely: (1) thorough sanitation of all buildings used for school purposes; (2) intelligent supervision of classrooms to detect and correct conditions injurious to the health of the pupils as soon as they arise; (3) full-time services of medical inspectors qualified to discharge the sanitary and medical duties of the school physicians; (4) full-time services of school nurses; (5) facilities for dental inspections; (6) provision whereby necessitous children may receive free treatment best suited to their needs, and (7) examination of all children who fail to progress normally in school work.

At times one hears objections made against medical inspection of schools on the ground that it is an interference with the rights of physicians, with the rights of parents; that it is the cause of an unwarranted increase in the tax rate and that it encourages parents in shifting to others responsibilities that they should bear themselves. Dr. Clark shows that the experience of the communities that have given health supervision of schoolchildren a full trial refutes any such charges. Interest in matters of health is greatly increased by the inspection; parents awake to the needs of the situation; the average number of years of instruction required per pupil is lessened owing to the greater efficiency of the pupils, and there is a gain all along the line, which more than compensates for the slight additional expense.

The scope of an effective and efficient medical inspection should include (1) examination for the presence of physical or mental defects which make it inadvisable for certain children to attend school; (2) the measuring and weighing of all children to determine the average physical development by sex and one-year age periods, and the utilization of such standards as an index of nutrition and as a guide to the discovery of harmful causes in the case of children who do not develop normally; (3) the discovery, removal and prevention of defects of dentition, hearing, posture and vision that hamper children in school work and retard their physical and mental development, and (4) aid to the health authorities in the control of communicable diseases.

An acceptable school physician should meet the following minimal requirements: 1. He should devote his full time to the supervision of the health of schoolchildren. 2. He should be skilled in medical diagnosis, and able to advise with and assist the family physician when it is so desired. 3. He should have a knowledge of bacteriology sufficient to enable him to take cultures, detect "carriers," and otherwise assist the health authorities so that it may be unnecessary to close schools during epidemics of communicable diseases. 4. He should be well grounded in the principles of personal and general hygiene, and have the ability to apply them to school purposes. 5. He should be competent to prescribing suitable exercises in individual cases to overcome postural defects, and advise with regard to regulated group exercises designed to promote the best physical development of normal children. 6. He should notify all parents of the presence of physical defects in their children as soon as these defects are discovered, and make reasonable efforts to have his recommendations carried out.

A full-time, specially qualified physician is needed for the work, and 2,000 schoolchildren constitute the average number that can be adequately served by one physician. A card index system with an inspection card for each pupil should be introduced. The pupil should receive a thorough examination on first entering school, and the results should be carefully recorded and filed. The inspection card should be sufficiently large to permit of adding notations from time to time as the pupil passes through the various grades of the school. Comparisons yearly (or more frequently) as to weight and height are valuable as indicative of proper or defective nutrition or of the onset of disease.

### STATE CONTROL OF VENEREAL DISEASES IN AUSTRALIA

Australia, which has served the world as an experimental field in social and economic affairs, is developing much advanced medical legislation. The serious attempt it has made at state control of venereal diseases is described by J. H. L. Cumpston, director of quarantine, in Service Publication 17, published recently at Melbourne.

Definite statutes directed at venereal disease control, and embodying the recommendations of a special committee appointed by the government in 1916, have become a part of the law of Tasmania, Queensland and Victoria. Western Australia already had on its law books an act passed in 1915. Legislation had followed rapidly in the three other states to protect the country from a wholesale spread of infection, feared from the discharge from the army of 55,000 men suffering from venereal diseases—comparatively few of whom had been diseased before entering the army, and many of whom would return to country districts, spreading the infection in regions hitherto almost free from it.

Among many detailed provisions of the legislation enacted are these:

1. It is obligatory on persons with venereal diseases to apply at once for treatment, and to continue treatment until given a physician's certificate of cure.

2. A record must be sent by physicians to the central authorities each time a patient appears for treatment. Neither the patient's name nor his address is included in this record of the disease, but must be obtained by the physician, and are forwarded later if the patient stops treatment before he is cured.

3. Notice is then to be served by the government, directing such patients to continue the treatment.

4. All prisoners with venereal disease may be detained in jail until cured.

5. Official examination must be submitted to by any person formally accused by another of having venereal disease.

6. Marriage may be annulled, in one state, if one of the parties to the contract has a venereal disease in an infectious stage and has not informed the other of his condition.

7. For one person to infect another, knowing he has venereal disease, is a serious and punishable offense.

8. Persistence by a diseased person in an intention to marry justifies warning being given by the state to the other party.

9. Proprietary medicines and appliances for the generative organs may not be advertised or sold.

10. It is recognized that free clinics must be established, as well as regular hospitals, for the care of venereal cases, and the central government offers financial assistance to the states on a dollar for dollar basis.

It is not expected that this legislation will result in complete eradication of venereal diseases; but it is expected that it will approach that ideal, and will put an end to great loss of life, insanity, sterility, destruction of family life, inefficiency and economic waste. The object of the legislation is that the disease shall be treated as a disease. All confusion with moral questions is avoided.

Knowledge of the source of infection is felt to be a matter of primary importance in attacking the condition. Investigation indicates that half of the venereal disease in Australia is contracted from women who are not professional prostitutes. It also appears that the disease is five times as prevalent among single as among married men.

About 1,619 notifications of applications for treatment have been received from physicians since the passage of the laws in 1917. This is considered as demonstrating a considerable measure of success, though prediction of ultimate complete success is hardly hazardous, for "in the present state of public opinion it is not possible to attempt the rigid enforcement of the law."

## Medicolegal

### Cleaning of Surface Closets as Health Measure

(*Rat. v. City of Gastonia et al. (N. C.), 99 S. E. R. 21*)

The Supreme Court of North Carolina, in affirming a judgment dissolving an order restraining the selling of a lot for charges for cleaning a surface closet in it and other closets owned by the plaintiff, holds valid the city ordinance under which the city was acting. The ordinance provided that each and every surface closet or privy in the city used in connection with a dwelling should be cleaned and inspected under the supervision of the city, for which a charge of 30 cents a month should be made, to be paid by the owner of the property, a penalty of 50 per cent. to be added in case of nonpayment, the charge to be a lien on the real estate, enforceable in the same manner as the lien for taxes. The court holds that this ordinance was a valid exercise of the power reposed in the town authorities for the protection of the health of the people of the town, and that it was fully authorized by the powers expressly conferred by the provision of the general statute of 1917, in regard to cities and towns, that the governing body, or officer or officers who may be designated for this purpose by the governing body, shall have the power summarily to remove, abate or remedy, or cause to be removed, abated or remedied, everything in the city limits, or within a mile of the limits, which is dangerous or prejudicial to the public health; and the expense of such action shall be paid by the person in default, and, if not paid, be a lien on the land, and be collected as unpaid taxes.

The court says that the town authorities not only have the power to impose such duty on the land for the necessary protection of the health of the citizens, but they would be derelict in their duty as such officials, and in proper cases liable to indictment for failure to protect the health of the public by such necessary regulation. Even if there had not been precedents sustaining such authority, the act of 1917 confers the power, and it may be that the authority would exist, even without the statute, as a necessary inference from the requirement and duty imposed on the town authorities to protect the public health. The enforcement of such regulations as this by an officer appointed by the city, directly through its officers and employees, not only is more economical, but it is the only method of making it efficient.

The necessity of sanitation is fully recognized and is becoming of more and more importance with the knowledge which we obtain of the causes of disease and death. Doubtless the time is not far distant when by statute all manufacturing establishments or industries employing more than a certain number of people will be required to institute sewerage in their tenement houses, even when located outside town limits, in order to protect the health of the employees and of the neighborhood as well. In most towns of any size, surface closets are abolished, and sewerage is required. In view of the advance of medical science and regard for that sanitation which must be universal in order to be at all effective, there must be an extension of the requirements which by experience have been demonstrated as necessary for the protection of the public health.

The public health is a matter of importance to the entire neighborhood, and especially to all the inhabitants of a town or city, for the indifference or ignorance or neglect of one man will nullify the precautions taken by all others in that locality. Such an ordinance as is here in question is a necessary protection, which will be extended in its scope

with the increase of knowledge, and can never be diminished. The requirement of sewerage will be better than such an ordinance as this, which is the minimum.

### Quarantine for Gonococcus Infection

(*Ex parte Johnston (Calif.), 180 Pac. R. 644*)

The District Court of Appeal of California, Second District, Division 1, says that, on the petitioner's application therefor, the supreme court issued a writ of habeas corpus returnable to this court after its denial of a similar petition. The writ, no doubt, was granted on the argument that she was not and never had been afflicted with the infection, which, if true, would entitle her to be discharged from custody; but the return to the writ and evidence taken at the hearing conclusively established the fact to the contrary; and she was remanded to custody.

The adoption of measures for the protection of the public health is universally conceded to be a valid exercise of the police power of the state, as to which the legislature is necessarily vested with large discretion, not only in determining what are contagious and infectious diseases, but also in adopting means for preventing the spread thereof. The legislature, having determined the character of the disease in question, imposed on the health department of the city the duty, when having knowledge that one is afflicted therewith, of taking the necessary measures to prevent its spread. In the absence of any showing to the contrary, this court must, on the evidence before it, assume that the petitioner was, when subjected to quarantine regulations, and was yet, afflicted with and suffering from gonococcus infection, which, by Section 2979 A of the Political Code, is, with leprosy, smallpox, typhus fever, and a number of other diseases, declared to be contagious and infectious. The sole question thus presented was the right of proper authorities to isolate and place her in quarantine. By the section of the code just cited it is made the duty of the health officer, knowing of the existence of any such contagious or infectious disease, to take such measures as may be necessary to prevent the spread thereof. The isolation of one afflicted with a contagious or infectious disease is a reasonable and proper, indeed, the usual, measure taken to prevent the increase and spread thereof.

It appeared that the petitioner was originally taken into custody without a warrant, and, basing his argument on such arbitrary action, counsel drew a lurid picture of what might result from maladministration of the law by those charged with the duty of enforcing it. But the fact that the authority so delegated may, in a given case, be abused, is no legal reason for denying the power to quarantine summarily in a case in which grounds therefor concededly exist. Possible maladministration of the law was no concern of the petitioner, unless such administration thereof was shown to have affected her. Nor could her arrest without a warrant, after which, and while being illegally held, an examination was made with her consent which disclosed the existence of the infection, avail her in this proceeding. Assuming the action of the police officer arbitrary and unjustified, she was not restrained of her liberty by reason thereof, but on account of a disease with which she was subsequently found to be afflicted, and in the ascertainment of which fact there appeared to have been no arbitrary or unlawful action taken.

There was no merit in the contention that the infection with which the petitioner was afflicted was noncommunicable except by actual contact, which contact in such cases must be predicated on the assumption that an offense cognizable by law would be committed. Assuming that grounds existed for the petitioner's contention, no evidence tending to establish such fact was presented, and it is not a matter as to which the court may take judicial notice.

Counsel cited no authorities in support of the contention that one afflicted with a contagious disease cannot be subjected to quarantine regulations until it is first judicially established by some proceeding in court that he is so afflicted. Manifestly to uphold such contention would render laws for the protection of the public health nugatory.

## Society Proceedings

### COMING MEETINGS

American Child Hygiene Association, Asheville, N. C., Nov. 11-13.  
Southern Medical Association, Asheville, N. C., Nov. 12-13.  
Southern Minnesota Medical Assn., Mankato, Dec. 1-2.  
Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
South-ern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Dec. 15-16.

### MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Ninth Annual Meeting, held at Harrisburg, Sept. 22-25, 1919

The President, DR. FREDERICK L. VAN SICKLE, Olyphant, in the Chair

#### Community Sanitation as Based on Knowledge of Camp Sanitation

DR. WILLIAM G. TURNBELL, Cresson: To secure for the communities the results obtained in camp sanitation, there must be centralization of authority; sanitary officers trained by the central health authority—to which body they must be responsible; employment of only licensed health officers—the salary to be sufficient to attract capable men and a pro rata share of such salary to be borne by the central authority, and a comprehensive campaign of health education that the cooperation of the public may be secured—such campaign to begin in the lowest grade of the public schools and to reach all ages and all walks of life.

#### Work of Sanitary Engineer in Pennsylvania Department of Health

MR. C. A. EMERSON, JR., Chief, Engineering Division: The principal work of the sanitary engineer is included under water supply, sewerage, waste disposal, milk supply and housing. The provision of a pure water supply constitutes the most important element of the work. We have 136 filter plants in Pennsylvania supplying pure water to over 4,000,000 people. Long time storage and filtration are the two well defined methods of water purification. To these may be added the chlorination of water as a protection against pollution. Since 1906 Pennsylvania's death rate from typhoid has dropped from 54.8 per hundred thousand to 10.1, a reduction of 81 per cent.

### SYMPOSIUM ON PNEUMONIA AND EMPYEMA

#### Diagnosis of Pneumonia

DR. THOMAS G. SIMONTON, Pittsburgh: Attention is drawn to the nerves in relation to the lung and to their position in the mediastinum. In a beginning pneumonia or septic peritonitis with irritation of the phrenic nerve, pain may be referred to the tip of the acromion by reason of the fact that the phrenic is the fourth cervical nerve and sends communicating branches to the brachial plexus which, in turn, supplies cutaneous branches to the tip of the acromion. Patients with pneumonia during the influenza epidemic complained of pain, and a sense of constriction in the throat. They exhibited hoarseness, croupy cough, partial or complete aphonia, and in some cases inspiratory dyspnea. These symptoms are attributed to the fact that the free fluid or swollen glands in the mediastinum, or the peribronchial inflammation, caused a recurrent laryngeal or vagus paralysis. Intubation or tracheotomy should be considered early.

#### Management of Pneumonia, Its Complications and Sequelae

DR. LAWRENCE LITCHFIELD, Pittsburgh: The immediate determination of the invading micro-organism is made necessary by the success of early serum treatment. Pleuritic exudate is to be drained only after aspiration is found to be insufficient; then rib resection is not advisable. Follow-up treatment should be carried out with Carrel's method and chloric feeding. It is important to maintain the water supply

of the body by intravenous injection of glucose solution, if other means are inadequate. Attention is called to the efficacy of atropin in beginning pulmonary edema,  $\frac{1}{50}$  grain every twelve hours, to the danger of feeding during the first days and of using opiates as a routine. Alarming distention of the abdomen may be due to acute gastric dilatation. It may be relieved promptly by the stomach tube. If the distention is in the intestine, pituitary extract is a valuable adjunct to the usual enemas. An almost exhausted organism in pneumonia may be tided over by the free use of caffeine and ephedrin. During an epidemic, Dunham's nasopharyngeal disinfection is more dependable than vaccines as thus far established.

#### Surgical Complications

DR. EVAN W. MEREDITH, Pittsburgh: Empyema occurred in several base hospitals in from 7 to 15 per cent. of all types of cases of pneumonia. Pneumonia secondary to measles, and streptococcal bronchopneumonia gave the highest percentage. The incidence of peritonitis is difficult to determine, but at the necropsy a rather high percentage of bronchopneumonia cases will show involvement of the peritoneum. Suppurative perichondritis of the thyroid cartilage was observed in three patients. Abscesses in the abdominal wall in the suprapubic region were seen in two patients. Arthritis with effusion is a frequent complication. Two patients with encapsulated empyema in the upper part of the pleural cavity were for many weeks suspected of having tuberculosis. Drainage and resection resulted in prompt cure.

#### Acute Alveolar and Interstitial Emphysema in Influenzal Bronchopneumonia

DR. FRANK F. D. RECKORD, Harrisburg: Of 45,000 men, 14,000 became sufficiently ill with influenza to require hospital treatment. Of these, 2,500 developed pneumonia with a mortality of 800, or 32 per cent. From the first it was evident that death from influenza meant death from lung complications, pneumonia in some form. Bronchiectasis and interstitial emphysema were of rapid development. A striking type of reaction recognized was a condition of acute alveolar emphysema with the deposit of a hyaline fibrous material on the alveolar walls. It is the one distinctive feature in the pathology of influenzal pneumonias. The patient is virtually blowing bubbles in his own lungs, into a medium of exudation relatively poor in fibrin. The bacteriology of the lungs was mixed in a significant number of cases, but the one organism occurring with greatest constancy was the influenza bacillus.

#### DISCUSSION

DR. GEORGE R. MOFFITT, Harrisburg: In a number of cases of measles and pneumonia that came to necropsy we did not find the extensive bronchopneumonia described by Lucke. In many of the cases in which death had been sudden we would find from 2 to 3 liters of seropurulent fluid in the pleural cavity, and the lungs were filled with a thick, plastic exudate. This could not be withdrawn by pipets, thus explaining why it was not discovered before death. The necropsies generally showed hemolytic involvement of the lung. In the influenzal pneumonias we found the influenza bacillus in slightly more than 4 per cent. of the cases.

DR. M. HOWARD FUSSELL, Philadelphia: In the matter of referred pain in pneumonia it is to be remembered that many abdomens have been opened with the thought of appendicitis or gallbladder disease. In no case of supposed abdominal disease should an operation be done until after careful examination of the lungs. I agree with Dr. Litchfield that large amounts of water should be given in the pneumonia cases; nothing so reduces the toxemia. Not only is moving air a necessity, but it must be literally fresh air. While I would condemn the routine use of opiates, I consider the giving of a small dose of opium in a selected case preferable to the exhaustion from two sleepless nights. The occurrence of acute gastric dilatation following the crisis in pneumonia is not as well known as it should be.

DR. A. T. LIVINGSTON, Jamestown, N. Y.: No mention has been made of the basic factor underlying pneumonia or

other inflammation, namely, disturbance of the circulation. Inflammation is the result of abnormal dilatation of the capillary system in the affected part. Rickets cause disease because of stasis in the circulation. Disease will not be present if the circulation is maintained in proper condition. Ergot is the only drug that acts on the abnormally dilated capillaries.

DR. GEORGE E. HOLTZAPFEL, York: To surround the patient with plain or medicated steam is an exceedingly valuable procedure in combating the cyanosis following the administration of opium in small dosage.

#### Diagnosis and Treatment of Congenital Pyloric Stenosis

DR. ALBERT F. HARDT, Williamsport, Pa.: The first symptom that attracts attention is vomiting, frequently beginning as a regurgitation which gradually becomes worse until it becomes distinctly projectile in character, the vomit often being projected several feet. It occurs after each feeding or after several retained feedings. There is nothing distinctive about the character of the vomitus. Of all the symptoms, the vomiting is the most alarming. A peristaltic wave appears after food is taken, and radiates from the cardia to the pylorus. A tumor may be felt to the right and above the level of the umbilicus, usually a small movable mass. There are scanty stools and urine and progressive loss of weight. It is now generally agreed that only in the mildest cases with partial retention and with no loss or little loss of weight should expectant treatment be tried. In all other cases, operation should be advised at once.

#### DISCUSSION

DR. LEVI J. HAMMOND, Philadelphia: At times the tumor can be felt in the region of the pylorus, though more often the liver, which is invariably enlarged, so covers it over as to prevent its being palpated. The other symptoms are those naturally to be expected and incident on persistent vomiting. As the condition is surgical from the onset medical treatment should not be employed longer than is necessary to establish the diagnosis. Surgical treatment should consist in either pyloroplasty or posterior gastro-enterostomy; the former is indicated when the pathology is demonstrably localized. As this is not in my experience often possible, I have always elected posterior gastro-enterostomy, which I believe will meet the greater number of indications.

DR. JOHN J. GILBRIDE, Philadelphia: Congenital stenosis of the pylorus has a fairly definite symptomatology. Having a child with persistent vomiting in the presence of constipation, one might well suspect the presence of a stenosis of the pylorus; and the mere fact that the practitioner suspects such a condition leads him a long way toward making a correct diagnosis. One should be reasonably certain about the diagnosis before recommending operation, as operation on these little patients demands a very careful and painstaking technic in order that their lives shall not be sacrificed needlessly.

#### Fracture of the Pelvis

DR. SAMUEL P. MENGEL, Wilkes-Barre: There is no doubt that if roentgen-ray examinations were made as a routine in all doubtful cases, there would be a greater number of fractures of the pelvis, and incidentally, fewer recorded deaths from internal injuries. Fractures involving the crest of the ilium are very rarely complicated. Fractures of the pubes and ischium occur more frequently, are often multiple and complicated, and have a high mortality. Owing to the intensity of the fracturing force, the pelvis is crushed in many cases, with extensive damage to the soft parts. The necessary time requisite for a complete cure in these cases is directly proportionate to the extent of injury and the displacement of the bones. In suspected cases of ruptured bladder, an exploratory laparotomy should be performed as early after the injury as possible.

#### DISCUSSION

DR. WILLIAM L. ESTES, South Bethlehem: Fractures of the pelvis occur much oftener than one would suppose. They

occur very frequently in industrial establishments. Roentgen-ray examination is very essential to making the diagnosis.

DR. JOHN B. ROBERTS, Philadelphia: I was recently called to see a woman, aged 78, who had been knocked down by an automobile. She had a fracture of the face and was violently shocked. She had fracture of both bones of one leg. There was a good deal of confusion showing a blow about the hips. The roentgenogram disclosed a fracture of the pubis on one side.

#### Pulse Pressure in Traumatic Cerebral Compression

DR. HARRY M. ARMITAGE, Chester: In severe fractures of the base with widespread hemorrhage, the blood pressure symptoms are valueless. In traumatic cerebral compression when the local symptoms suggest a blood clot or a depressed fracture pressing on the brain, as evidenced by the roentgen ray, palpation or paralysis, the general symptoms, such as slowed pulse and blood pressure findings, may be of little value if the medulla is not involved by pressure. Operation is the only rational treatment in these cases. In cases with major symptoms of choked disk, headache, disturbed sensorium, coma, increased pressure of the cerebrospinal fluid and slow pulse, there is also invariably a high pulse pressure. The systolic pressure is too uncertain a factor to be of any value in diagnosing the amount of pressure. Our decision as to whether or not a patient should be trephined should be determined after grave reflection and consideration of the entire group of symptoms; but in all cases of head injury, frequent estimations of the pulse pressure and pulse rate should be made.

#### DISCUSSION

DR. LYNDON H. LANDON, Pittsburgh: In at least 80 per cent. of cranial cases the surgeon sees there is increased intracranial pressure. I rely very largely on the direct estimation of intracranial pressure by the spinal mercurial manometer. By lumbar puncture the presence or absence of blood is determined. It is important not to postpone decompression until the intracranial pressure reaches 40 or 59 mm. of mercury, until the pulse pressure far exceeds the pulse rate, and all the symptoms of Kocher's third stage have appeared. The time to consider operation is when signs of beginning compression appear.

DR. CHARLES H. FRAZIER, Philadelphia: Decision as to trephining should be determined after grave reflection and consideration of the entire group of symptoms; but in all cases of head injury, frequent estimations of pulse pressure should be made. If one were to rely on rise of blood pressure and choked disk as giving the indications for or against operation, it would be done in many instances in which it should not have been done and would not be done in many instances in which it should have been done. In determining the indications for or against operation, the whole clinical picture must be taken into consideration.

#### Pennsylvania's Campaign Against Venereal Diseases

DR. S. LEON GANS, Philadelphia: All means must be utilized to prevent infection. Methods must be employed to locate and detect infected persons. When infection is detected, treatment must be carried out until a cure is accomplished. Under prevention is classed the educational campaign, conducted by organizations which are being formed in every town in the state. These organizations will be composed of responsible men and women, their purpose being to carry education to the individual in his or her town. The block system has been successfully carried out, which brings comprehensive education into each home and deals with broad public health work. These organizations will supervise a system of talks to assemblies of men and women which will be graded as to sex and age and followed by the distribution of carefully prepared pamphlets. It is recommended that a selected course in sex instruction be introduced into schools, and that the parents, the clergy and the family physician be urged to discuss this problem so that the growing child will have a sane sexual education rather than a morbid sensual smattering. All inmates of penal institutions or reformatories are being examined and treated when infected. They will be given instructions concerning

prophylactic measures and the dangers of infection and the spread of venereal diseases. Framed posters will be distributed throughout the state giving information on venereal infection, advising the proper method of securing relief, and warning against quacks.

(To be continued)

## KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Ninth Annual Meeting, held at Ashland, Sept. 22-25, 1919

The President, DR. JOHN G. SOUTH, Frankfort, in the Chair

### Surgery of Thyrotoxicosis

DR. L. WALLACE FRANK, Louisville: The operation of thyroidectomy is not without danger, and should be undertaken only by those familiar with the anatomy of this region. Close to the gland lie the great vessels of the neck and also the recurrent laryngeal nerve. It is extremely easy to tear the thin walls or blood vessels of the gland. I saw a case in which even the inferior thyroid was torn close to the jugular. While the toxic thyroid may be a secondary condition, nevertheless, it is the seat of pathology and its removal produces cure or marked improvement.

### Epidemiology of Communicable Diseases

DR. IRVIN LINDENBERGER, Louisville: From results obtained thus far with the Rosenow vaccine in influenza, it appears possible to afford protection by prophylactic inoculation of persons against the more serious respiratory complications. The duration of the immunity is not known, but indications are that it is relatively short. As regards vaccine treatment, since the severer complications of influenza, such as pneumonia, do not usually begin until the fourth day or later, the vaccine, if given at the onset of the disease, might reasonably be expected to afford some protection. The initial prophylactic dose daily for one, two or three days, is recommended, provided no unfavorable symptoms occur. The vaccine is harmless, and a certain degree of protection is afforded. Prophylactic inoculation against the respiratory infections, so fatal during the epidemic, should be studied on a large scale by many according to the principles laid down. This endeavor is being made by the Kentucky State Board of Health at the present time. Reports on about 3,000 cases indicate that the vaccine decreases influenza, almost entirely prevents pneumonia and in practically no case in which it was used has death occurred. Inoculations were begun by the health department in Louisville, Dec. 4, 1918, and were continued until Jan. 10, 1919. Investigations made ninety days after the last inoculation show that 750 inoculations were given. One hundred and eighty persons could not be located; four persons contracted influenza after the third inoculation; no cases of pneumonia developed after the third inoculation.

### Tendency Toward State Medicine

DR. W. W. ANDERSON, Newport: The state function in medicine began with quarantine in a few diseases. We now have twenty-seven reportable diseases under the Kentucky law. Many of the states provide laboratory tests, antitoxins and vaccines free or at low cost. State care for defectives has advanced to meet the needs of the insane, feebleminded, idiotic, epileptic, blind, deaf, mute and incurable, and to sterilization of the unfit. Hospital service has greatly increased and extended outside in health stations, milk stations, fresh air, farms, community nursing and clinics. Clinics which originated for medical teaching alone have gone into public service, and we have baby clinics, maternity clinics, tuberculosis and venereal clinics. Our national government is greatly extending its activities in public health service and army medical supervision outside the army itself. State medicine is coming and we must prepare for it by, first, emphasizing to ourselves and to the public the high ideal of medicine, secondly, by excellence in present forms of medical work; thirdly, by better average quality of private practice.

### Roentgenography in Diagnosis of Tuberculosis

DR. J. H. BROWN, Winchester: Roentgenography affords opportunity for exact diagnosis of pulmonary tuberculosis in its incipency. Investigation has established beyond any doubt that in the great majority of cases the initial focus is in the hilum which is diagnosed only by means of the roentgen ray.

### War Surgery of Bones and Joints as Applied to Civil Practice

DR. ISAAC ARNOLD, Louisville: The factors which contribute to success are: (1) a competent surgeon, who is especially educated in mechanical surgery; (2) asepsis; (3) proper instruments and appliances to do good work; (4) proper equipment; (5) specially trained nurses and assistants; (6) cooperation on the part of the nurses and assistants; (7) absolute control of the patient. All the surgery done on bones and joints in military practice is applicable to civil life, except that the methods may have to be made slightly less radical.

### Diagnostic Significance of Vertigo to the General Practitioner

DR. J. D. HEITGER, Louisville: Vertigo may be caused by (1) a lesion in the ear or of the eighth nerve, such as hemorrhage, effusion, labyrinthitis, inflammation of the middle ear producing congestion and irritation of the labyrinth, leukemic infiltrations, trauma, neuritis, low grade specific meningitis, etc.; (2) lesions affecting the intracranial pathways, such as hemorrhage, trauma, tumor, abscess, thrombosis, infarction, tubercle and gumma, multiple sclerosis, syringomyelia, meningitis of various types, poliomyelitis; (3) involvement of the ear mechanism by toxemia from any organ or part of the body, chemical poisoning from alcohol, lead, salicylates, quinin, infectious fevers and local infections; (4) involvement of the ear mechanism by ocular disturbances or by circulatory disturbances, cardiorenal and cardiovascular conditions. Vertigo involves essentially a study of the vestibular apparatus. It signifies a disturbance of that apparatus.

### Early Diagnosis in Diseases of Rectum

DR. BERNARD ASMAN, Louisville: In no part of the body is disease more frequent than in the rectum and anorectal regions, and in no other part of the body is disease more frequently overlooked or longer neglected. The apathy or failure on the part of many physicians to care for rectal diseases properly is not attributable to incompetence, but to negligence and to following blindly a long-established but vicious custom. The great importance of more frequent rectal examinations should be emphasized and urged on each individual member of the medical profession.

### Diagnosis of Peripheral Nerve Injuries

DR. B. F. ZIMMERMAN, Louisville: Peripheral nerve lesions are differentiated from lesions of the central nervous system by the history; location of the injury; by the fact that a paralysis of central origin is spastic and not flaccid; that the reflexes are increased, and that the paralysis does not coincide with the distribution of the peripheral nerve. In paralysis of central origin more frequently the entire limb is paralyzed; but if the lesion is in the cord and is small, paralysis may be limited to certain muscles of the extremity. In such a case the paralysis is segmental or of the root type, and does not correspond to any given nerve.

### An All-Time Health Officer

DR. J. A. PHELPS, Hickman: The aim of the health officer is the prevention of disease, and to this end he owes it to himself, to the public and to his profession to be the possessor of an intimate knowledge of every community under his supervision. He should be advised promptly of every outbreak of infectious or communicable disease in the county, and when he is so advised he can then make a personal inspection of the surroundings and conditions and remove the cause.

### Prostatectomy

DR. J. HENNER PEAK, Louisville: Prostatectomy is indicated when from any cause the prostate gland becomes suffi-

clearly enlarged to interfere markedly with micturition and endanger the life of the individual from infection of the urinary tract which almost invariably supervenes sooner or later. The only exception to this rule is where prostatic enlargement is due to acute infection which usually subsides under appropriate medical treatment. I have performed about 800 prostatectomies, with only three fatalities, and these followed the suprapubic operation. One patient, 84 years of age, died from the anesthetic and shock. The second patient contracted pneumonia just as he was to be discharged from the hospital. The third patient had a rapidly growing fibrosarcoma. Death occurred eight weeks after the operation from extension of the malignant process.

#### The Obstructing Prostate

DR. CARL LEWIS WHEELER, Lexington: I suggest the term "obstructing prostate" to supplant the terms "prostatic hypertrophy," "enlarged prostate" and "prostatism." Too many prostates are being removed which are suspiciously malignant, suspicion only being aroused by the postoperative report of the pathologist. It is a well-known fact that carcinomatous areas can be detected in the midst of an adenomatous prostate. In this type of prostate, why should we operate? These patients should be subjected only to radium. I prefer the suprapubic route, and strongly advocate the two-stage operation, the first stage being done under local anesthesia, when it is possible, the second stage under gas and oxygen with as short an anesthesia as will suffice. The interval between first and second stages varies between two and six weeks. Forced feeding is begun at the same time drainage is instituted. In several instances, patients have gained as much as 30 pounds before the time for the second stage has been reached.

#### Tuberculous Peritonitis

DR. CHARLES A. VANCE, Lexington: Tuberculous peritonitis is most common between the ages of 20 and 40, and females are affected more than males, owing to the occurrence of tuberculous salpingitis. Tuberculous peritonitis predisposes to abdominal catastrophes by causing adhesions which bind down the intestinal coils. Tuberculous mesenteric glands produce adhesions between the glands and the adjacent coils of intestine, or, by breaking down into abscesses, produce suppurative peritonitis. Tuberculous peritonitis demands internal treatment. Only under special conditions does it require surgical treatment. The treatment is, in general, the same as that for tuberculosis in other parts of the body and consists mainly in rest, proper food, fresh air and general hygienic measures. Tuberculin may be used in selected cases. The disappearance of the effusion, when it is present, may be hastened by moderate purgation, by restriction of the diet, and by the use of ordinary diuretics. Treatment by the roentgen ray has benefited some patients. Laparotomy is indicated in the cases of serous effusion, if after several weeks of conservative treatment, satisfactory progress has not been made. Other indications for laparotomy are the presence of well-defined and probable primary foci in the tubes or appendix, a localized suppurative process, or the presence of some condition causing partial or complete intestinal obstruction. At operation, the primary focus must be removed, if possible. The abdomen is closed without drainage. The ulcerative types and those without effusion are unsuitable for operation and should not be operated on, except in the presence of definite indications. In the purely adhesive type, operation is almost hopeless. Nitrous oxid-oxygen anesthesia should be used in all tuberculous cases as a precaution against lighting up or aggravating pulmonary lesions, which is a real danger if ether is used.

#### Fractures of Cervical Vertebrae

DR. F. P. STRICKLER, JR., Louisville: Fractures of the cervical vertebrae constitute from 25 to 36 per cent. of all spinal fractures, and occur most frequently in the male of middle age. Several vertebrae may be fractured and dislocated at one time, but the parts most frequently involved are the body. When this is the case the fracture is usually accompanied by dislocation and compression which produce a

rather sharp kyphosis. The spinous and transverse processes are also frequently the site of fracture, but in fractures of this nature there may not be much deformity. The site of these fractures, fracture dislocations and compression fractures is in the larger number of cases found in the lower cervical vertebrae. The nerve symptoms found in fracture and dislocation of the cervical vertebrae are produced by contusion or crushing of the cord at the time of injury, or by persistent compression of the cord by fragments of bone, effusions, blood clots, and later on by callus or the products of inflammatory changes.

If few or no cord symptoms are manifested, either the conservative or operative treatment may be employed, depending on which form of treatment will give the best results in the individual case. The conservative treatment is carried out by immobilizing the spine in plaster-of-Paris jackets, the Calot jacket being the type most frequently used in fractures of the cervical region. If the operative treatment is decided on, one of two operations may be used—the Albee or the Hibbs. The prognosis is guarded. In those cases in which there are marked cord lesions it is very grave, for few, if any, of these patients show improvement. The case usually terminates in death.

#### Diagnosis and Treatment of Cerebrospinal Meningitis

DR. E. B. BRADLEY, Lexington: It is highly desirable to recognize the disease early—if possible before meningitis develops. This may be done by a combination of clinical and laboratory findings. If the spinal fluid is negative at first, a second puncture two hours later may show organisms. Repeated punctures should be made, if necessary, and every method used to cultivate the organism from the blood. Treatment with large doses of antimeningitis serum intravenously should be used as early as possible, combined, when meningitis is present, with intraspinal injection. This treatment lowers the mortality of the severe cases from about 66 to 17 per cent., and in those cases in which the diagnosis is made late the mortality is reduced from 42 to 19 per cent. Complications are also greatly reduced.

#### Early Diagnosis of Valvular Heart Disease

DR. C. W. DOWDEN, Louisville: For the diagnosis of mitral stenosis, a presystolic or diastolic murmur must be present, and this can be intensified and detected much earlier by the use of the amyl nitrite test. Disease of the aortic valve can best be detected with the patient in a bent forward position, after exercise, and with the examiner's ear over the chest. For the diagnosis of mitral regurgitation, in addition to the murmur, cardiac hypertrophy, or a history of rheumatism, is necessary.

### INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held in Indianapolis, Sept. 26-27, 1919

(Concluded from p. 1309)

#### Blood Sugar in Cancer

DR. SCOTT EDWARDS, Indianapolis: Normal blood sugar varies from 0.07 to 0.14 per cent., with an average of 0.10 per cent. The curve in a normal individual generally reaches its peak near the forty-five minute interval and is well back to normal or entirely so at the end of two hours. In contrast to the normal curve, the cancer curve reaches approximately 200 gm. per hundred c.c., and at the two hour interval, after the glucose is ingested, the blood sugar is approximately the same figure or it may be considerably higher. The normal is reached in from three to four hours. The curve in all other diseases examined, except one, followed the general contour of the normal curve. In one case, which was later diagnosed as pernicious anemia, the curve was typically that encountered in cancer. I feel, therefore, that while blood sugar tolerance determination offers some diagnostic evidence, it is of greater value as a method of eliminating cancer than in proving its existence. A failure to establish such a curve is strong evidence against malignancy.

### Lipovaccines

DR. A. PARKER HITCHENS, Indianapolis: In the military emergency the lipovaccines were valuable because of the difference between a single dose vaccine and one which required ten days to administer; but in civil practice, especially in the prophylaxis against the complicating infections of influenza, I would prefer at the present time to use saline vaccines. I do, however, prefer typhoid lipovaccine because I believe its value has been demonstrated thoroughly.

#### DISCUSSION ON PAPERS OF DRs. EDWARDS AND HITCHENS

DR. H. K. LANGDON, Indianapolis: The question of sugar tolerance must not be a question of theory, but of fact; and if this curve proves constant and is demonstrable in the early stages of malignancy it will be of untold value. The true value of lipovaccine will be determined only by the test of time.

DR. THOMAS C. KENNEDY, Indianapolis: What we need most of all in cancer is early diagnosis, and I hope that Dr. Edwards will continue his work and report if he finds anything of value.

### Some Fractures of the Pelvis

DR. CHARLES HAYWOOD, Elkhart: In the treatment of fracture of the pelvis, the first thought is reduction of the fragments and means for holding them in apposition. Violent manipulations must be avoided because of their tendency to increase shock as well as the extent of the visceral injury. Careful manipulation of the limb is often necessary to assist in digital manipulations through the rectum or vagina. In fractures of the crest of the ilium, supporting sand bags are all that is necessary, and are preferable to bandaging. In fracture of the pubes and rami of the ischium a cast is sometimes employed, but the same result can be accomplished better by adhesive strips. In wide separation of the fragments, resort may be had to wiring. Fracture of the acetabulum and penetration by the head of the femur will require traction laterally and probably the Beck extension. In all these cases the ingenuity of the surgeon is called into play in order to employ the proper means of immobilization and to make the patient comfortable.

### Relative Merits of Surgery, Radium and Roentgen Ray in the Treatment of Uterine Fibroids

DR. E. E. PADGETT, Indianapolis: The cases of uterine fibroid to be treated by means other than surgery are a very small minority, being only those cases that are unfit for surgery.

### Chronic Uterine Infections

DR. WALTER H. BAKER, South Bend: Surgery of the female pelvis could be undertaken in these cases with much more confidence, and would ultimately be much more successful, if we knew better all of the physiology and pathology of the internal secretions of the ovary and the relation they bear to other internal secretions. A few observers have argued that the tubes and uterus play a part in the internal secretion of the ovary, that without them the ovarian secretion did not functionate properly and a vasomotor complex would arise. Undoubtedly the internal secretion from the ovary persists for many years after the reproductive function has subsided.

#### DISCUSSION ON PAPERS OF DRs. HAYWOOD, PADGETT AND BAKER

DR. THOMAS C. KENNEDY, Indianapolis: Workers with radium have been convinced of its efficacy in the treatment of fibroids, and I believe that it will only be a short time until the most skeptical will be convinced that it is the treatment of choice in a large number of cases of uterine fibroids. Of course, it must be used with care, but it is readily controllable in skilled hands.

DR. EDMUND D. CLARK, Indianapolis: I believe there is a middle ground in this question. I do not by any means believe that all fibroids should be treated by radium or the roentgen ray, nor do I believe that they should all be treated by surgery. Of course, pyosalpinx, appendicitis and gallbladder disease should be eliminated; we should simply treat fibroids by radium or roentgen ray, and the treatment should be limited to small fibroids. Large tumors should

be removed. The conservative surgeon is the man who operates quickly when his diagnosis convinces him that surgical work is necessary.

DR. J. R. EASTMAN, Indianapolis: I am sure we conserve life when we take out an infected appendix promptly on making the diagnosis.

DR. H. K. BONX, Indianapolis: We must beware of a false conservatism. In the surgery of the female pelvic organs we should have less so-called "conservative" surgery and more complete work.

DR. A. M. COLE, Indianapolis: The treatment of uterine fibroids by the roentgen ray has passed the experimental stage, and this method must take its place as a legitimate and highly efficient therapeutic agent in these cases.

DR. O. G. PRAFF, Indianapolis: Small fibroids (the class in which the use of roentgen ray or radium is recommended) can be removed surgically at one sitting under gas anesthesia with very little discomfort and almost without mortality. Large tumors should not be subjected to roentgen ray or radium treatment. As to the appendix, we shall save the greatest number of lives if we operate in every case as soon as the diagnosis is made if the patient can stand an anesthetic. The earlier the better.

DR. H. O. PANTZER, Indianapolis: These divergent views emphasize the fact that we have not yet such scientific data as will enable us to do in every instance what is satisfactory for the patient in making differential diagnoses and seeking or finding the proper remedy. I myself feel that we have reason to antagonize the free, invariable use of radium and the roentgen ray for fibroids, considering the extremely low mortality of surgery in these cases.

DR. W. D. GATCH, Indianapolis: In regard to the mortality of the operation for fibroid, it seems to me there are two factors beyond our control which are bound to cause a considerable mortality. These are possible sepsis in degenerated submucous fibroids, and embolism. Under the best of conditions the mortality from embolism will be from 2 to 5 per cent. We can cure most of these patients by roentgen ray or radium.

### Hour-Glass Bladder

DR. JI. K. BONX, Indianapolis: This case was an apparently true "hour-glass" bladder, the two compartments connecting with one another by means of a ringlike opening which admitted only the index finger. The anterior septum of this ring was divided in one plane and then resutured in the plane opposite to that of division. Four fingers could now be passed from one vesical cavity into the other. The patient, a man aged 62, made an uneventful recovery and remains free from symptoms.

### Renal Tuberculosis

DR. P. E. McCOWN, Indianapolis: Early diagnosis is most important in renal tuberculosis, and early nephrectomy is indicated. A large incision will be of great help in exposing the kidney and getting to its pedicle; it will save time and save maceration of the kidney and wound contamination. It seems best to divide the ureter first, permitting greater access to renal vessels. The vessels should be well cleaned of adhesions to insure secure ligation. Single thread ligatures, repeated if desired, are less likely to slip than double threads.

### Prostatectomy

DRs. W. N. WISLARD AND H. G. HAMER, Indianapolis: Of 120 patients, the oldest was 84 and the youngest 45 years of age. Symptoms at time of consultation were frequency and difficulty of urination in fifty-five cases; frequency, difficulty and pain in thirty-seven cases; marked hematuria in three cases, and complete retention in fourteen cases. Forty-eight of these patients had used a catheter prior to consultation. All patients were operated on by the suprapubic method; eighty-seven by the two stage method; the average interval between the preliminary cystostomy and the enucleation was two or three weeks.

Post-operative results were: There was residual urine, from  $\frac{1}{2}$  ounce to  $3\frac{1}{2}$  ounces, in ten cases. One patient had 6 or 7 ounces and a recurrence of hypertrophy in the subcervical

prostatic glands which are being destroyed by fulguration. The other patients have good emptying power and good control, except one who has some incontinence, probably resulting from a spinal lesion. The mortality from the operation was 1.66% per cent.

DISCUSSION ON PAPERS OF DRS. BONN, McCOWN,  
WISHARD AND HAMER

DR. WILLIAM S. ERICH, Evansville: Thorough preparation is a very important, if not the most important, element for the success of prostatic surgery.

DR. FRANK H. JETT, Terre Haute: The reason appendicitis patients do better than gallbladder or prostatic patients is that they have been taught that they need operation and need it at once.

DR. J. C. FLEMING, Elkhart: The fatalities following prostatectomy may be divided into three classes: cases of malignancy, cases in which there is excessive hemorrhage, and cases that are not allowed to clear up entirely after their preliminary drainage.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Medical Sciences, Philadelphia

October, 1919, 158, No. 4

- \*Cardiac Phase of War Neuroses. A. E. Cohn, New York.—p. 453.
- \*Long Duration of Remission in Pernicious Anemia. C. G. Stockton, Buffalo.—p. 471.
- \*Meningococcus Arthritis. W. W. Herrick and G. M. Parkhurst, New York.—p. 473.
- \*Aspening Renal Tuberculosis. L. Buerger, New York.—p. 482.
- \*Effects of Injection of Atropin on Pulse Rate, Blood Pressure and Basal Metabolism in Cases of "Effort Syndrome." C. C. Sturgis, Pendleton, Oca., J. T. Wearn, Charlotte, N. C., and E. H. Tompkins, Cambridge, Mass.—p. 496.
- \*Points of Differential Diagnostic Value in Pulmonary Abscess, Bronchiectasis and Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 502.
- \*Imminent Psychology: A Prophecy and a Plea. J. Collins, New York.—p. 510.
- \*Bronchiectasis: Its Differentiation from Pulmonary Tuberculosis. B. Stivelman, Bedford Hills, N. Y.—p. 516.
- \*Case of Enlarged Thymus; Status Lymphaticus. R. C. Newton, Montclair, N. J.—p. 534.
- \*Transitional Leukocytosis and Its Diagnostic Value in Chronic Appendicitis. G. A. Friedman, New York.—p. 545.
- \*Case of Mediastinal Hodgkin's Granuloma, with Perforation of Chest Wall. M. W. Lyon, Jr., South Bend, Ind.—p. 557.
- \*Blood Volume in Wound Hemorrhage and Shock. R. I. Lee, Cambridge, Mass.—p. 570.
- \*Cytologic Studies of Pleural Exudates Complicating Influenza. B. Lueke, Philadelphia, and R. Barker, St. Louis.—p. 577.

**Cardiac Phase of War Neuroses.**—The special purpose of Cohn's paper is to point out milestones in the history of this subject. Da Costa first defined it in 1871. On the basis of his work the study continued in this war. In his view the disorder arose most often as the result of infectious diseases, was most likely a functional disorder, going on to organic change in the heart, and was certainly affected beneficially by drugs. The symptoms which he described, and which are now recognized are alike. At present it is believed that the matter was the predisposing cause, whether it be infectious disease, malfunctioning glands of internal secretion or gas poisoning, the disorder is essentially a neurosis, depending on anxiety and fear; that it is removed by the disappearance of the exciting cause and that it is cured by measures designed to influence the neurotic state.

**Long Duration of Remission in Pernicious Anemia.**—Stockton saw his patient for the first time in 1899. It was in all respects a typical case of pernicious anemia. There was an irregular improvement for six years, at which time, although there was a moderate anemia, the blood lost all characteristics of the pernicious type. In 1907 no abnormal cells were found. The blood was in every way satisfactory. In 1918, there was a sharp recurrence which soon became

threatening. The patient failed to respond to the action of atoxyl and sodium cacodylate, which drugs formerly had appeared to be of benefit. A transfusion led to temporary improvement. Three weeks afterward the patient developed lobar pneumonia and died three days later, nearly twenty years after the recognition of her first attack of pernicious anemia. In this case there was disappearance of all evidence of the disease, except a continuance of achylia gastrica. Stockton says he had never found an exception to the rule of the presence, sooner or later, of achylia gastrica.

**Meningococcus Arthritis.**—A study of an epidemic of 321 cases of meningococcus infection impressed Herrick and Parkhurst with the frequency of arthritis, with the variety of its manifestations and with the clinical profit of a separation of these arthritides into different forms or types. The result of their studies has been the classification of these varieties of arthritis met with in meningococcus infections. The authors classify this arthritis in three forms. Type A is an acute polyarthritides that is frequently the initial symptom, more often one of a number of symptoms of onset, and that does not, except in rare cases, appear later than the third day of the disease. This type is a feature of many of the cases of severe infections and is usually a harbinger of a stormy course. Almost all these patients have profuse hemorrhagic rashes coincident with the polyarthritides. In many, but not in all instances, the arthritis is as transitory as the rash. It would seem that these early joint symptoms are due to hemorrhage into the articular and periarticular structures, especially the synovial membrane that they are identical with the hemorrhagic lesions of the skin and serous membranes. The clinical picture is not unlike that of acute rheumatic polyarthritides. In Type B the onset is late, usually about the fifth day. With few exceptions only one joint is affected, generally the knee, occasionally the ankle, hip, shoulder, wrist or elbow. Effusion is a prominent feature, so that aspiration of the synovial capsule is suggested in many cases. Swelling is great, but redness, pain, tenderness and limitation of motion are surprisingly slight. In no other acute arthritis is there this striking disproportion between the swelling and the other inflammatory signs. The duration of the process is usually from one to four weeks, recovery being gradual, but complete. Type C is the well known serum arthritis.

**Ascending Renal Tuberculosis.**—Buerger gives what he regards as clinical and pathologic proof of the occurrence of cases of ascending renal tuberculosis, ascending at least in the sense that the renal and ureteral lesions are secondary to the bladder involvement.

**Atropin in Effort Syndrome.**—In cases of "irritable heart" studied by Sturgis, Wearn and Tompkins and in normal men after injection of atropin sulphate there was generally a preliminary drop followed by an increase in pulse rate. This increase was greater on the average in the "irritable heart" cases than in the normal controls. There was also a drop in pulse pressure in the majority of the subjects, dependent on a rise in diastolic blood pressure in the majority of cases and on an additional drop in systolic blood pressure in some of the cases. There was no increase in basal metabolism after the subcutaneous injection of atropin sulphate. There was a slight fall in the basal metabolism in three of the six cases studied. There was always a slight drop in the respiratory quotient.

**Differentiation of Pulmonary Abscess, Bronchiectasis and Tuberculosis.**—Pottenger states that a history of persistent expectoration of moderate or large quantities of sputum, with a diminished respiratory excursion on one side of the chest and an absence or paucity of crepitations or mucous râles on auscultation over the side affected should make one think of pulmonary abscess or bronchiectasis. Ronchi are often present but they, too, may be absent.

**Imminent Psychology.**—Collins predicts a glorious future for psychology, in fact all transactions will be placed on a psychologic basis: work, occupation, recreation; the spiritual, physical, social, financial, hygienic betterment of mankind; admission to schools, colleges and universities; choice

of profession, occupation or career; promotion or advancement in any intellectual field will be determined by psychologic examination of the individual seeking position and preferment. Medicine will be quickened, revived and enriched by doing teamwork with the science of psychology.

**Diagnosis of Bronchiectasis.**—Stivelman emphasizes that a diagnosis of bronchiectasis may be arrived at only after a careful history of the case has been taken and painstaking repeated physical examinations have been made. Given a patient with a history of cough and profuse expectoration of many years' duration following pneumonia, yet well nourished, leading a moderately active life, especially when no history of such constitutional symptoms as tachycardia, chills, fever and sweats can be obtained, and the abundant sputum after repeated and careful examinations does not show the presence of tubercle bacilli, it is most probable that the disease in question is not tuberculous in character, although hemoptysis may have occurred. When this is supplemented by repeated physical explorations of the chest, which show that the lesion is to be found exclusively at either or both lower lobes and that the apices are free from disease, a diagnosis of bronchiectasis may be justifiable. Guinea-pig inoculation of the sputum in question may rule out tuberculosis. Roentgenoscopy and at times bronchoscopy may be of assistance. Tuberculosis complex fixation is not as yet reliable. Extensive basal tuberculosis is most frequently a terminal condition and is associated with bilateral upper lobe involvement and marked constitutional symptoms of toxemia.

**Leukocytosis in Chronic Appendicitis.**—Transitional leukocytosis or an increase in large mononuclears and in transitional leukocytes, or an increase in either of them was found by Friedman in the blood of 87 per cent. of patients in whom evidence of chronic appendicitis was obtained. There was no transitional leukocytosis in the blood of patients in whom evidence of chronic peptic ulcer was obtained or in the blood of those in whom cholecystitis, renal stones or other organic abdominal conditions were found at operation. A transitional leukocytosis was found in patients in whom appendicitis was present, with other organic abdominal conditions. A hyperleukocytosis and a polynuclear leukocytosis are not as frequently found in chronic appendicitis as is a transitional leukocytosis. A transitional leukocytosis as a diagnostic aid of chronic appendicitis, Friedman says, is superior to roentgen signs which are supposed directly or indirectly to point to a diseased appendix. Transitional leukocytosis often persists in the blood after an appendectomy is performed.

**Mediastinal Hodgkin's Granuloma.**—A case of neoplastic growth having the tissue characteristics of Hodgkin's granuloma situated primarily in the mediastinum is described by Lyon. It occurred in a young adult, white, male, of good previous and family histories. Its duration was sixteen months. The neoplastic mass caused pressure erosion of the chest wall; the right pleura became infected and a retropleural and retroperitoneal abscess developed, the patient dying of toxemia and exhaustion. The chief pathologic findings were extension of the mediastinal neoplastic growth into the right lung, involvement of the bronchial and mediastinal lymph nodes, of many abdominal lymph nodes and of the retroperitoneal and inguinal nodes. Metastatic growths were found in the unenlarged spleen, in the tail of the pancreas, in the right kidney and in the epicardium and of the pancreas, in the right kidney and in the epicardium and beginning to invade the myocardium. The liver and the cervical, maxillary and axillary lymph nodes were uninvolvement.

**Blood Volume in Wound Hemorrhage and Shock.**—The observations reported by Lee seem to indicate the importance of blood volume in wound hemorrhage and shock. Profound disturbances of blood volume are always serious, and if maintained for any considerable period are usually associated with death. Blood volume can be estimated easily and roughly by comparative readings of the hemoglobin percentage before and after the intravenous infusion of a known amount of fluid. The milder cases of wound hemorrhage and shock require only an increase in blood volume. The

severer cases require both an increase in blood volume and an increase in oxygen carrying constituent. This double requirement is met in part by transfusion. However, when transfusion is indicated it is usually desirable still further to increase the blood volume, which may be accomplished in various ways. Continued observations on blood volume give, furthermore, valuable information as to prognosis. A general study of blood volume strongly suggests certain procedures which may be utilized for the prevention and control of the associated symptom complex known as wound hemorrhage and shock.

**Exudates Complicating Influenza.**—The pleural fluids of seventeen cases of influenza pneumonitis occurring in previously healthy individuals, were examined by Luke and Barker. The cells encountered were: polymorphonuclear leukocytes, large and small lymphocytes and so-called transitional cells slightly larger than the leukocytes and having a single indented nucleus. Besides these there occurred considerably larger, oval or round mononuclear cells measuring from 10 to 20 microns and possessing a large, usually deep staining nucleus, with several prominent nucleoli and pale staining cloudy protoplasm. Their cytoplasm frequently shows numerous small vacuoles, probably evidences of degeneration. In ten of the seventeen cases examined endothelial cells constituted over 40 per cent. of the total number. In five of these cases they even formed over 70 per cent. of the cells present. These endothelial cells are slightly phagocytic for erythrocytes and occasionally engulf bacteria.

### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October, 1919, 80, No. 502

\*Cystic Teratoma of Ovary, with Carcinoma. A. B. Spalding, San Francisco.—p. 401.

Resection of Middle Portion of Cervix for Hypertrophic Elongation of Cervix Uteri. Shortening of Uterosacral Ligaments through Vagina. G. H. Noble, Atlanta, Ga.—p. 409.

\*Are the Operative Procedures Done for Dysmenorrhea and Sterility Justifiable? F. C. Holden, New York.—p. 415.

\*Work of Omaha Detention Home for Women. P. Findley, Omaha.—p. 421.

Pseudomyoma Peritonaei. J. E. King, Buffalo, N. Y.—p. 426.

Rupture of Deep Epigastric Artery as a Clinical Entity; Analysis of Case. E. A. Schumann, Philadelphia.—p. 432.

Delivery by Natural Passages Following Coarctation Section. J. T. Williams, Boston.—p. 435.

Can Labor be Facilitated by a Specific Diet of the Mother During Pregnancy? H. Ehrenfest, St. Louis.—p. 441.

Specialty of Obstetrics. Present Status, Possibilities and Importance. H. P. Newman, San Diego.—p. 464.

Use of Very Small Dosages of Pituitary Extract in Inducing Labor at Term in Combination with Nitrous Oxid Anesthesia to Alleviate Labor Pains. A. Stein, New York.—p. 470.

**Carcinoma of Ovary.**—Spalding reports a case of carcinoma of the ovary arising from the epithelial lining of a cystic teratoma. The tumor was noted some days after operation following laboratory examination. The patient reports every six months for examination. Two years have elapsed since the teratoma was removed and there is no sign of recurrence.

**Sterility and Dysmenorrhea.**—After careful consideration of a series of cases, several of which are cited, Holden believes that further experience with endocrines will tend to clarify our present position in regard to the treatment of dysmenorrhea and sterility. Operative procedures alone give a small percentage of successes and sometimes add a troublesome pathologic condition of the genital organs to the symptoms of dysmenorrhea and sterility.

**Omaha Detention Home for Women.**—About one year ago this institution was opened and Findley makes a report on the work. Of a total of 275 women admitted to the institution all but eight were gonorrhoeic, 70 per cent., were also syphilitic though only one in ten showed any clinical evidence of syphilis. The complement fixation test for gonorrhoea was of no practical value. In only 30 per cent. of the cases, which ultimately revealed the gonococcus, was the organism found in the first examination and in isolated cases the gonococcus was not revealed until the eighth, tenth and in one instance the fifteenth successive daily examination. In

only 2 per cent did the tubes reveal any evidence of infection in the clinical examinations. More than half the women were drug addicts and all were social delinquents. As a moral problem, Findley says, the work was most discouraging. He doubts that the public is as yet ready for this reform movement. Public sentiment is as yet not crystallized, but much has been accomplished in educating the public and there is no doubt that the U. S. P. H. Service will perform an invaluable service in continuing the propaganda that has been so effectively pursued in the past year.

### Boston Medical and Surgical Journal

Oct. 19, 1919, 181, No. 16

Work of Red Cross Organizations in Relation to Preventive Medicine of Future. A. Newsolter, London, England, p. 473.

\*Treatment of Carcinoma of Skin with Radium. Results in Cases Treated at Collis P. Huntington Memorial Hospital. C. C. Simmons, Boston—p. 477.

Loss of Sight from Retrobulbar Neuritis Due to Posterior Accessory Sinus Diseases. Report of Seventeen Cases. L. E. White, Boston.—p. 483.

**Treatment of Carcinoma of Skin with Radium.**—The statistics analyzed by Simmons show that in 72.5 per cent. of the cases of carcinoma of the skin suitable for radium treatment an immediate cure is to be expected, and of these 90 per cent. will remain free from the disease or if a recurrence does take place, it will yield readily to further light treatment. It is maintained, however, that in cases of epidermoid carcinoma in which the growth can be removed easily without marked resulting deformity, or cases in which metastases are likely to occur, operation is the treatment of choice. Of the twenty-eight patients treated by operation, twenty-six were alive and free from recurrence one or more years later. Ten of these cases were of carcinoma about the orbit so extensive that removal of the orbital contents, together with the lids, was considered advisable. Nine of these patients are still free from recurrence. Five were operated on as radium failed to destroy the disease.

### Colorado Medicine, Denver

October, 1919, 16, No. 10

Litter Learning—and the Rocky Mountain News. C. S. Blumel, Denver—p. 239.

Progress and Problems in Medicine. F. H. McNaught, Denver—p. 240.

\*Tuberculosis in Children. G. H. Cattermole, Boulder—p. 244.

\*Von Pirquet Test and Results of Its Use. E. Friedman, Denver.—p. 246.

**Results from Use of Von Pirquet Test.**—Friedman has performed the von Pirquet test 525 times on 464 unselected patients ranging in age from a few months to 18 years. Nearly all the children tested were of Jewish parentage, living under conditions comparable with those prevailing among the poorer working classes of the larger cities. Most of the children were of tuberculous parents, many of whom had been inmates of a sanatorium where they had had thoroughly inculcated rules of prophylaxis, which were observed scrupulously in many of the homes. Of the 465 children tested, 39.8 per cent. reacted positively, the number of positives among the males being 2 per cent. in excess of those in the females. Under 1 year, almost 12 per cent. reacted positively; from 10 to 14 years, 55 per cent., and from 14 to 18 years, only 51 per cent. reacted positively. The highest number of positive reactions was noted during the eleventh to thirteenth year period, with 66.7 per cent.; and the lowest at the fifth and the sixth year period, with only 13 per cent. positive. Of the 274 children having a tuberculous parent 53.6 per cent. reacted positively; of the 181 not exposed in this wise, only 23.2 per cent., or less than half reacted. Of the nonexposed, 135 were born in Colorado, and only 20.7 per cent. reacted positively, as compared with 25 per cent. of the boys. Of the 126 children born in Colorado and exposed to tuberculosis, 56.4 per cent. of the girls and 42.3 per cent. of the boys reacted positively. Of 189 children exposed to a parent with open tuberculosis, 58 per cent. reacted positively; of seventy-eight exposed to a closed case, 38.5 per cent. reacted; whereas, nonexposed children reacted only to the extent of 23.2 per cent. Of those children whose father harbored closed tuberculosis, only 27.6 per cent. reacted posi-

tively; and when exposed to a mother with closed tuberculosis almost double the number, or 48.4 per cent., showed positive reactions. An observation deserving recognition is, that of the female children exposed to a father with closed tuberculosis, 40.7 per cent. become infected; whereas of the male offspring similarly exposed, only 10 per cent. or less than one fourth react positively. On the other hand, boys and girls exposed to either parent with open tuberculosis react in about equal ratio; eight children had both parents tuberculous, and seven reacted positively. Tuberculous infection is said to exercise a retarding influence on the physical growth of the child. Friedman found that of children reacting positively, 61.8 per cent. are below normal in development, 20 per cent. are normal, and 19.5 per cent. are above normal. Of those with negative reactions, 56.1 per cent. are below normal, 31 per cent. are normal, and 12.6 per cent. are above normal. Infected children under 7 years of age show relatively less developmental impairment than do those above the age.

### Endocrinology, Los Angeles

July-September, 1919, 3, No. 3

Functions of Suprarenal Glands as Revealed by Clinical and Pathological Studies on Human Beings and by Experiments on Animals. L. F. Barker, Baltimore—p. 253.

\*Fetal and Maternal Athyrosis. H. G. E. Smith, London, Canada.—p. 262.

\*Diabetes in Infancy and Childhood. I. A. Abt, Chicago—p. 273.

\*Function of Thymus. E. Uhlenhuth, New York—p. 285.

\*Effect of Splenectomy on Thymus. F. C. Mann, Rochester, Minn.—p. 299.

Functions of Internal Secretion of Placenta; A Review. F. S. Hammett, Philadelphia—p. 307.

\*Influence of Thyroid On Formation of Antibodies. J. Knoopman, Holland—p. 318.

\*Action of Epinephrin on Kidney. F. A. Hartman and R. S. Lang, Toronto, Canada—p. 321.

Endocrinopathic Constitutions and Pathology of War. N. Pende, Palermo, Italy—p. 329.

**Fetal and Maternal Athyrosis.**—Smith maintains that the occurrence of disorders of the teeth, nails and hair during pregnancy indicates that there is a very wide occurrence of a more or less severe form of maternal athyrosis. The increase of the proteolytic enzymes in the blood of the pregnant woman tends to produce a condition similar to that under which fetal and maternal athyrosis is produced among domestic animals—not an abnormal condition, but still one that requires an abundant supply of iodine. Lack of function of the thyroid is a probable cause of albuminuria and toxemia of pregnancy which may be overcome by an abundant supply of iodine. A milk diet for the elimination of toxemia of pregnancy will probably be very disastrous to the fetus unless it be supplemented with an abundant supply of iodine. When either of the parents is suffering from a disturbance of the thyroid it is imperative that the ordinary diet should be supplemented with an abundant supply of iodine throughout the gestation period and possibly also when they are suffering from a disturbance of the parathyroids. To insure the normal function of the thyroid the ordinary diet should be supplemented with from one-half to 1 gram of iodine approximately daily during pregnancy and menstruation and for a period of seven days each month during puberty, especially during the first three months of the year.

**Diabetes in Infancy and Childhood.**—Abt agrees with other observers that diabetes in children is infrequent as compared with its occurrence in adult life. The symptoms are almost identical with those in adults. Emuresis is not an infrequent symptom. Urticaria, pruritis and eczema occur as well as furunculosis. The teeth decay early, and stomatitis is not uncommon. Edema about the face and ankles has been observed in advanced cases. Headache, backache and radiating pains in the extremities are sometimes seen. Particularly characteristic are pains in the calf muscles. The urine contains sugar, at times acetone and diacetic acid, and not infrequently albumen and casts. An early and conspicuous symptom is irritation of the external genitals. Diabetes in children may begin in a mild or severe form, though it must be observed that the transition from the mild to the severe form occurs more rapidly than in adults. In some cases the disease has not been recognized until after this transition has

occurred. Some children seem to improve after the sugar tolerance has been regulated and the urinary sugar kept low. At times they gain in weight. The temperature is inclined to be subnormal. When the glycosuria has disappeared none of the children lose their tendency toward it. Sugar returns on the slightest provocation. It reappears following psychic disturbances, such as disappointment about a journey or a bad school report. Sugar also tends to return following coryza, parotitis, pharyngitis and diarrhea. In most cases the sugar tolerance can be restored, but an accumulation of insults, that is frequent recurrences, tends gradually to reduce permanently the level of tolerance. In consequence of this fact infections of the upper respiratory tract or other infections have an ominous significance and tend to produce complications in diabetic children. The younger the individual the more marked is the tendency for the disease to pass suddenly from the mild to the severe type. In Abt's experience such cases as he considered mild and amenable to dietetic treatment nearly always terminated fatally in the course of several months or a few years.

**Function of Thymus.**—The animals used by Uhlenhuth for his experiments were the larvae and adults of amphibians—water lizards, newts, mudpuppies or salamanders. His findings lead him to believe that the thymus does produce an internal secretion, but one which, so far as is known at present, has only a toxic effect in that it is the factor causing the "tetanic parathyreopriva." There are, however, Uhlenhuth says, no facts known at present to warrant the claim that the thymus gland does not produce an internal secretion which is required to maintain the normal physiologic condition of the organism.

**Effect of Splenectomy on Thymus.**—Observations were made by Mann on adult dogs, puppies, kittens, rabbits and goats from which the spleen had been removed as to the effect of this operation on the thymus. Decided variations were found, but there was no evidence that splenectomy produced any specific change. Most of the splenectomized animals died before the controls died, however, and under the same conditions that the controls were developing normally. While removal of the spleen in the young did not produce any noteworthy change in development, it seemed to make the animal less able to withstand the stress of life.

**Influence of Thyroid on Formation of Antibodies.**—Koopman claims that the injection of thyroid gland into rabbits causes the formation of an ambioceptor with a high titer.

**Action of Epinephrin on Kidney.**—The experiments made by Hartman and Lang prove that epinephrin frequently causes dilatation of the kidney. This dilatation can be caused by action on the semilunar ganglion, dorsal root ganglia, or, in some cases, on structures in the kidney itself.

**Nerve Injuries.**—Danforth's paper is based on a study of the patients suffering from nerve injuries who were treated in Stiles' service at the Edinburgh War Hospital. Single examinations were never accepted as sufficient to indicate operative measures, except possibly the correction of deformities. As a rule, one examiner made all the tests. In this way it was possible for him to note at once any apparent discrepancies between the results of the voluntary power tests and the electrical responses, or between changes in muscle power and changes in cutaneous sensibility. Complete loss of voluntary power with loss of faradic excitability and with slow galvanic response, associated with anesthesia and analgesia over the area supplied by the nerve, and absence of tingling distal to the site of injury, means physiologic loss of continuity in the nerve trunk. Only repeated examinations can indicate the probability of anatomic loss of continuity, or that recovery will not take place. The general working rule was to wait from six weeks to two months after complete wound healing before operating, and during that time the patient had two and usually three complete examinations. In addition, a voluntary power examination was made each week. If, at the end of six weeks or two months, it was found there was no change in the condition, and that the examination showed a complete loss of physiologic continuity, or incomplete but unchanged loss, operation was done, if the amount of disability warranted it. The interval of six weeks or two months between the time of wound healing and the possible operative treatment was employed in improving the nutrition of the muscles, correcting any deformities and restoring flexibility of the joints in the affected extremity. If no deformities were present, the muscles were protected from stretching by appropriate splinting. This was found to be a very important feature and its lack was often sufficient to retard or prevent restoration of power in the muscles, and further, it was found necessary to maintain this relaxation constantly. This was, perhaps, especially so in circumflex, musculospiral and external popliteal paralysis, but undoubtedly is nearly as necessary in all nerve injuries. In addition to the protection given by splinting, the muscles were treated by hot soaks, or whirlpool baths, followed by massage and either active or passive motions, and electrical stimulation. In cases in which deformity was present, the deformity was corrected. For restoration of flexibility of small joints various methods were tried. Massage and hydrotherapy were found successful in a few instances. Forceful manipulations with or without anesthesia were found helpful in only a very few instances, and much more often rendered the joints stiffer. Finally elastic traction was tried; at first pulling in direct flexion if the fingers were fixed in extension. This was helpful in a certain number of cases and never made the condition worse. Then elastic traction in the direction to first stretch the joint capsules was tried. This was found a great advance. The traction was applied by strips of adhesive on the sides of the fingers to which elastic bands were attached, and these in turn were attached to the splint. The pull was at first always in the line of the deformity and then gradually changed as the motion in the joints permitted. Sometimes metacarpophalangeal joints which had been fixed in hyperextension for months would be completely flexed in two or three weeks, but usually several months were required

**Georgia Medical Association Journal, Atlanta**

September, 1919, 10, No. 5

- Diagnostic Skeuicism in Neurology. H. Crenshaw, Atlanta.—p. 89
- Aspiration of Pouch of Douglas as an Aid in Differentiating Atypical Cases of Ectopic Pregnancy and Psoasitis. R. A. Bartholomew, Atlanta.—p. 91
- Carcinoma of Breast; Surgical and Roentgen Ray Treatment. W. A. Cole, Savannah.—p. 94
- Child Welfare a Community Responsibility. W. L. Funkhouser, Atlanta.—p. 96
- Surgery in Base Hospital in France. F. K. Boland, Atlanta.—p. 98

**Iowa State Medical Society Journal, Des Moines**

Oct. 15, 1919, 9, No. 10

- Lethargic Encephalitis. G. W. Koch, Sioux City.—p. 333
- Recognition and Treatment of Labor Injuries. L. T. Kelley, Des Moines.—p. 337
- Gastric Ulcer from Standpoint of General Practitioner. C. W. Sanders, Northwood.—p. 339

**Journal of Orthopedic Surgery, Lincoln, Neb.**

October, 1919, 1, No. 10

- \*Diagnosis and Pre-Operative Treatment of Nerve Injuries. M. S. Danforth, Providence, R. I.—p. 593
- Operative Treatment of Paralytic Conditions of Upper Extremity. A. Strindler, Iowa City, Iowa.—p. 608
- Transference of Fibula as an Adjunct to Free Bone Graft in Tibial Deficiency. W. C. Campbell, Memphis, Tenn.—p. 625

**Kentucky Medical Journal, Bowling Green**

October, 1919, 17, No. 10

- Knife Blade Removed from Ethmoid; on Post-mortem Twenty Two Years. G. C. Hall, Louisville.—p. 387
- Venous Thrombosis or Orbital Cellulitis; Report of Case. S. G. Dabney, Louisville.—p. 389
- Retention of Dead Fetus for One Month. B. C. Frazier, Louisville.—p. 390
- Carcinoma of Breast at Thirty Four. S. Graves, Louisville.—p. 391
- Maxillary Administration of Arsenical Preparations. W. J. Young, Louisville.—p. 393
- Blue Cornua Bilateral Deformity of Lower End of Caricature of Superior Maxillary Bone; Case Reports. S. G. Dabney, Louisville.—p. 396
- Doctor's Saddle Bag. E. W. Ford, Hartford.—p. 399
- Chronic Intestinal Indigestion in Children. G. Telford, Louisville.—p. 400

- Injuries to Hand and Their Treatment. J. C. Sparks, Van Lear—p. 464.
- Diabetes Mellitus of Four Years Standing Followed by Pulmonary Tuberculosis with Apparent Cure of Both Diseases as Told by Patient. E. A. Gram, Woodmont, Colo.—p. 408.

### Minnesota Medicine, St. Paul

October, 1919, 2, No. 10

- Medical Education and the War. M. G. Seelig, St. Louis.—p. 369.
- Recurring Inguinal Hernia. J. M. Masson, Rochester, Minn.—p. 373.
- Surgical Treatment of Traumatic Eplepsy. A. C. Strachaner, Minneapolis.—p. 7.
- Etiology, Pathology and Pathogenesis of Papilledema. P. D. Barnhart, St. Paul.—p. 385.
- Treatment Study of Otosclerosis. J. A. Pratt, Minneapolis.—p. 390.
- Some Legal Aspects of Medicine and Surgery. G. W. Peterson, St. Paul.—p. 392.
- Desensitization in Serum Therapy. C. B. Drake, St. Paul.—p. 395.

### Northwest Medicine, Seattle, Wash.

September, 1919, 18, No. 9

- Some Fallacies in Diagnostic Tests and Signs. K. Winslow, Seattle.—p. 175.
- Routine Management of Duodenal Ulcer Cases. W. S. Lemon, Rochester, Minn.—p. 179.
- Seattle Prostitution from Inside the Quarantine. W. R. Jones, Seattle.—p. 184.
- Serum Reaction in Gonorrhea and Syphilis; Results of Blood Tests on Different Classes of Individuals. J. B. Kelly, Seattle.—p. 187.

### Oho State Medical Journal, Columbus

Oct. 1, 1919, 15, No. 10

- Certain Lessons from Military Surgery. W. E. Lower, Cleveland.—p. 614.
- Some Pediatric Problems. H. J. Morgan, Toledo.—p. 617.
- Diagnosis of Diseases of Digestive System from Standpoint of General Practitioner. J. H. Schroeder, Cincinnati.—p. 621.
- Responsibility of Profession, Medical Schools and Teaching Hospitals for Improving Surgery. F. Martin, Chicago.—p. 625.
- Cesarean Section Complicated by General Peritonitis; Recovery. W. D. Porter, Cincinnati.—p. 629.
- Observations During Examinations of Candidates for Aviation Service. W. E. Murphy, Cincinnati.—p. 631.
- \*Vaccine Treatment of Pruritis Ani. J. M. Frick, Toledo.—p. 636.
- Your Blood and Mine. M. H. Fischer, Cincinnati.—p. 638.
- The Handicapped. H. E. Meek, Chicago.—p. 644.

### Pennsylvania Medical Journal, Athens, Pa.

October, 1919, 22, No. 1

- Hospital Morale. D. Guthrie, Sayre.—p. 6.
- Experiences of a Proctologist. L. H. Adler, Jr., Philadelphia.—p. 9.
- \*Place of Drugs in Treatment of Tuberculosis. S. S. Cohen, Philadelphia.—p. 11.
- Rest in Prevention and Cure of Infections and Their Effects. J. M. Taylor, Philadelphia.—p. 13.
- Diseases of Biliary Passages; Etiology and Pathology. F. D. Weidman, Philadelphia.—p. 16.
- \*Importance of Early Recognition of Paresis by General Practitioner. F. H. Weeks, Warren.—p. 19.
- Plan for Cooperation of Family Doctor and State Hospital for Insane. I. A. Darling, Warren.—p. 22.
- Benefits Derived from Combined Meetings of Physicians and Dentists. J. K. Eyer, Kittanning.—p. 24.

**Drugs in Tuberculosis.**—Cohen is of the opinion that it is now generally recognized that drugs occupy a secondary place in the treatment of tuberculosis, but unfortunately, it has been forgotten that they also occupy a necessary place. Without proper dietetic and hygienic management, drugs are of small service. On the other hand, Cohen does not believe that recovery is often complete and maintained without them. The relative failure of sanatorium treatment is to be attributed to the neglect of their powerful aid. Two groups of remedies have "stood the test of time"; namely, certain iodine compounds, and creosote and its congeners. The use of calcium, introduced on the somewhat crude basis that calcification and fibrosis are the natural methods of healing of tubercles and tuberculous ulceration, is also commended. These drugs help tuberculous patients to recover and to stay "well." Iodine in the infiltrative stage; phenol, creosote or guaiacol for use in the more advanced stage, or in the presence of fever; and calcium for use throughout, are, in Cohen's judgment, although secondary, nevertheless necessary agents in the successful management of the great mass of cases of chronic pulmonary tuberculosis. They are to be used freely—with discretion to be sure, and with individualization—but also with persistence.

**Paresis.** Weeks emphasizes strongly that the parietic is a dangerous individual to be at large, especially during the early stage of the disease. Repeated blood and spinal fluid examinations should be made in all cases of syphilis long after active symptoms have disappeared. Observations should be made for neurologic symptoms and when they do appear the patient should be confined in a hospital immediately. No person showing a positive Wassermann on the blood and spinal fluid and any neurologic symptoms should be permitted to hold a position of trust and responsibility.

### Public Health Journal, Toronto

October, 1919, 10, No. 10

- Immigration. C. K. Clarke.—p. 441.
- Public Laboratory as Aid to Health Officer. A. J. Slack.—p. 445.
- New Health Legislation. W. H. Huttie.—p. 455.
- Plan for More Effective Federal and State Health Administration. F. L. Hoffmann.—p. 460.

### United States Naval Medical Bulletin, Washington

October, 1919, 13, No. 4

- \*Influenza. A. B. Clifford, and T. C. Kelly, and B. A. Thomas, U. S. Navy.—p. 637.
- Infectious and Contagious Diseases on the Islands of St. Thomas and St. John, Virgin Islands of the United States, March-September, 1919. E. Peterson, U. S. Navy.—p. 682.
- Naval Ambulance Trains Observed in Great Britain. F. L. Pleadwell, U. S. Navy.—p. 706.
- Bone Surgery: A Study of Three Cases. A. L. Clifton, U. S. Navy.—p. 718.
- \*Epidemic of Mumps. R. B. H. Gradwohl, C. F. Carter, W. S. Barcus, and H. L. Fougereuse, U. S. Navy.—p. 723.
- Constitutional Inferiority in the Navy. T. A. Rathiff, U. S. Navy.—p. 728.
- Acute Early Epididitis. H. E. Jenkins and L. A. Will, U. S. Navy.—p. 733.
- Extragastral Chancres. J. M. Perreut, U. S. Navy.—p. 736.
- Influence of Incubation and Choice of Antigens in the Wassermann Reaction. E. D. Hitchcock, U. S. Navy.—p. 740.

**Influenza.**—This report is based on an analysis of 900 cases of influenza admitted to the U. S. Naval Hospital, Philadelphia, during the recent epidemic of that disease. For purposes of critical study the cases are divided into four groups: Group 1, including those patients which were admitted to the hospital within twenty-four hours of the onset of their illness; Group 2, those admitted within forty-eight hours; Group 3, those admitted within seventy-two hours, and Group 4, all those admitted at a later period of their infection. In Group 1 the most frequently mentioned chief complaint was headache, which occurred in 52.2 per cent. of the cases. Next in order of frequency were chills, general muscular pains, cough, backache, sore throat, weakness and coryza. In Group 2, headache was again the most frequently mentioned chief complaint, occurring in 34 per cent. of the cases, and followed by general muscular pains, cough, chills, backache, coryza, sore throat and weakness. In Group 3, headache occurred in 32.7 per cent. of the cases, followed by chills, general muscular pains, cough, coryza, backache, sore throat, weakness and nausea. In Group 4, headache was again the most common chief complaint, occurring in 30.6 per cent., followed by cough, chills, general muscular pains, backache, weakness, coryza, sore throat, nausea and vomiting, and dyspnea. On examination the physical sign most frequently encountered in Group 1 was râles, which occurred in 51.9 per cent. of the cases. In Group 2 râles occurred in 55.8 per cent. of the cases. In Group 3 râles occurred in 74.4 per cent. of the cases, followed by toxiemia, cyanosis, congestion of the throat, eyes and nose, delirium, pleuritic friction, herpes, enlargement of the superficial lymph glands, jaundice, erythema and hiccup, as was also the case in the first three groups. The complication most frequently encountered in Group 1 was bronchitis, which occurred in 43.3 per cent. of the cases, followed by pneumonia, which occurred in 8.5 per cent. In Group 2 bronchitis occurred in 40 per cent. of the cases, followed by pneumonia in 15.7 per cent. In Group 3 pneumonia was the most frequent complication, occurring in 42.2 per cent. of the cases. In Group 4 the most frequent complication also was pneumonia, which occurred in 42.8 per cent. of the cases, of which 40.4 per cent. were bronchial in type and 2.4 per cent. lobar. The pneumonia most often

was of the bronchial type. The next most frequent complication in Groups 3 and 4 was bronchitis, followed by myocarditis, nephritis, epistaxis, pleurisy, endocarditis, otitis media, abdominal distention, and two cases each of cholecystitis and retention of urine, and one case of typhoid. In Group 1, which included 352 cases, 82 per cent. of the patients recovered without stimulation and 0.3 per cent. died; of those requiring stimulation 13.9 per cent. recovered and 2.5 per cent. died. In Group 2, comprising 197 cases, 73 per cent. recovered without stimulation and 1 per cent. died. Of those requiring stimulation 17.2 per cent. recovered and 7 per cent. died. In Group 3, which included 116 cases, 47.5 per cent. recovered without stimulation with no deaths. Of those requiring stimulation, 21.5 per cent. recovered and 27.5 per cent. died. In Group 4, which included 235 cases, 48.1 per cent. recovered without stimulation and none died. Of those requiring stimulation, 20 per cent. recovered and 29.8 per cent. died. In summarizing all the cases, irrespective of their groups, it was found that the chief complaint was headache; the most common symptoms were headache and cough; and the most constant sign found on examination was râles, either as an expression of bronchitis or pneumonia. Of the complications, bronchitis was found in 37.8 per cent. of the cases and pneumonia in 23.3 per cent.; 21.9 per cent. were bronchopneumonia and 1.4 per cent. lobar pneumonia. Myocarditis occurred in 14.4 per cent. of the cases, epistaxis in 9.6 per cent., nephritis in 7.3 per cent., and pleurisy in 4.1 per cent. There were eight cases each of endocarditis and abdominal distention, two cases each of cholecystitis, sinusitis, retention of urine, and meningitis, and one case each of typhoid fever and epididymo-orchitis. The death rate for the cases of pneumonia was 63.3 per cent., and the total death rate, irrespective of the complications was 14.7 per cent.

**Study of an Epidemic of Mumps.**—Convalescent serum was injected by Gradwohl and others in a number of cases of mumps. Five c.c. serum was used for both subcutaneous and intravenous injections. Very little reaction was noted. The effect of these injections was a lessening of pain and an earlier subsidence of swelling, together with an earlier drop in temperature.

**West Virginia Medical Journal, Huntington**

October, 1919, 14, No. 4

- Clinical and Pathologic Studies of Pandemic Influenza. A. Arkin, U. S. Army.—p. 121.
- Influenza Prophylaxis. S. D. Hatfield, Jaeger, W. Va.—p. 125.
- "Damn the Flu, Anyway." C. H. Maxwell, Morgantown, W. Va.—p. 131.
- Organization of Public Health Forces. M. B. Williams, Wheeling.—p. 140.

**FOREIGN**

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

**Archives Mens. d'Obstétrique et de Gynécologie, Paris**

May, 1919, 8, No. 5

- \*Lack of Pulsation in Umbilical Cord. Paul Ballard.—p. 245.
- The Maternity at Lalle During German Occupation. J. Vanverts.—p. 263.
- Repopulation Problems in France. G. Vairoux.—p. 279.
- Welfare Work in Italy for Mothers and Prospective Mothers. A. Laffont.—p. 292.

**Lack of Pulsation in Umbilical Cord with Living Child.**—

Ballard affirms on the basis of much clinical experience and experimental work that the lack of pulsation in the prolapsed umbilical cord does not inevitably imply that the child cannot survive. Auscultation may reveal life in the child, and even when the auscultation findings are negative the fetus may still be living. The lack of pulsation in the cord may be due solely to compression at some point reducing the caliber of the vessels. With prolapse of the still pulsating cord, he advises during the period of dilatation to push the cord back if possible; expectant treatment in any event if there is reason to anticipate resistance from the soft parts, giving chloroform or morphin to moderate the contractions of the uterus. On the other hand, if the period of expulsion is under way, he advises to proceed at once to artificial extraction of the child unless an extremely rapid spontaneous expulsion seems impending.

**Journal de Médecine de Bordeaux**

September, 1919, 90, No. 17

- \*Pseudo-Angina Pectoris. Moulinier.—p. 351.
- Fracture of the Forearm. R. Darget.—p. 353.
- Ileus from Diverticulitis. H. L. Roher.—p. 355.
- \*Tardy Epilepsy and Senility of the Brain. Anglade.—p. 356; 1d. p. 358.

**Pseudo-Angina Pectoris.**—Analysis of the stethoscopic findings in the case reported by Moulinier demonstrated that the obstruction to the circulation was in the venous rather than in the arterial system. The patient was a man of 53 and the sudden agonizing pain back of the sternum came on only after effort, such as walking soon after a meal. The balance in the circulation is soon restored, so that this venous form of angina pectoris is never fatal although causing these attacks of intense pain as the years pass. The mechanical disturbance is like that with tricuspid stenosis. The minimal blood pressure keeps at the normal figure. When the arm is raised above the level of the heart, the flow of the venous blood out of the arm is facilitated by gravity, and the arterial wave finds readier access; if the arterial circulation is at fault, the maximal pressure instead of dropping keeps at the same figure as when the arm is held horizontal. In the case reported, the maximal arterial pressure at the wrist during an attack, the arm on a level with the heart was 17, with the arm raised 16, with the arm pendent 21. The corresponding minimal pressure figures were 10; 7; 12, and the pulse did not vary. The stethoscope revealed the upset of balance between the pulmonary and aortic systems (doubling of the second aorta period); a strong blood wave in the aorta, and increased pressure inside the right auricle (the sounds at the tricuspid more explosive), but this increased pressure does not affect the valves in the left side of the heart (the second mitral sound extinct) nor force the myocardium to the effort which the explosive aortic sounds seem to indicate (first mitral sound remote). The patient showed numerous varicose signs in the limbs with other signs of hampered return circulation, but the jugulars were not turgid and the venous pulse was normal. All the heart valves were sufficient.

**Diverticulitis and Ileus.**—Rocher gives an illustration of the way in which the inflamed diverticulum of Meckel in a boy of 13 had become inflamed and adherent to the mesentery, constricting two loops of the bowel.

**Tardy Epilepsy.**—Anglade has encountered in the last ten years four cases of epilepsy developing between the ages of 46 and 60. In one it was preceded by seven years of a tendency to melancholia with transient phases of agitation. Necropsy showed a strip of sclerosis, resembling shagreen leather, on each side of the brain, extending from the frontal to the occipital pole, apparently skipping the motor convolutions but the microscope showed that these also had been involved. He reiterates that these cases of epilepsy in the elderly will well repay study as they show transitional forms between the epilepsy of organic nature and the epilepsy still called essential and functional.

**Lyon Médical**

August, 1919, 128, No. 8

- \*Creation of Sanatorium Hospitals. F. Monnet.—p. 169.
- \*Radium Treatment in Gynecology. R. Condamin and L. Nogier.—p. 372. (Cont'd.)
- Some Souvenirs of German Army Surgeons. A. Gonachon.—p. 413.

**Radium in Gynecology.**—Condamin and Nogier here conclude their long article on this subject. Their experience with radium treatment in 750 cases has confirmed, they say, the absolute necessity for radium treatment for all uterine cancers at the limit of operability as a preliminary to an operation, and also when the cancer is manifestly inoperable; also to relieve extensive cancers, hoping for nothing beyond arrest of hemorrhages and attenuation of the pains, and, finally, for postoperative recurrences in the vagina or lower parametrium. Besides the above absolute indications for radium therapy, they list as relative indications certain operable cancers, especially the infiltrating forms in young women which often give such deplorable results after an operation. A further relative indication is after hysterectomy,

to root out the last possible traces of the neoplasm. It seems to be established, therefore, that large doses are indispensable for uterine cancer, up to 250 mg. in a forty-eight hour application, never going below 100 or 125 mg. Striking hard once and for all seems to give a durable result more effectually than any succeeding applications can yield.

### Presse Médicale, Paris

September 2, 1919, 27, N. 53

\*Suprarenal Insufficiency. A. Sezary. p. 533.

\*Fluoridosis of the Urinary Apparatus After Fifty. C. Lepoutre. p. 535.

\*General Anesthesia by Pharyngeal Intubation with Delbet's "Pipe." I. Dufourmentel. p. 537.

**Suprarenal Insufficiency.**—Sezary classifies suprarenal insufficiency under three headings: the fulminating, rapidly fatal form, the monosymptomatic form (myasthenia or amyotrophy), and the form inducing a whole set of symptoms, acute (syndrome of Sergent-Bernard); subacute and slow (Addison's disease and its varieties). Tuberculosis may induce any one of these "syndromic forms" of suprarenal insufficiency, and syphilitic processes often locate in the suprarenals, as also those of diphtheria, typhoid and other acute infections. Specific treatment should be given when such is possible, antitoxin with diphtheria, for example, or quinin with malaria. Rest and suprarenal treatment are useful whatever the infection, but he prefers the extract of the whole gland, and given by the subcutaneous route. He reserves epinephrin for acute disturbances with collapse of the heart, and recommends the subcutaneous route. He gauges the dose by the therapeutic results obtained with the first doses and by the signs of intolerance. A rise in the blood pressure is a good index of the efficacy of the otopherapy, but the fact that it does not rise does not prove that the treatment has been ineffectual. A still more instructive index is the finding with the dynamometer showing the variations in the strength of the muscles tested fifteen and thirty minutes, one hour, three hours and so on after the injection of the suprarenal extract. When these two tests show a favorable influence from the suprarenal treatment, he keeps up this dose, not increasing it until the effect grows less pronounced. The appearance of tremor calls for caution; glycosuria, albuminuria, circulatory disturbances require suspension of this treatment. In some cases the doses have to be high and kept up for several weeks or even months before a good result is obtained. Signs of intolerance should be watched for with special care in these circumstances. Sometimes addition of pituitary will give surprisingly fine results when the suprarenal treatment is a failure. With cheesy tuberculosis and cancer, the knife is still the ideal treatment, possibly resecting only the pathologic tissues and leaving the rest intact. But in order that this can be done the disease has to be diagnosed early, and it is to be hoped that the progress of medicine will soon render this possible.

**Tuberculosis of the Urinary Apparatus After Fifty.**—Lepoutre remarks that Kochet is the only writer he knows of who has called attention to tuberculosis of the urinary apparatus in elderly men. He describes a case of the kind in a man of 58 which proved fatal in little less than a year from the first symptoms. Analyzing some published statistics he shows that tuberculosis of the urinary apparatus is not exceptional after 50, and it occurs in about the same proportion in men and in women, but the number of operable cases in men after 50 is exceptionally small. It escapes diagnosis only because physicians do not think of it as a rule. In 1,530 cases he has compiled from the literature, 44 were in men over 50, and an operation was attempted only in 13 in this group. In the 13 operative cases 7 terminated fatally in one day up to five months, the outcome is not known in 4 cases; one died twenty months later, and only Verhoogen's one patient was still well after an interval of six months. These had results justify nonoperative treatment, he says in conclusion.

**General Anesthesia by Pharyngeal Intubation.**—Dufourmentel lauds the superiority of Delbet's pharyngeal tube for this purpose. It is much simpler, more effectual and less harmful than an intralaryngeal tube, for general anesthesia,

with operations on the neck and face, while it prevents blood running down into the esophagus or air passages. He gives an illustrated description of it.

### Revue Médicale de la Suisse Romande, Geneva

Aug. 1, 1919, 29, No. 8

\*Trauma of the Chest and Pulmonary Tuberculosis. Tecon. p. 361. Psychotherapy and Its Indications. A. Kalinovich. p. 380.

Medical Certificate as Requisite for Marriage License. Lévy Du Pan. p. 394.

Influenza in the Insane. V. Demole and M. Alikan. p. 397.

**Trauma of the Chest and Pulmonary Tuberculosis.**—In this instalment of his long article, Tecon gives the details of twenty-seven cases of war wounds of the chest among soldiers of the Allied armies interned in Switzerland. Tuberculosis had been assumed in all, but only 18.5 per cent. had tubercle bacilli in their sputum. In only 7.4 per cent. was there any evidence connecting the pulmonary lesion with the war wound. All the men had been long in captivity in Germany, and yet notwithstanding the depressing conditions of their imprisonment, tubercle bacilli only very rarely invaded the lungs and only exceptionally settled at the site of the war wound. This was the more remarkable as some of the men had old tuberculous glandular lesions. Tecon examined further 1,033 known tuberculous interned soldiers and found that only 1.1 per cent. had had a chest wound at any time, thus confirming his assertion of the rarity of pulmonary tuberculosis consecutive to penetrating wounds of the thorax.

### Revue Neurologique, Paris

June, 1919, 26, No. 6

\*Origin and Nature of Sclerosis in Patches. G. Marinesco. p. 481.

\*Pathogenesis of Tabes. O. Gallotti and S. Azevedo. p. 489.

Decompressive Trephining to Relieve Mènière's Vertigo. H. Aboulker. p. 493.

**Origin and Nature of Sclerosis in Patches.**—Marinesco insists that study of this disease should be on the basis that it is of inflammatory origin, and that some infectious agent is responsible for this inflammation. He injected six guinea-pigs with cerebrospinal fluid from two persons who had pronounced symptoms of sclerosis in patches. The injections were made into the brain, peritoneum and spinal cavity. The outcome demonstrates, he states, two new facts, namely, the transmissibility of the disease by means of a virus, and that this virus is represented by a special spirochete quite distinct from the pale spirochete. These assertions do not seem to harmonize with the isolated character of sclerosis in patches; it is not epidemic or endemic, and it seems to be exclusively limited to the central nervous system. The evolution of the disease, the successive waves, and especially the aspect of the fundus of the eye, which mirrors the different phases of the parasites, analogous to that in syphilis—all point to the spirochete found by Kuhn and Steiner and by himself as the probable pathogenic agent of the disease. One thing is certain, he remarks in conclusion, sclerosis in patches is an actual entity and not a set of symptoms from diverse causes. The localizations of typhus in the central nervous system look entirely different.

**Pathogenesis of Tabes.**—Gallotti and Azevedo report inoculation of three dogs with trypanosomes. Degeneration of the nerve fibers of the spinal cord was pronounced the twenty-fifth day afterward (Weigert method) in one of the dogs; the others died soon after the inoculations. The findings confirm Spielmeier's findings in the dogs inoculated with *Trypanosoma brucei* and developing trypanosomic tabes. The symptoms in none of the dogs were very pronounced, but the posterior roots, the optic nerve and the trigeminal showed marked degeneration.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 4, 1919, 19, No. 36

\*Parenteral Injections of Milk in Therapeutics. Peter Rybiner. p. 1337.

\*Extravasal Coagulation of the Blood. A. Rodella. p. 1345.

\*Surgery of the Base of the Brain. Henschen and Nager. p. 1349. Cont'n.

**Parenteral Injections of Milk.**—In this communication from the university children's clinic at Zurich, Rybiner reports

that there were no therapeutic results from the subcutaneous injections of milk in any of a large number of diseases tested, in hemorrhagic nephritis, in diphtheria bacilli carriers, in erysipelas, in anemia, and in attempts to activate the protoplasm in the prematurely born and others. No reaction of any kind was observed with absolutely fresh milk, approximately sterile, nor with breast milk. The reaction seems to be due to bacterial toxins or decomposition products of the milk. The reaction in the blood-producing system is much less and is inconstant in infants in comparison to older children. The rarity of phenomena indicating anaphylaxis may be explained by assuming that milk by the mouth induces anergy. He tabulates the differential blood count before and at different intervals after the injection in eight children from 8 days to 12 years old, and also in two injected with perfectly fresh cow's milk, and three with breast milk. In this last group of five there was absolutely no modification in the blood picture. Although his experiences were thus negative, he does not denounce the protein therapy but warns not to neglect old and tried measures for it.

**Extravasal Coagulation of Blood.**—Rodella calls attention to the difference in the aspect of the crusta phlogistica whether there is or is not a serious pathologic modification in the coagulation of the blood. By crusta phlogistica he means the yellowish, shriveled, bacon-like appearance of the crust that forms on the blood clot. In uremia and in the pregnant this crust is more transparent than under other conditions, and there is no sharp demarcation between the crust and the blood clot below while the latter looks paler and less compact than usual. The crust with pneumonia differs completely from this nophlogistic type.

**Transethmoidal Access to Pituitary Tumors.**—Henschen and Nager conclude their discussion of surgery of the base of the brain in general with an illustrated description of a paranasal method of reaching a pituitary tumor through the ethmoidal sinus. The incision starts in the middle of the eyebrow, keeps in it and is carried in a broad curve down on the cheek and outward on the cheek to a point nearly directly below the starting point. The flap thus lifted up and turned back includes the whole of the contents of the anterior half of the orbit. This is Chiari's technic, and they have applied it recently in a case described. The subjective improvement was pronounced, the vertigo, asthenia, headache and vomiting subsided, as also in Kahler's, Chiari's and Schmieglow's experience. The visual disturbances retrogressed by sectors as they developed, and the retrogression may be complete or only partial, and even this depends on the operation coming in time. Even the acromegaly may retrogress. The menses return and erections, but the full sexual functions have never been completely regained. In the case of the man reported there was secretion of milk by the third year of the lesion; it disappeared after the operation. This experience confirms that the secretion of milk is not connected with specifically female endocrine organs, but can occur by the action of the pituitary alone. Roentgen treatment of pituitary tumors seems to be winning its way, but cannot apply to treatment of cysts, abscesses, hydrocephalus and similar lesions. Roentgen treatment is certainly advisable after removal of the pituitary to ward off recurrence. In conclusion they review the whole field of the pathology of the pituitary, classifying under seven headings the various pathologic conditions that have been encountered in the pituitary. The list includes aneurysm, spontaneous hemorrhage, echinococcus disease, tuberculous and syphilitic processes, etc., besides primary and metastatic tumors.

### Riforma Medica, Naples

Aug. 23, 1919, 25, No. 34

- \*Secondary Hemolytic Jaundice. G. Bernardi.—p. 710.  
\*Auscultation with the Tuning Fork. Guido Izar.—p. 714.  
\*Treatment of Spirochætosis interhemorrhagica. G. Molinari.—p. 716.  
Surgical Sterilization. E. Accioli.—p. 717.

**Secondary Hemolytic Jaundice.**—In the first of the two cases reported by Bernardi, the hemolytic jaundice developed late in the course of pernicious anemia; in the second case, late in pulmonary tuberculosis. He discusses the mechanism

**Auscultation of Tuning-Fork Resonance.**—Izar expatiates on the valuable information to be obtained with the tuning-fork and phonoscope applied to the internal organs, fractured bones, etc. Cantlie uses a heavy tuning-fork, 410, with a tapering base, but Izar has found more instructive one with 512 vibrations and a rectangular base, 0.5 by 1 cm.

Aug. 30, 1919, 35, No. 35

- \*Transmission of Typhus by Lice. G. Mueller and L. Urizio.—p. 734.  
\*Otorhinolaryngology and the Practitioner. G. Gradenigo, p. 735.  
Aortic Lesions of Thyroid or Neuritic Origin and Aortic Lesions in Persons with Hyperthyroidism or Neurases. D. Cantelli.—p. 738.  
Heart and Lung Changes in Malaria. Augusto Jona.—p. 743.  
Radical Treatment of Acute Empyema. S. Dalnazzoni.—p. 744.  
Appendicitis with Movable Kidney. D. Giordano.—p. 752.

**Transmission of Typhus by Lice Stools.**—Mueller and Urizio report the results of experimental research which confirm that the dejecta of lice are able to transmit typhus even without the bite of the insect. A laboratory accident confirmed this even more strikingly: the syringe filled with the emulsion of lice stools was being held by Urizio while Mueller was holding the guinea-pig ready for the injection, when the animal jerked and spilled the emulsion over the hands of both. Urizio was immune, having had typhus two years before, but Mueller, whose hands were irritated from other causes, developed seventeen days thereafter a classic form of typhus.

**Otorhinolaryngology and the General Practitioner.**—Gradenigo protests emphatically against the carelessness or ignorance of general practitioners in failing to diagnose mastoid disease, failing to treat properly acute otorrhea or disease of the upper air passages, or else going to the other extreme and mistaking impacted wax, for instance, for some serious condition. He cites two or three dozen cases typical of these blunders. The serious results from them in soldiers make a particularly striking impression, men dying from mastoiditis probably avoidable or curable, and, on the other hand, men wasting their time in hospitals merely on account of disturbance from impacted wax. One man had thus escaped military service, being at the front only fifty days in two years. The study of the ear, throat and nose is optional in the Italian medical schools, and few take advantage of the opportunities for this. Gradenigo asserts that the experiences here related, to which he could add many more, justify making compulsory some study of those organs and their pathology.

### Medicina Ibera, Madrid

Aug. 16, 1919, 8, No. 93

- \*Spinal Anesthesia in Gynecology. F. Navarro Blasco.—p. 113. Continued in No. 94, p. 133.  
\*Eclampsia without Albuminuria. J. B. Silvestre González.—p. 115.  
Chancres Inducing Hypospadias. Sicilia, p. 117.  
Case of Pernicious Cardialgic Malaria. M. S. Manzano.—p. 118.

**Spinal Anesthesia in Gynecology.**—Summarized when published elsewhere. See page 1021.

**Eclampsia Without Albuminuria.**—Silvestre remarks that the absence of albumin from the urine of the pregnant does not exclude peptonuria, but albuminuria very rarely occurs without peptonuria. The latter may be the expression of insufficiency of the liver, and he thinks it should warn of possible eclampsia even when no albumin can be found in the urine. If the experience of others confirms this assumption, we have thus a simple means at our disposal for the foretelling of eclampsia as the determination of peptonuria is easier than the quantitative tests for albumin, etc.

Aug. 31, 1919, 8, No. 94

- \*Chronic Serpiginous Venereal Ulcer Subsides under Tuberculin. M. F. Criado.—p. 136.  
Tracheotomy as an Emergency Operation. C. Calleron.—p. 139.

**Venereal Ulcer of Long Standing Heals Under Tuberculin.**—Criado relates the further history of a case of serpiginous venereal ulcer published by Azua as a typical instance of the rebellious nature of these lesions. The condition four years later was practically the same as in Azua's description. Criado then gave eleven intravenous injections of tartar emetic to a total of 0.75 gm. No benefit was apparent from this and he then gave a series of eight injections of a tuber-

cult) in minute doses. Each one induced a local reaction but no local or general reaction. By the sixth injection the chancrous ulceration had entirely healed and the others were nearly healed over. There were no signs or symptoms of tuberculosis or syphilis, and the possibility of mycosis was suggested, but there was no growth in any of the various culture tests made. Whatever the explanation may be, the rapid cure under tuberculin of a lesion of ten years' standing is an established fact. Analogous experiences have been reported with rebellious eczemas. Criado suggests that possibly the preceding course of tartar emetic may have cooperated in the cure, and advises in similar cases to try tuberculin first. If this fails, give a course of tartar emetic and follow with the tuberculin anew.

### Progresos de la Clínica, Madrid

July, 1919, 7, No. 79

- \*Auricular Fibrillation. Luis Calandre.—p. 5.
- \*Secondary Malaria. H. Salvador Clavijo.—p. 16.
- \*Degeneration and Regeneration of the Deep Membranes of the Eye. H. Muñoz Urra.—p. 28.
- \*Lichen Eruption from Grain Dust during Threshing. F. García Pastor.—p. 42.

**Auricular Fibrillation.**—Calandre reports a case of auricular fibrillation in which the complete arrhythmia occurred in paroxysms. The man was a morphin addict and, during a course of treatment for this, developed the auricular fibrillation when his system was clamoring for the morphin. It subsided regularly as soon as morphin was given him, and after the course of treatment was carried to a successful conclusion there was no return of the auricular fibrillation. As a rule, however, the prognosis of auricular fibrillation is extremely grave. Surprising benefit may be realized, however, from heart tonics in cases of rheumatic origin. Under digitalis the edema may subside and the whole condition become quite satisfactory, but the irregularity never entirely disappears. He advises to give digitalis when the heart beats above 100 during repose. Milk or vegetables should be the main reliance in food, without salt as long as there is edema. He keeps up the digitalis for four days, stopping when the pulse drops to 70. Other heart tonics may be preferable in certain cases. Fourteen typical pulse tracings are reproduced.

**Secondary Malaria.**—Clavijo discusses in this article the excessive functioning of the spleen, with or without its enlargement, as studied on a large number of patients. He discusses the localization of symptoms in the different organs, anemia and melanemia, the mechanism of the relapses, means to forestall the impending chill and fever, the treatment and prophylaxis. In speaking of the ravages of malaria in Spain and its possessions in Africa, he quotes statistics showing an average annual mortality from malaria of 301,260. He states that of the 9,261 towns in Spain, malaria is present in 1,818. He reiterates that the expense of reclaiming malarial regions by proper engineering, etc., would be more than offset by the increased productivity of the land, to say nothing of the saving in lives. In his own region malaria is increasing rapidly. In one regiment of 1,748 men, 208.35 per cent. were given treatment during 1916 while only 90.97 per cent. required it in 1913. He points to what Gorgas accomplished in Panama and what the Argentine Republic has accomplished since it made registration of malaria compulsory in 1907.

**Regeneration of the Retina.**—Muñoz gives ten colored views of the degeneration and regeneration of the deep membranes of the eye, and describes the mechanism of the repair of tissues as studied by his special method of silver staining. The reformation of the axis-cylinder processes of the nerve cells proceeds to an actually surprising extent but the cicatricial tissue forming in the choroid prevents the restoration of the nerve elements, the cicatricial tissue smothering the newly formed axones. He declares in conclusion that the regeneration of the retina is now an established fact, but it is impossible to restore the vitality of the membrane on account of its being hampered by the medium in which it has to develop.

**Eruption from Grain Dust.**—The symptoms in the woman whose case is described by García resemble those of hay-fever to some extent, but there is also a severe itching lichen eruption on the uncovered parts of the body. This eruption develops as soon as the grains begin to ripen, and it returns again and again until the harvest is entirely over. No treatment has proved effectual, but all symptoms subside as soon as she leaves the farming country for the city. The eruption has returned every year for eight years, to date, and no drug or local treatment of the nose with preparations of grains has proved effectual.

### Revista Médica de Chile, Santiago

August, 1919, 17, No. 8

- \*Protease Therapy of Typhus. E. Prado Tagle.—p. 413.
- \*Id. F. Opazo.—p. 433.
- \*Typhus in Chile. Arturo Atria.—p. 438. Cont'd.
- Decompressive Trephining for Brain Tumor. H. Lea Plaza.—p. 461.
- The Scientific Work of Prof. R. Kraus.—p. 466.

**Protein Therapy in Typhus.**—Prado Tagle was impressed with the possibilities of Nolf's method of intravenous injections of peptone in treatment of infectious diseases, and he applied this technic in fifty-nine cases of typhus. Aside from one patient that died in less than forty-eight hours, the mortality was about 5 per cent. The absence of by-effects confirms the harmlessness of the method for all ages, he declares in conclusion. The general health improves, the duration of the disease is shortened, and convalescence sets in earlier. The benefit was more pronounced the earlier the injections had been begun. His report represents extensive research by the different physicians on the hospital staff, much experimental and laboratory work being carried on preliminary to and during the clinical experiences. Nolf's technic was closely followed, except that the acidity of the solution of peptone in physiologic serum was reduced to 4.3 per thousand, and the remedy was put up in 5 c.c. capsules. About 10 c.c. was given as the first dose, to robust adults, otherwise from 4 or 5 c.c. for older children, up to 6 or 8 c.c. giving afterward only about half of the initial dose, and allowing an interval of forty-eight hours to elapse. In almost all the cases a second injection was given and, exceptionally, a third, with only 1 or 2 c.c. A subcutaneous injection of 2 or 3 c.c. of 20 or 25 per cent. camphorated oil was given every six hours day and night, with 0.25 c.c. of 1 per thousand epinephrin in each syringe. The patient must be kept in repose. The blood pressure falls during and immediately after the intravenous injection of peptone, but if it is made slowly (1 c.c. per minute) and if epinephrin has been given, the drop is slight. The coagulation time of the blood is much retarded. Analysis of the blood showed that the urea content could be disregarded with this protein therapy as the latter only slightly augmented it, and it soon dropped to below its previous figure from the rapid reaction to the injection, while the dietetic restrictions in typhus aid in its being speedily cast off. Analysis of the urine likewise showed that the injections of peptone had no detrimental influence on the kidneys and hence there were no contraindications on the part of the kidneys, except of course with grave nephritis. There are no characteristic findings in the urine in typhus. The fever charts given show the attenuating and abbreviating influence of the protein therapy better than anything else. An interesting feature of the cases was that when the temperature had gone down under the injections, a further injection did not induce any appreciable reaction. The production of antitoxins can then be regarded as sufficient and the case as cured. In every case improvement in the general condition was unmistakable.

**Protein Therapy of Typhus.**—Opazo reports the application of Nolf's method in 27 cases of typhus, with 14 recoveries, 4 in convalescence and 7 still under treatment; 2 of the patients died, but the disease in their cases had reached a stage when reaction was no longer possible. He reiterates that the protein therapy induced a favorable reaction which modified the disease and all the symptoms. In his experience the reaction was prompter and more effectual in children than in adults. He is now applying this protein therapy as the routine treatment in all cases of typhus.

**Typhus in Chile.**—Atria here continues his historical sketch of typhus in Chile.

**Revista de Medicina y Cirugía, Havana**

Sept. 10, 1919, 24, No. 17

\*Projectile in Base of Brain. Rogelio Stincer.—p. 439.  
The Venereal Peril. José Arias Avellan.—p. 442.

**Bullet in Base of Brain.**—Stincer relates that the boy of 15 was bleeding profusely, the bullet having traversed the tongue, arch of the palate and nasal fossae on its way from the median suprahyoid point of entrance to its exit at the right nasal fossa. The blood came mostly from the tongue, tamponing not arresting it. Stincer threw a ligature around the external carotid artery in the carotid triangle and the bleeding stopped at once, and by the tenth day the boy was able to eat naturally. The eighteenth day remittent headache developed. Stincer had warned the father that headache might be a symptom of traumatic meningo-encephalitis or abscess. The boy was operated on later by others and died, and the family ascribe the fatality to Stincer's having "ligated the vein."

**Revista de Medicina y Cirugía Prácticas, Madrid**

June 28, 1919, 123, No. 1560

Emetin by the Vein in Treatment of Influenza. Mariano Maldonado.—p. 421.

Bilateral Optic Neuritis with Atrophy, Consecutive to Sudden Suppression of the Menses after Emotional Shock. J. García del Mazo.—p. 426.

July 7, 1919, 124, No. 1561

Diagnostic Importance of the Cerebellar Syndrome. E. Fernández Sanz.—p. 5.

July 21, 1919, 124, No. 1563

Criminal Responsibility. F. Bravo y Moreno.—p. 81.

**Revista Médica del Uruguay, Montevideo**

July, 1919, 22, No. 7

\*Infant Mortality in Uruguay. Julio A. Bauzá.—p. 489.  
Welfare Work for Tuberculous Children. P. Ernesto Duprat.—p. 495.

\*Hysteria. Oscar Fontecilla.—p. 513.  
\*Health and Mind of Children as Dependent on Economic Conditions in the Home. S. C. Rossi.—p. 519.

\*Congenital Blindness. Joaquin de Salterain.—p. 522.  
\*Epidemic Poliomyelitis. F. Figueroa and Others.—p. 560.

**Infantile Mortality in Uruguay.**—Bauzá urges that both national and municipal vital statistics should list the deaths separately, according to the causes, for each of the first four weeks of life and then month by month to the end of the first year, and then year by year up to the fifth year. He suggests further that the form of feeding used for two weeks before the death should also be recorded, as also whether the child is illegitimate or not. An annual summary should be published giving these particulars in detail. The statistics of the municipal registration area should be kept separate from those of the suburbs, which are beyond the jurisdiction of the municipality. Births and deaths in the public institutions, he adds, should be recorded in the statistics of the place of residence. He also urged the federation of all societies and organized efforts for welfare work for mothers and children, extolling the creation in all countries of an organization like that of the Children's Bureau at Washington to centralize and direct the efforts to reduce the infant death rate. He remarks parenthetically that 108 per thousand of living children born in Uruguay die before reaching their second year, while the rate in Southern Australia is only 62.

**The Biologic Significance of the Phenomena of Hysteria.**—Fontecilla argues that hysteria is an atavistic survival of the open manifestation of emotions which civilized man suppresses more or less completely but which primitive man and women and children still have found useful in the struggle for existence. Primitive man yelled and gesticulated to frighten away the enemy attacking him; children scream and throw themselves on the floor when they are angry, and women's tears are still their most decisive argument. These reactions to emotions have thus a useful purpose for the person making use of them. But they are forms of defensive reactions which man in civilized life is abandoning

more and more for other means better suited to the difficulties he has to overcome, that is, for more rational means. He does not merely yell and gesticulate to frighten off the attacking enemy, but the higher the civilization he has attained, the more he reflects, calculates and acts without wasting his energy in emotional manifestations. The emotional reactions are atavistic manifestations of the struggle for existence, but they are atavistic manifestations. They can be traced in primitive man and in certain animals, and analysis of the manifestations of hysteria shows that there is no essential difference between them and the ordinary reactions to emotions. The difference is merely in intensity and degree, not in quality. What is the difference between syncope in an apparently normal person at some sudden catastrophe or great misfortune and the syncope in a hysterical woman from some trivial cause? What is the biologic significance of the syncope? It is a defensive reaction that benumbs the appreciation of the great grief or catastrophe as chloroform abolishes pain. But the hysterical make excessive use to actual abuse of this means of defense. And they accomplish their purposes with it. But these triumphs with the aid of these abnormal means, he reiterates, all have one indelible stamp: "They are antisocial. The triumphs of hysteria are invariably of an egotistical and antisocial nature." Only the minutest proportion of cases of hysteria come to the knowledge of physicians; the majority of its manifestations in conjugal life, in the home and in society are recognized only by the experienced psychologist. The mental abnormality responsible for hysteria is at its maximum in the young, and with proper training and environment the milder forms subside so that it is very rare in the elderly."

**Health of Children in Relation to Income.**—Rossi presents in picturesque terms a plea for protection of children against poverty and against superabundance. Each of these is almost equally detrimental. The living cell, he says, is "the great rebel that dictates terms to emperors. We can apparently conquer it because we seem stronger than it, but from its hidden nook it strikes back and conquers in the end by dying. The living cell, besides being the great rebel—or perhaps on this account—is just and wise. It asks only for just what it needs (air, light, heat and nourishment) and does not want more or less than its actual needs, and does not recognize economic distinctions." . . . "The mentality, on the other hand, is simply the faithful and eloquent corollary of economic conditions."

**Treatment of Congenital Blindness.**—De Salterain gives a historical review of the operations on record for congenital cataracts in both eyes, from Cheselden's pioneer work in the eighteenth century to Moreau's case in which the child was kept in the hospital for fifteen months afterward (1913). Moreau emphasized that removal of the cataracts is merely the preliminary to the child's learning to see, as the mental perception is a plant of slow growth. De Salterain has operated in nineteen cases at one sitting for congenital blindness; one of the patients was 32 and has been capable of self-support during the twenty years since. The others were all children, and he describes two cases in detail to confirm the necessity for continuous intelligent training in the use of the eyes as indispensable for vision. His own and the experiences on record confirm that the development of the child's mind before the operation is the decisive factor in what can be accomplished later. One very backward boy of 6 was given training by the Montessori method about a year after the operation, and in nine months was mentally and visually the peer of normal children of his age. The other child whose case is described was not mentally backward, and she was soon able to attend school with other children.

**Epidemic Poliomyelitis.** The *Revista* gives the summaries of the official reports by the delegates to the Child Welfare Congress in regard to the prevalence of acute poliomyelitis in the different countries presented. Figueroa said that there had been two small epidemics at Rio in eight years, a total of 120 cases with a mortality of 1:30. He queried whether the cases of cephaloplegia with recovery in a few

days might not be a rudimentary form of epidemic poliomyelitis. Alvarez Arias stated that there had never been an actual epidemic spread of the disease in Argentina, but since 1910 there had been a few hundred cases, the proportion a little higher since 1916. In his own practice he has never been able to trace the infection to its source. In one family the three children developed the disease almost at once. The only treatment which showed any efficacy was the intraspinal injection of convalescent serum. The early diagnosis and the systematic evacuation of the lumbar puncture fluid are particularly important as they permit serotherapy in time, before convalescent serum is installed. The Uruguay delegate reported three epidemic waves in 1909, 1912, and 1916, and mentioned that pain was an important element in the clinical picture in Uruguay. He asked the adoption of a resolution authorizing pediatricians to study and practice serotherapy in this disease. Fontecilla reported that in Chile there have been no epidemics, but the sporadic form is relatively frequent. He queried also whether acute poliomyelitis might not be responsible for cases in which mild gastrointestinal disturbances or slight fever were followed by symptoms of cerebral paralysis with epileptiform attacks and mental impairment, which may progress to idiocy. He urged serologic research into the origin and nature of infantile cerebral paralysis which is so common in America. The various speakers all mentioned that they had never seen cases of the cephaloplegia encountered at Rio (described in *THE JOURNAL*, Dec. 14, 1918, p. 2030). The classification of infants' gastro-intestinal disturbances, and tuberculous glandular disease were also discussed at special meetings, and the summaries are reproduced here.

### Semana Médica, Buenos Aires

July 10, 1919, 26, No. 28

- \*Tuberculin Treatment by Minute Doses. J. José Vitón.—p. 29.  
 \*Sterility in Men. F. A. Deluca and V. Widakowich.—p. 35.  
 \*Rheumatism. C. Gering, J. A. Sanchez.—p. 37.  
 \*Treatment of Tuberculosis by Liberty in Learning. L. Velasco Blanco.—p. 39.  
 \*Polymorphism of Aviators. J. Santos Fernández.—p. 41.

**Broadening the Field of Tuberculin Treatment.**—Vitón's views in regard to the causal benefit from treatment with minute doses of tuberculin have been summarized repeatedly in these columns as, for instance, May 24, 1919, p. 1581. He stresses that only the minutest doses, long kept up, are effective; the ordinary large doses used by others do actual damage. His success with these minutest doses is not confined to pulmonary tuberculosis but Ponce's "chronic tuberculous rheumatism" subsides under it likewise, and a number of other lesions and morbid conditions which have never been connected with tuberculosis hitherto. Their disappearance under this method of treatment throws new light on their etiology, so that this "tuberculin diagnostic-therapeutic method" he calls it, is opening new fields for research and clinical treatment. It has proved exceptionally useful for the new recruits, discharging those who already are infected (see *THE JOURNAL*), and enabling them to throw off the infection, and to avoid the inconvenience and disappointments attending treatment on other bases. He has found the minute doses to be much useful further to stimulate the vital force in advanced pulmonary tuberculosis, as, for instance, the case of a patient with emphysema has caused to prove effective.

He also gives as an indication that the dose has been too large, the occurrence of any kind follow. The "100 tuberculin dose" is 100 c.c. of a 100,000,000 solution. The dose has been generally made with one part of this solution and nine parts distilled water acidulated with  $\frac{1}{4}$  per cent normal hydrochloric acid are made in the same way and are equally effective. The critical dose is that which produces a reaction in the intrad picture. The reaction is a general reaction, and the reappearance of symptoms is the usual for a reaction. It should never be made before the benefit from the preceding injection begins to decline. A treatment continues, the benefit begins to be more and more lasting each time, demonstrating an actual curative beneficial action. There can thus be no irregularity in the dates of the injections. The intervals vary from even to case and at different periods in the same

patient. In this article he expatiates in particular on the surprising benefit from tuberculin treatment in these minute doses in many morbid conditions which have never been supposed before to have any connection with tuberculosis. Their complete subsidence under this method of treatment certainly suggests that tuberculosis is one factor if not the only one. This group includes not only apical cases, but cases of peritonitis, pericentitis, enteritis in members of tuberculous families, joint, glandular and gastro-intestinal lesions, endocrine disturbances, etc. The tuberculin treatment reveals the tuberculous nature of the morbid process and often proceeds to cure it. In a case of unilateral optic neuritis, for instance, this treatment induced marked improvement and the presumptive diagnosis was confirmed by discovery of a minute tubercle close to the entrance of the optic nerve into the eye. Continuing the tuberculin treatment resulted in the complete subsidence of the lesion and recovery of vision. Both clinical, operative and necropsy findings, he states, have confirmed the tuberculous nature of this great variety of morbid conditions which show such marked improvement under these courses of minute doses of tuberculin. As long as appreciable improvement is manifest the same dose must be repeated indefinitely, merely "marking time to keep step," as it were.

**Sterility in Men.**—Deluca and Widakowich found azoospermia in 10 per cent, of 100 men of different classes of society at Buenos Aires. This is about the same proportion as has been reported from Paris, Berlin, Scotland and Brazil. This demonstrates, they say, the preponderance of the male in the responsibility for childlessness. All of the men with azoospermia had had gonococcus orchitis or epididymitis. The writers query whether women should not be protected by legislation against wedding men with azoospermia.

July 17, 1919, 26, No. 29

- Vaccine Therapy of Influenza. Julio Méndez.—p. 53.  
 Subsidence of Tuberculous Skin Disease under Tuberculin Treatment. C. Lagones.—p. 59.  
 Colophematometra from Imperforate Hymen. H. Brignardello.—p. 63.  
 \*Polymorphism of the Tubercle Bacillus. F. Jáuregui.—p. 66.  
 \*Psychophysiology of Aviators. J. A. López.—p. 68.

**Polymorphism of the Tubercle Bacillus.**—Jáuregui is chief of the Instituto Maragliano at Buenos Aires, and he ascribes to Maragliano the announcement (1892) of the polymorphism of the tubercle bacillus within the single species. Ferrán followed him in 1897 with his announcement of the close connection between the tubercle bacillus and the colon bacillus. He explained that the acid-resistant tubercle bacillus sowed in a series of culture mediums containing constantly less and less glycogen, peptone and glycerin, the cultures agitated every twelve hours for a few months, finally lose their acid-resisting properties and acquire the properties of the colon bacillus in time. He describes further how it is possible to transform the colon bacillus in much the same way into the actual tubercle bacillus. Or the tubercle bacillus that has been transformed into the colon bacillus can be modified back into its pristine characteristics.

**The Psychophysiology of the Aviator.**—In this sixth article on the medical aspects of aviation, López discusses the prophylactic deductions from his research on the psychophysiology of aviators. He also discusses the influence of flights on the abdominal organs and kidneys. No personal experiences are described.

### Siglo Médico, Madrid

Aug. 9, 1919, 66, No. 3426

- Etiology of Epilepsy. R. Alvarez de Toledo.—p. 641. To be continued.  
 Is Vaccination Against Cerebral Hemorrhage Possible? J. Ferrán.—p. 643. Conc'n.  
 \*Diathermy in Treatment of Ulcerative Processes in Digestive Tract. Santiago Cerezo.—p. 647. Conc'n.  
 Barthelmeis in the Ghouse and its Treatment. Sicilia.—p. 649.  
 Influence of Aviators on the Sensibility, Tendon Reflexes and Muscular Force. C. Juarros.—p. 649.

**Diathermy in Gastro-Intestinal Disease.**—Carro regards diathermy as one more weapon at our disposal in the treat-

ment of chronic torpid ulceration in the digestive tract, refractory to other measures. He has applied it in five cases of the kind, and the lesion seemed to retrogress completely in one case and to be materially benefited in some of the others. It seemed also to hasten the recovery in three other, acute cases. The only contraindication, he says, is a tendency to hemorrhage.

Aug. 16, 1919, 66, No. 3427

- \*Mixed Psychoneuroses. E. Fernández Sanz—p. 665.
- \*Standardization of Antithyroid Serum. J. Sanchis Banús—p. 668.
- \*Etiology of Mucomembranous Enteritis. D. Ramón Alcón—p. 674.
- \*Traumatic Shock. José Segovia y Caballero—p. 676. Cont'n.

**Mixed Psychoneuroses.**—Fernández has encountered in his practice cases in which one psychoneurosis was evidently superposed on another. The prognosis is grave when psychasthenia breeds neurasthenia, as this indicates the seriousness of the former. When there are evidences of hysteria with a psychoneurosis, the prognosis is generally more favorable than without the hysteria so far as the other symptoms are concerned. The combination of psychasthenia with emotional depression has always proved a grave condition in his experience as it borders on actual insanity. This is also the case when a psychoneurosis of anxiety accompanies depression; constant vigilance may be necessary to prevent suicide if these symptoms are due to an actual psychosis. He emphasizes the necessity for the general practitioner to familiarize himself to a certain extent with these five great groups of psychoneuroses, as it is so important to distinguish between functional and organic disturbances of this nature, even in the simple cases.

**The Murillo Method for Standardizing Antithyroid Serum.**—Sanchis refers to Murillo's recent assertion that antithyroid serum enhances the susceptibility of guinea-pigs to diphtheria toxin to such a degree that they die from twelve to twenty-four hours earlier. Sanchis has been experimenting to learn whether the antithyroid serum had a similar activating action on the susceptibility of guinea-pigs and rabbits to cocain, but his experiments failed to show any action of the kind from the serum of thyroidectomized rabbits. The results were positive, however, with serum from hyperthyroid rabbits, the cocain proving fatal in half the time. He theorizes that the difference may be due to action on the vagus rather than on the sympathetic. Whether the Murillo phenomenon has anything to do with the therapeutic action of the serum is still undetermined.

**Mucomembranous Enteritis.**—Ramón Alcón relates some cases to illustrate the necessity for detecting and removing the cause of bowel disease instead of routine prescribing of drugs and dieting. In one case the enteritis had proved rebellious to five or six months of this treatment and the man was very thin and depressed. It was learned that the onset of the enteritis had followed a severe accident to his wife, and that a brother had epilepsy. He was then treated as for a neurosis and a prompt and permanent cure was soon realized. Another group of patients presented signs of the gouty diathesis, and the enteritis subsided under correct treatment of the arthritis. The stools in these cases often show oxalate and urate crystals and these are liable to set up irritation. By varying the diet to induce an acid reaction in the stools, the putrefactive bacteria are crowded out and the bowel is given a chance to heal. Enteritis of this kind is rare among the poor. Fifty enteritis cases are encountered among the well-to-do for one among the poor. The enteritis following typhoid, influenza, etc., generally subsides as strength is regained.

Aug. 23, 1919, 66, No. 3428

- \*Direct Surgical Treatment of Gastric Ulcer. C. Alvarez—p. 689.
- \*Results of Intraspinal Treatment of General Paralysis. C. Juarros—p. 691.

**Intraspinal Treatment of General Paralysis.**—Juarros supplements the intraspinal mercurialized arsenotherapy with intravenous injections of mercury and neo-arsphenamin. He remarks that in some of his patients the improvement might be called a cure, if he were inclined to be optimistic. In other cases no benefit was apparent, and in a few instances

the intraspinal treatment coincided with an aggravation of the condition. The physical symptoms showed greater improvement than the mental.

### Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 19, 1919, 2, No. 3

- \*Fixation of Blood Specimens Showing Amoeboid Movements. M. A. van Herwerden—p. 170.
- \*Epileptiform Convulsions and Fat Embolism after Nonsurgical Orthopedic Intervention. H. Timmer—p. 173.
- \*Hereditary as an Element in Bacterial Diseases. A. L. Hagedorn and A. C. Hagedorn-Vorstbevel in Beeld—p. 179.
- \*Torsion of Spleen. G. C. Nijhof, p. 182.
- Case of Lethargic Encephalitis. J. E. Beman—p. 186.

**Specimens of Blood Corpuscles Showing Amoeboid Movements.**—Van Herwerden insists that the ordinary methods of fixation of blood specimens fail to show the corpuscles in their natural state. This can be accomplished by the simple technic he uses as he demonstrates by a photomicrograph showing the most extreme amoeboid movements in the leukocytes and thrombocytes. While the red corpuscles have the natural smooth, round outline, one mononuclear leukocyte is seen forming an L-shaped figure with nine fringe-like processes at one end, and three long arms at the other; a leukocyte shows over fifty amoeboid processes. To seize the corpuscles in this amoeboid phase, all that is necessary is to kill them rapidly while these movements are at their height. For this a watch-glass is placed in the incubator at 38°C, covered with a second watch-glass which is fitted inside with a piece of filter paper moistened with water. A drop of Ringer's fluid or of van Deetjen's fluid at body temperature is placed on a cover-glass, and a very small droplet of blood from the finger is dropped on it. The cover-glass is then placed between the two watch-glasses and left in this warm moist chamber for fifteen minutes. Then the upper watch-glass is rapidly changed for another containing a piece of filter paper impregnated with 40 per cent. formaldehyd. This is left for about half an hour, and then the cover-glass is taken out and the droplet of fluid on it is cautiously poured off, leaving the formed elements adhering to the cover-glass. The resulting preparations are remarkably fine. The blood platelets in particular show up instructively, sometimes larger than the erythrocytes, especially with the Heidenhain staining technic. He relates further that preliminary exposure to 31 mg. of radium bromid before applying the formaldehyd did not arrest the amoeboid movements of the leukocytes even when the exposure was kept up for eight hours, that is, for a longer time than it takes to arrest completely the development of the ova of a small crustacean, *Daphnia pulex*. The thrombocytes, however, did not show any amoeboid movements after this long period, either in the radium treated or untreated specimens.

**Fat Embolism and Convulsions After Nonoperative Orthopedic Intervention.**—Timmer describes the case of a girl of 7 who developed epileptiform convulsions forty-six hours after reduction of bilateral congenital dislocation of the hip joint. The convulsions kept up for two and a half hours and then subsided completely. Aberle and O'Leary ascribe such disturbances to fat embolism in the vessels of the brain, but C. Divilla is among those who explain them as a kind of reflex epilepsy. In three of the cases on record there had been sudden asphyxia, dyspnea and cyanosis before the convulsions developed, and necropsy revealed fat embolism. In one of Aberle's three similar cases, with recovery, osteotomy had been done above the knee to correct contracture from a tuberculous process. Dyspnea and cyanosis developed suddenly as the leg was being straightened, and the child stopped breathing. Under massage of the heart and artificial respiration the child began to breathe again, but the narcosis passed into deep coma. Half an hour after the breathing had stopped there were clonic spasms in both arms. By the end of three quarters of an hour the child reacted to stimuli to the skin and was soon completely roused. It seems evident here that in straightening the bones fat was forced into the blood vessels and it obstructed the capillaries in the lung. Later, the fat reached the vessels in the brain and induced the clonic spasms.

Epileptiform convulsions apparently develop only in the protracted, in neur. path., and in children with cerebral paralysis or Little's disease. There is usually an interval from two to six days after the intervention, which is always one that required considerable wrenching of soft parts, such as correction of contracting or congenital dislocation of the hip joint. The disturbances are transient, subsiding completely in a few hours. Analysis of fifty fatal cases of fat embolism on record shows that the first includes only six children, although operations such as are liable to induce fat embolism are done commonly on children. There are no fat cells in the long bones before the age of 6 or 7; after the age of 14 the fat cells may be numerous. Atrophy of the bone is peculiarly liable to be accompanied by production of fat. We can thus assume that fat embolism need not be feared with young children unless there has been protracted inactivity and there is much atrophy of the bone, such as is likely with paralysis. Under these conditions it is wisest to refrain from osteoclasis and similar procedure. With a predisposition to nervous disturbance, with Little's disease or cerebral paralysis, extreme caution is necessary. Bilateral correction of hip joint disease should be done at two sittings, and rough force should not be applied. Timmer adds that fat in the soft parts is more compact and is not so readily taken up by the blood vessels as fat from the bone marrow.

**Heredity as a Factor in Bacterial Disease.**—Hagedoorn reports what he thinks is the first instance in which has been demonstrated the part played by heredity in modifying the susceptibility to bacterial disease. A number of Japanese breeding mice were crossed with ordinary white mice, and when an epidemic broke out in the 700 cages in three different rooms, the Japanese mice all died, but not the white mice, and lack of susceptibility proved a dominant among the offspring, as also among the offspring of the bastards paired with the white mice. These data throw light on the incidence of tuberculosis; why some escape and others develop the disease. Analysis of the heredity may well repay the trouble.

**Torsion of the Spleen.**—Nijhoff's patient was a woman of 72, previously healthy, until sudden abdominal pain and nausea developed, with other symptoms accepted as indicating torsion of an ovarian tumor. Splenectomy is easier and simpler in these cases than with a normally located spleen.

Aug. 2, 1919, 2, No. 5

- \*Fracture of the Neck of the Femur. W. F. Wassink.—p. 319.  
 \*The Joint Ankylosis.—p. 313.  
 \*Central Cerebral Hemorrhage. Van Braam Honckgeest.—p. 343.  
 \*Cyst of the Ovary. Jar Panter's Cyst. C. Orban, Jr.—p. 345.

**Fracture of the Neck of the Femur.**—Wassink devotes thirteen and Schiemaker ten pages to description of the recent findings in ten and in twelve cases of fracture of the neck of the femur, with eleven and three illustrations, respectively. These experiences demonstrate, Wassink declares, that fractures of this kind seldom heal, that the lack of apposition of the fracture surfaces prevents the formation of periosteal callus and hence the parts cannot grow together. He found also that the stumps were not in contact even when the roentgenograms seemed to demonstrate good coaptation. Some of his cases demonstrated further that a good position at first became defective later from traction of the muscles. The effect of weight bearing also contributes to this. The circulation in the parts is also seriously compromised, especially in the proximal portion, by the trauma and the distention. This may prevent consolidation even when the parts are in a good position. Some of his cases show that with the old defective methods of treatment, a good result may occasionally be secured, or even without any treatment. To ensure good results, the coaptation must be satisfactory and the parts must be held in the proper position long enough for them to grow solidly together. This takes an unusually long time for this special fracture on account of the exceptional strain on this bone.

Schiemaker remarks that the more innocent the fracture looks, the graver it actually is, as a rule. The swelling and

other phenomena are much less pronounced with fracture of the neck than with trochanter or basal fracture. Fracture of the neck can heal with a growth of callus around it although the neck itself may not take direct part in this reconstruction. In one case illustrated a voluminous callus developed in this way in six weeks in a woman of 81. To favor healing of basal fracture in a good position he turns the leg far inward until the axis of the foot lies in the frontal plane. This brings the neck approximately into its normal position and stretches the muscles so that they exert pressure on the trochanter mass and on the base of the neck, and promote the locking of the neck in the mass of the trochanter. The neck slants a little more than usual. Then slight abduction follows which brings the neck almost into its normal position while conditions favor its retaining this position, and healing proceeds exceptionally rapidly. In 107 cases thus treated, only once was there insufficient callus production. The foot must be held in this extreme inward rotation for six weeks; a plaster dressing is usually the best means to accomplish this, but it is not absolutely necessary if the patient is in bed.

With fracture of the neck in the middle or close to the head, treatment must be quite different. No callus forms with fracture of the neck itself. The aim here is to utilize the weight of the body to force the head down on the neck. By rotating the leg inward, with maximal abduction we can bring the neck up under the head. The plaster cast is applied to half way up the thigh, the assistant forcing the foot up to ward off equinus. Then both legs are rotated inward to the extreme limit. If only the diseased leg is rotated, the pelvis moves with it. The toes thus point toward each other, and a third assistant twists the knee and its plaster cast—all forcibly but very slowly. The leg is placed in abduction at the same time, and when the inward rotation is concluded, the abduction is continued to the extreme limit, abducting the sound leg at the same time but less forcibly. Now the operator takes hold himself, pressing the thigh outward with one hand while with the other hand he pushes the trochanter inward and down. When this has been done to the extreme possible without violence, the plaster dressing is completed, enclosing the whole of the pelvis and on the sound side high up on the ribs, to maintain the abduction. It would be still better if the sound leg could be encased in the plaster, but this would prevent walking. Abduction is about 45 degrees, and the knee is turned almost completely inward. His roentgenograms show the almost perfect results realized with this technic in 23 cases. In 8 others the outcome was a total failure; in 3 the patients can walk but not well; 8 are still in treatment, and 10 have died since, of the 52 cases of subcapital fracture treated in this way. In the cases of failure, operative intervention may be required. The latter is not advisable for the aged, and the above non-operative technic is almost certain to succeed in the young. The field for operative interference is thus restricted to the middle aged, and Noordenbos's method of fixation with a peg from the fibula driven into the head seems to be most promising.

### Hospitaistidende, Copenhagen

Sept. 10, 1919, 62, No. 37

- \*Light Baths. C. Sonne.—p. 1041. Cont'd in No. 36, p. 1017.

**Mode of Action of General Light Baths.**—The results of Sonne's experiments apparently demonstrate that the chemical rays have very little to do with the therapeutic action of heliotherapy or general light baths. The light from the sun, the special arc electric lights, and the mercury vapor light all have the property, he says, of heating the blood to a remarkable degree without at the same time heating the body tissues. It seems plausible to assume that to this action, common to these three sources of radiant energy, their unmistakable therapeutic effect is due.

### Ugeskrift for Læger, Copenhagen

Sept. 11, 1919, 81, No. 37

- Influenza as Cause of Death. H. J. Hansen.—p. 1351.  
 Ulcers in Treatment of Whooping-Cough. H. P. B. Barford.—p. 1463.

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## THE EFFICACY OF EXISTING MEASURES FOR THE PREVENTION OF DISEASE \*

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### I. THE CONTROL OF DISEASE

These remarks relate to an inquiry into the different procedures for the prevention of the ordinary epidemic diseases of civil life, the object being to determine the spheres wherein substantial progress has been made and the trend in which future efforts should be directed.

It is proper to state that the scope of an inquiry of this kind is necessarily limited by the fact that less than 1 per cent. of the world's population enjoys the benefits of systematic health work, and, of this small part, only a fraction compiles such records as will permit the efficacy of the work being known. It may be asked how we shall measure the efficacy of procedures for the prevention of disease if vital statistics do not afford the means? The answer is that we must do the best we can with the statistics that are available, and for the rest rely on personal observation. To a considerable extent we must use our judgment. We must note where success or failure has occurred and try to find the reasons.

When we turn our attention to the list of great epidemic diseases, we find that definite and effective procedures are available to combat most of them. The list includes plague, cholera, typhoid and dysentery, typhus, malaria and yellow fever. Such difficulty as exists in controlling these diseases lies in the practical application of the procedures rather than in the procedures themselves. The crux of the difficulty lies in the fact that the diseases in question often need to be combated among people to whom habits of ordinary cleanliness and decency are unknown. It is in consequence of this that when occasional cases of cholera, typhus and plague are brought to western countries there is no fear of them, and when they occur in some other countries it is impossible to stamp them out.

We have spoken of the control that can be exercised over occasional cases. How far an epidemic disease may spread in a sanitary environment if a sudden and extensive outbreak of it occurs is another matter. Sometimes it gains great headway and becomes ungovernable. It is one thing to deal with an infection in its retail aspect and another to manage it in wholesale proportions. This is true of all epidemic diseases.

Disease is like fire; only certain amounts of it can be controlled. We can do nothing with a conflagration.

If a disease visits only a house, or barrack or ship, it can be restricted to that place. If it attacks an extensive locality or a group of localities, whether it shows a tendency to spread from one to another or affects all simultaneously, it is more difficult to deal with it. If the epidemic visits large tracts of country at once or in succession, it is practically impossible to stop it. And a disease that breaks out over vast areas of the world's surface at long intervals is entirely beyond human control. It is, therefore, only in their more restricted, not to say attenuated forms, that most epidemic diseases are controllable. Applying the illustration of fire again, we must seek out the sparks and quench them before they kindle a blaze.

So far as the greatest of all epidemic diseases is concerned, we know nothing. We do not know what influenza is nor how it can be prevented. We are as powerless against it as were our ancestors against smallpox before vaccination was discovered. It is to be hoped that the many intensive studies that have been made of the recent influenza pandemic will result in effective preventive procedures being devised, but so far nothing that is practical seems to have been brought to light.

### CAUSE OF THE DECLINING DEATH RATES FROM EPIDEMIC DISEASE

In the opinion of some persons we are as helpless against many other diseases as we are against influenza. The assertion is made that it is due to their peculiarities rather than to any control that we are able to exercise that the infections which are commonly with us are not more prevalent than they are. Reference is here made particularly to meningitis, poliomyelitis, measles, scarlet fever, mumps, whooping cough and diphtheria.

Some diseases that exhibited alarming epidemic proportions fifty years ago no longer occupy a prominent place in mortality statistics. Scarlet fever, which formerly showed marked fluctuations and a high rate, taking annually, in some years, 125 lives per thousand of population, has become steady in prevalence and seldom claims more than one life in 10,000 in a single year.

Diphtheria, which sometimes ran an epidemic course for years, and in one state, at least, caused an average mortality of 410 per hundred thousand of population, has subsided nearly everywhere to a steady, low death rate of about 10. Measles, whooping cough, and other so-called contagious diseases, have shown as distinct, if a less marked reduction.

It is a curious fact that the diseases mentioned, although differing markedly in prevalence among themselves many years ago, have in recent years come down

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to a low and uniform prevalence. One is only a little more common than another. The rate in one part of the country seems to be about the same as the rate elsewhere. Undoubtedly the epidemic diseases have become less and less epidemic. Why is this? Are we to conclude that it is owing to our better knowledge of the causes and to the greater efficacy of our measures of prevention that these infections have been disappearing? If so, we must assume that our knowledge has increased over that which we possessed in former times and that our measures for combating disease are superior to those which were formerly employed. This supposition is incorrect in both of its parts. We know nothing more as to the cause of some of these diseases than was known twenty years ago. Nobody can maintain that the procedures followed in combating scarlet fever or measles are more effective than those which were used then. It is true that the cause of diphtheria is known and that there has been an intelligent and well directed fight made against it. But the decline began before this knowledge appeared. The means of prevention of scarlet fever and measles and whooping cough and various other contagious diseases are as difficult today as they ever were and there are no more vigorous measures taken against them now than formerly.

The epidemic diseases are disappearing, probably not so much because of the fight that is made directly against them, as on account of indirect influences that bear on them. It is impossible to state with scientific accuracy what all of these are or exactly how they operate, but it is possible that they have to do with the higher standards of living which prevail.

Disease is an ally of ignorance, dirt and disorder, and it everywhere tends to disappear on the improvement of knowledge and of social conditions. Standards of personal, domestic and municipal living are ever advancing and sweeping away the opportunities that formerly existed for the spread of infection.

Glancing over the range of common infections, it appears that, aside from smallpox, the kinds of disease that have proved most amenable to direct control are of the enteric type. The part of the world with which we are familiar has seen an immense reduction in the prevalence of these diseases. Devastating epidemics, formerly a constant menace, rarely occur now. Typhoid, diarrhea and dysentery have yielded their greatest terrors to the fight that has been made against them.

It is in the management of the respiratory infections, which terminate so often in pneumonia, that the least progress has been made. This group constitutes the leading cause of death in most civilized countries.

When the data representing the death rates from pneumonia in our cities and states from year to year are plotted, the curve forms a very different figure from the curve of any other infection. First, it lacks uniformity to a marked degree. Second, it is always high; it is about ten times as high as the curves of the exanthems. Third, it is, as a whole, not declining. These are criteria of epidemicity: fluctuating high and not receding rates. Pneumonia is unquestionably an epidemic disease which is manifesting a characteristic epidemic behavior. It is not under control and up to the present no way has been discovered to control it. These facts ought to be recognized at once. We shall see them clearly in a few years. It is our nearness to the conditions that causes us to be so indifferent to them.

#### THE THREE GREAT FIELDS OF EFFORT

Passing to a consideration of the ways in which disease of different types has been combated, we note that there have been three general fields of effort:

1. *Sanitation.*—By sanitation is here meant systematic health work of the type that generally requires a plant and a force of men to maintain it. Examples are works for the procurement of wholesome drinking water, the collection and disposal of liquid sewage and the gathering and final disposition of kitchen waste, ashes and other discarded material.

Sanitary works possess a number of advantages as compared with other measures for the prevention of disease. First, they have a wholesale application. A water supply that is made pure is wholesome for every person who has occasion to drink it. Although there is a considerable investment of capital in these enterprises, the maintenance charges are not excessive and the results are satisfactory. Yielding to works of sanitation are not only typhoid, dysentery and other diarrheal diseases, but some other forms of sickness that cannot conceivably be conveyed by drinking water. This phenomenon has been described in papers that are so easily accessible as to need no repetition here.

It is impossible to pass this point without suggesting that the introduction of any measure that materially contributes to the cleanness, convenience and order of a community helps to eliminate disease, even though its exact manner of doing so may not be apparent. Simple cleanness is one of the most healthful as well as one of the most educative measures known. Contributing, therefore, to the efficacy of existing measures for the prevention of disease in a community must be included such betterments as good street pavements, adequate lighting systems, suitable police regulations and agreeable parks.

Among the disadvantages of sanitary works is the fact that they are not available for communities of small size. A town must be rather large and compactly built before it can afford to have its houses served with a common water supply, a common sewerage system and a common scheme for the collection and disposition of ashes and garbage. Up to a certain point the relative cost is in inverse proportion to the size of the place.

2. *Administration, or Board of Health, Work.*—The scope covered by administrative action is large. It is essentially twofold. The primary intention is to keep disease from entering a community. When this effort fails, the next purpose is to detect the presence of the infection and to take appropriate action to suppress it.

The essence of this kind of work lies in three procedures: (a) the collection of data which, when properly interpreted, point to the existence of conditions that need attention; (b) the investigation of conditions to which attention is drawn, and (c) the application of the detailed measures of suppression that are necessary.

Under the head of administration are to be considered such useful activities of boards of health as the collection of statistical facts in relation to population, sickness and death; the supervision of foods and drugs; the regulation of quarantine; the performance of vaccination and inoculation; the distribution of serums and the education of the public through bulletins, lectures, reports and other methods of publicity.

In controlling disease, boards of health have the advantage of a broad range of action and an authority

that is granted to few departments of government. The powers of boards of health are equal to those of the police, of which they are, in fact, a part. No lack of authority exists, therefore, for the enforcement of any measures that may be necessary.

The chief disadvantage of board of health work lies in the fact that to be effective it must be skilful. It seems difficult for the public to understand this fact. Of all the departments of a city or state, the board of health should be the most free from corrupt or incompetent management. Too often a board of health is looked on as a quasipolitical organization in which persons of less than first class ability are considered fit for even the highest offices.

Boards of health are often embarrassed by a multiplicity of duties that could as well be attended to by other departments of government. Some boards of health are actually loaded down with work of this kind. In view of the fact that boards of health have so much difficulty in securing proper support for the work that they really should attend to, they should confine their efforts as far as practicable to what is essential and within their province. By doing well the things that they must do they can accomplish far more for the public welfare than by attempting so much.

It must not be supposed that boards of health are everywhere of equal efficiency or have the same problems to deal with. Boards of health should everywhere combat disease, but they must do this in different ways in different places. There is a vast amount of difference between the duties of a rural health board in an out-of-the-way district and the work of a city board in a highly congested region. The object to be accomplished in conducting board of health work is to fit the effort to the local circumstances. To do this in the most direct and effective manner possible should be the aim.

The communicable diseases that are usually considered especially amenable to administrative control are the exanthems, malaria and the enteric diseases, and such respiratory affections as tuberculosis and diphtheria.

An important field for administrative health regulation, and one that has only recently been fully appreciated, lies in the prevention of disease connected with industrial occupations. These are of various types and are preventable, whether they are infectious or not, by the employment of the general principles of avoidance, detection and investigation and by application of special procedures suitable to the particular circumstances in which they occur.

3. *Personal Precautions.*—Theoretically, the scope of personal effort for the prevention of disease is very large; as now practiced it is limited. It might be regarded as a branch of administrative work appropriate to boards of health except that its proper development by the ordinary administrative agencies that exist is almost wholly neglected. It would seem better to handle this subject on a bigger, broader and better plan. A suggestion along this line will presently be offered.

Personal precautions are unique in the field of disease prevention in that they possess a double function and a double responsibility. This lies in the circumstance that many diseases cannot be prevented by the exercise of precautions solely on the part of the persons who are in danger of them. In many instances the person who constitutes the danger must himself take the steps that will protect others.

As now practiced, personal precautions are restricted and uncoordinated. Every one exercises certain precautions, consciously or unconsciously. It is instinctive to avoid things that smell bad, that look revolting and that suggest pain or discomfort in any form. Other precautions are a part of the elementary education which every person gets in the school of experience. The efficacy of all of these efforts suffers for want of direction. Things are constantly being done by most persons which expose them unnecessarily to disease, and aggravate their illness when attacked.

#### THE SPECIFIC MEASURES FOR COMBATING DISEASE

The specific measures that are employed for the prevention of disease may be grouped for consideration under the three heads of sanitation, board of health work and personal precautions which we have used in discussing the three great fields of preventive effort. The relative efficacy of each under its appropriate head is indicated by the order in which it is placed in the subjoined list:

##### SANITATION

1. Public water supplies, water purification and the conservation of the sources from which drinking water is derived.
2. Sewerage and sewage disposal.
3. Land drainage for the elimination of stagnant water and mosquitoes.
4. Street cleaning and garbage and waste collection and disposition.

##### BOARD OF HEALTH WORK

1. Isolation of the infectious sick, including quarantine, and the maintenance of special hospitals for contagious diseases.
2. The collection of vital statistics.
3. The preparation and employment of vaccines and serums.
4. The supervision of food and dairy products.
5. The sanitary inspection of dwelling places, industrial works and recreation.
6. The regulation of plumbing.
7. The supervision of dangerous trades and occupations.

##### PERSONAL PRECAUTIONS

1. The avoidance of the presence of the infectious sick.
2. The proper disposal of bodily wastes.
3. Vaccination and inoculation.
4. Discrimination against obviously dangerous foods, drugs and beverages.
5. Avoidance of chill, excessive fatigue and other conditions believed to predispose to, or aggravate, disease.
6. Cleanliness.

When all these procedures are examined critically, we are startled by the fact that so few of them seem indispensable. Of the seventeen specifications there is hardly one which could not be dispensed with, in any city or town, without the least danger of precipitating an epidemic. Many could be omitted indefinitely without producing any visible effect on the death rate.

This leads us to perceive that in cities the effectiveness of measures for the prevention of disease depends not on one thing, or a few things, but on many things. The comparatively low death rates of urban as compared with rural communities is largely the result of circumstances that directly and indirectly make it difficult for infectious matter to pass from person to person.

When we come to consider our seventeen specifications in relation to rural conditions we are likely to be still further surprised. We find that most of them are not applied. There are millions of people living in rural communities in America to whom all these procedures are unknown. Surprising as it may seem, they

know not sanitation or board of health work or personal precautions nor any of the technical procedures included under these heads. With them infectious diseases run a natural and unrestricted course. It may or may not be due to this fact that, in spite of the crowding, there is less infectious disease of some kinds in the city than there is in the rural districts.

It is worth while to look over the mortality statistics issued by the Bureau of the Census to see what the death rates are in the city and in the rural districts of the United States. About 70 per cent. of the population of this nation is represented in the returns; for the rest the figures are too inaccurate to warrant the government in publishing them. The latest data relate to the year 1916.

For some time the general death rate from all causes has been slightly higher in the cities than in the rural districts. The rate for the cities has varied from about 14.5 to about 15 per thousand population. The rural rate has ranged from 14.0 to 14.6.

Faking ten of the most common infections for comparison, we find that typhoid, influenza and whooping cough are more prevalent in the country than in the city and that pneumonia, tuberculosis, diphtheria, scarlet fever and measles are more common in the city than in the country.

The measles and scarlet fever that have occurred in the American army camps in the war have been explained on the ground that a large proportion of the men were from the country districts and had never had those diseases so that they were consequently susceptible to them. In passing it is rather curious to note that whooping cough, which ordinarily causes as high a death rate as measles or scarlet fever, and is often associated in point of time and place with those diseases, did not gain footing in the army. The age of the men seems to have protected them against it.

It must, therefore, be confessed that the efficacy of the best preventive measures is not great. Excluding water and sewerage works, the collection of statistics, the use of vaccines and serums, and such personal precautions as the proper disposal of bodily wastes and the isolation of patients ill of contagious diseases, there are no technical procedures that are known to have much specific value in preventing disease in civil life. It is curious to see how useless many of them are. It is still more curious to see how we cling to measures whose uselessness is perfectly apparent.

#### II. LESSONS TAUGHT BY THE WAR AS TO THE CONTROL OF DISEASE

Curiosity will naturally be felt as to the lessons taught by the war. In some quarters it is supposed that the experience that the mobilization of our army has offered has thrown much new light on the possibilities of controlling disease. This is not the fact. The light that this experience has thrown has not so much resolved new facts as it has made some old facts more plain. The war has proved most useful as a teacher of the fundamental principles of disease control.

It has shown more clearly than ever that it is persons and not things that are to be feared; that danger lies in short, direct and often obvious channels of infection rather than in long, roundabout and mysterious ones.

The importance of early and accurate diagnoses for the purpose of detecting the sources of the infective

virus has received much attention. The war has demonstrated the need of searching out these sources rather than waiting for them to come to light later on. Formerly, in civil life, if a child was sick it was kept at home, more or less separated from its fellows, until its disease unmistakably manifested itself. In the army the men, whether apparently sick or well, were stripped and inspected periodically for the earliest possible evidence of infection. If they had knowingly been exposed to certain diseases and did not acknowledge it, they were subjected to court martial. By this procedure, many cases were detected in their incipency and others of a mild character that would have escaped detection through their whole course were discovered. The prevention of infection thus accomplished was probably considerable.

The value of isolation was abundantly proved. This, of course, is the most perfect means of keeping disease from spreading that has ever been invented. It is the basis of a great variety of practical procedures such as quarantine. The use of masks and cubicles afford applications of the same principle. The difficulty with isolation always has been in making it effective without too greatly interfering with the person's normal activities. Nowhere have better opportunities to observe the advantages and disadvantages of isolation been afforded than in this war.

Nothing new of importance has come to light in regard to disinfection as applied to the environment. Disinfection, except in special circumstances, had been practically given up in the army before America went into the war, and nothing that has been found out since has led to a return of this old-fashioned procedure. It is to be understood, of course, that the disinfection of water supplies does not come within the scope of this remark. Oiling of floors to keep down dust and the wiping of walls, the airing and sunning of bedding and similar measures are not disinfection, as that term is ordinarily employed.

Great emphasis has rightly been placed on indirect measures of prevention. Such simple and well tried measures as ventilation and cleanliness were among the most valuable steps taken to prevent disease in the American army. The American soldier stood for cleanliness. It is probably not too much to say that an army was never mobilized in more clean and orderly camps and never took the field with higher standards of personal cleanness than did the American troops in this war.

The war has demonstrated the great value that attaches to focused attacks on disease. This was illustrated in two entirely different groups of infections, the typhoid group and the venereal group. The lines of attack on typhoid were sanitation and preventive inoculation. The result was that typhoid, notoriously a disease of camps, was practically unknown in the American cantonments where these procedures were carried out. Every city and community should learn the lesson that this experience teaches. In seeking to eliminate typhoid fever, the last of the filth diseases, sanitation, inoculation and personal precautions should all be insisted on.

Nothing that the army did was more profitable than its efforts to teach the soldier how to take care of himself. The war taught no greater lesson in any direction. It was found that the men could learn and did learn. The increasing resistance of the individual was not simply the result of a hardening process. It was partly

the result of the shrewd application of a thousand small precautions that the experienced soldier knows.

We have spoken of the useful lessons that the war has taught. Let us look on the failures. The war has shown the hopelessness of efforts conducted along ordinary lines in the fight against respiratory infections. Little was done successfully in handling this group of diseases in the camps. A great lesson has been learned as to what it is useless to do. The war has taught us the need of attacking this subject in a manner different from anything heretofore undertaken—in a manner commensurate with its vast importance. It is time civilization stopped temporizing with the respiratory infections and undertook to put their management on a satisfactory basis.

The army has done a great work in combating epidemic diseases even if this work has not always been as successful as idealists would have had it. Briefly, it has taught that the time to study the management of infections is before the pressing necessity for this knowledge occurs. It has taught that disease must be looked for and not waited for; that the existence of infection is usually proof of neglect in some direction or other; that disease is really a reflection on common sense; that responsibility for it is not only a matter for communities to give attention to, but it is for the individual person to learn about and to avoid. In teaching personal responsibility, ground has been prepared for substantial improvement throughout the whole range of preventive effort. It is a part of the large significance which attaches to this subject that the lessons of the army are not only to be useful to armies in the future, but rightly they are the property of, and will be appropriated by, the world in times of peace.

THE GREATEST NEED IN HEALTH WORK

There is a great field, quite uncultivated as yet, for the competent instruction of the public in measures for the prevention of disease. Everybody should know how to do his part in avoiding infection. Infectious diseases do not monopolize the list; other forms of illness that are within the range of personal control are comprised in the category. When illness is disposed of, the promotion of an ever greater share of health affords a goal toward which every one should be taught to strive intelligently.

How to live and work and enjoy the greatest share of health should be taken out of the realm of uninformed guesswork where now it exists and set before the public on a substantial basis of scientific fact and authoritative opinion. This cannot be done at once. It cannot be done with the agencies or resources now available. There is much to be learned in respect to the laws of health and collective and individual precautions. The course to pursue is clear. There should be study, enunciation, and propaganda of sound principles.

Who is to teach this doctrine and put disease control on a sound basis of efficiency? The national government can help, if it is properly equipped and can secure the necessary support; schools of hygiene and the insurance companies can help; and great associations like the American Medical Association; and humanitarian foundations; and industrial physicians; and individual persons. But what is needed above all is leadership. This should come from competent professors in our medical schools and universities. The university should be the fountain head of knowledge

From here, as from a focus, competent instruction should radiate.

Reviewing the whole subject of the efficacy of existing measures for the prevention of disease, we may say, without fear of successful contradiction, that the respiratory infections which terminate in pneumonia are the ones that need most attention, and that need and opportunity both joint to well instructed, individual effort as the means most likely to prove effective against them.

There should be a well organized, nation-wide effort to develop the field of personal precautions. There should be a campaign to teach men and women and children what they should do to protect themselves and their neighbors against infection. The interest in personal precautions that has been aroused by the campaign against venereal disease has well prepared the public to take up further health instruction.

Responsibility for the teaching that is required belongs primarily to our professional educators. The administrative authorities in our educational institutions whose business it is to select and support capable teachers should see to it that well trained and experienced persons are placed where their efforts will count. Every university and medical school in the United States should have a chair of hygiene.

A CLINICAL STUDY ON THE USE OF CALOMEL INUNCTIONS\*

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Since the earliest times, mercury inunction has been used for the treatment of syphilis. The drug, however, has always been employed in the form of an ointment of the metallic mercury. Recently Wile and Elliott<sup>1</sup> and Schanberg, Kolmer, Raiziss and Gavron<sup>2</sup> have suggested the use of an ointment made of calomel; this, for several reasons: The blue ointment is very uncleanly; it leads to discovery, and it frequently sets up an irritation of the skin. As calomel is more cleanly, and as the latter four authors felt that it is fully as well absorbed through the skin as the ordinary blue ointment, they suggested that it be used for inunction purposes in a formula consisting of:

	Gm.	
Hydrargyri chloridi mitis . . . . .	3	gr. xlv
Lanolini . . . . .	1	gr. xv
Adipis benzomati . . . . .	2	gr. xxx

The arguments of these writers seemed convincing, and we commenced using calomel inunctions, especially in private practice, in the spring of 1917. Since then the use of the calomel rubs has become so extensive that a manufacturing drug house has brought out an ointment of calomel which is a little more pleasant in form than the ordinary preparation, though probably no more efficient.

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<sup>1</sup> From the Department of Dermatology and Syphilis of the Western Reserve University, School of Medicine and of the Cleveland City Hospital.

1. Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, *J. A. M. A.* **68**: 1024 (April) 1917.

2. Schanberg, J. I.; Kolmer, I. A.; Raiziss, G. W., and Gavron, J. L.: Experimental Study of the Mode of Absorption of Mercury When Applied by Inunction, *J. A. M. A.* **70**: 142 (Jan. 19) 1918.

It was only after we had used this for some time that we began to feel more and more that it was not doing what was required of it. In the first place, we noticed, as was later called to our attention by Dr. Forald Sollmann of the Pharmacology Department of the Western Reserve University, that the patients did not get salivated. Moreover, it seemed that many times the patients did not react to treatment as they had formerly, when we were using inunctions of blue ointment instead of calomel, or when using injections of mercury. Therefore, in order to test out the efficacy of the inunction of calomel thoroughly, we commenced a series of experiments, using the fresh, clinical syphilis in our wards in the venereal disease department of the Cleveland City Hospital. We shall report the results of tests carried out in the past year or so in fifty-four cases. This investigation was undertaken at the suggestion of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

Before describing these individual cases, we would say that we have tried to be as unprejudiced as is possible. The cases have been carefully followed; routine Wassermann tests on the blood, *Spirochaeta pallida* examinations and spinal fluid examinations were made in every instance. Moreover, in using the ointments, the patients have always been under the observation of an orderly or of a nurse to see that the inunction was carried out through a space of at least thirty minutes for six nights in each week, with a hot bath on the seventh night, and without other medication. Each patient has used an ordinary potassium chlorate mouth wash, but otherwise the run of teeth has been simply that of the teeth that one finds in any free hospital practice, which is to say, usually very poor.

In nearly all cases we used the 50 per cent. calomel ointment described above and made up by the hospital pharmacist. In the few cases which are noted in the clinical histories we employed a proprietary calomel preparation.

It has often been difficult to keep the patient under the calomel rubs for as long a time as we would desire, especially if the patient did not seem to improve in his own estimation. Again, we have found that frequently the patients would get together and talk over the therapy and advise each other as to their estimation of the therapy being used. To overcome this, and to make the experiments still more objective, we finally gave the patients saline injections into the arm during the course of the calomel rubs, so that they would not know that they were not receiving arsphenamin injections. In this manner we did our best to carry on the inunction treatment as long as possible, with practically every patient.

#### REPORT OF CASES

CASE 1.—G. M., a woman, aged 19, had marked mucous patches on the tonsil and the pillar, condylomas of the vulva and anus and a mixed macular papulosquamous eruption. After thirty-two rubs the patches were still present on the tonsils, though the skin showed some improvement. Rapid improvement followed the use of arsphenamin at this time.

CASE 2.—A. A., a woman, aged 25, had marked condyloma of the anus and a generalized macular eruption. There was no change after eighteen rubs, and the patient demanded arsphenamin.

CASE 3.—G. H., a man, aged 40, had marked patches on the tonsils, an annular syphilitid on the forehead and extensive condylomas. There was no change after eighteen rubs, and because of the patient's insistence he was given treat-

ment with arsphenamin, especially as the spinal fluid cell count had increased from 3 to 50. The patient had very bad pyorrhea, yet showed no gingivitis after thirty rubs.

CASE 4.—E. F., a man, aged 28, had mucous patches on the left pillar and a generalized macular eruption. After eighteen rubs the patches were still present on the pillar, and there was no change in the eruption. Rapid improvement followed treatment with arsphenamin.

CASE 5.—G. L., a woman, aged 21, complaining of headache and rheumatism, had a spinal fluid cell count of 25 and patches on the right soft palate. After twenty-four rubs the patches were much worse in the throat, and the patient was given arsphenamin therapy. Rapid improvement followed.

CASE 6.—W. G., a man, aged 31, had a "veneric" chancre the size of a dime, of three weeks' duration, on the foreskin. During the course of twenty-two rubs, a secondary eruption developed, and large patches appeared on the left tonsil. Rapid improvement followed treatment with arsphenamin.

CASE 7.—N. C., a man, aged 27, had a follicular syphilitid. After twenty rubs, patches appeared on the left tonsil. He rapidly improved after treatment with arsphenamin.

CASE 8.—N. W., a woman, aged 20, colored, had an extensive annular syphilitid over the entire body. The condition became worse after eighteen rubs, and a deep, syphilitic ulcer began on the right tonsil after twenty rubs. Rapid improvement resulted from treatment with arsphenamin. The rubs were continued up to forty with no evidence of stomatitis or gingivitis.

CASE 9.—J. S., a man, aged 28, had a symmetrical papulosquamous syphilitid. There was no change after thirty-one rubs. A rapid improvement followed treatment with arsphenamin.

CASE 10.—D. A., a man, aged 45, had a large gumma in the right inguinal region. A history of syphilis was denied. The spinal fluid count was 108 cells. After thirty rubs the gummatous mass showed no change, but the spinal fluid count dropped to 35 cells. We continued the calomel rubs to forty-three with no stomatitis or gingivitis. The gumma healed quickly on one injection of arsphenamin, showing improvement almost within twenty-four hours.

CASE 11.—E. R., a woman, aged 52, had papulocrustaceous and serpiginous lesions on the right arm. They all disappeared after twenty rubs with calomel. She received thirty rubs with no effect on the teeth.

CASE 12.—E. B., a man, aged 18, had a papulosquamous syphilitid and areas of lichen syphiliticus. After twenty-five rubs, the eruption on the body was fairly well cleared up, but patches in the throat and on the lips were much more severe. Rapid improvement followed treatment with arsphenamin.

CASE 13.—J. B., a man, aged 29, had marked patches on the tonsils, and macular syphilitis. After nineteen rubs the patches entirely covered the tonsils, though the skin was clear. There was a rapid improvement under arsphenamin treatment. No stomatitis was present after twenty-three rubs.

CASE 14.—A. K., a girl, aged 16, had a chancre on the upper lip and a macular eruption and patches in the throat. There was no change after twelve rubs, and the patient demanded different treatment.

CASE 15.—J. N., a woman, aged 20, had condylomas and also patches on the left anterior pillar, uvula and soft palate. There was no change after twelve rubs, when the patient escaped from the hospital.

CASE 16.—W. E., a girl, aged 16, had condylomas of the vulva and patches on the left tonsil. After twenty-one rubs the tonsils were still covered with patches, when the patient escaped from the hospital.

CASE 17.—J. H., a man, aged 25, had patches in the mouth and the throat, condylomas of the anus, and fissures at the corners of the mouth. After nineteen rubs the oral fissures became condylomatous, with no evidence of gingivitis. There was a rapid improvement after arsphenamin treatment.

CASE 18.—T. S., a man, aged 28, had mucous patches on both tonsils, the soft palate, and inside of the left cheek; and a faint, macular syphilitis. After twenty-four rubs the

patches were worse, though there was no gingivitis in the mouth. The patient complained severely of rheumatic pains, and of the joints. There was a rapid improvement under treatment with arsphenamin.

CASE 19.—C. B., a man, aged 25, had a faint macular eruption and primary lesion in the balanopreputial sulcus. After eighteen rubs the primary lesion showed no change, and the patient had very severe rheumatic pains. The eruption became more marked. There followed a rapid improvement under arsphenamin treatment, with the teeth showing no gingivitis after twenty-five rubs.

CASE 20.—J. S., a man, aged 42, had a large ulcerocrustaceous syphilitic covering the entire abdominal wall. There was a moderate improvement after forty-one rubs, with a miraculous change within forty-eight hours after arsphenamin was given. The teeth showed no gingivitis.

CASE 21.—W. W., a man, aged 21, colored, had patches on both tonsils and an annular syphilitic on the neck, right elbow and buttock. After thirty rubs the lesions in the throat showed no change, and several circinate lesions had appeared on the right elbow. The patient escaped from the hospital at this point.

CASE 22.—A. W., a woman, aged 29, colored, had an annular syphilitic of the face and lips, and around the nose. After eight rubs she developed a marked edema of the skin, followed by desquamation and tenderness. A faint trace of albumin and a few casts appeared in the urine. The condition was diagnosed as calomel dermatitis, and it all cleared up quickly after the calomel rubs were stopped.

CASE 23.—C. S., a woman, aged 24, had patches on the lower lip and lesions on the labia majora. After twenty-six rubs papulosquamous lesions, syphilitic in character, appeared on the arms and neck. There was no change in the patches. Instantaneous results followed the use of arsphenamin.

CASE 24.—R. H., a man, aged 28, had a macular syphilitic on the chest, abdomen and back. After twelve rubs the macular eruption was gone, and the mucous membranes cleared. The patient felt fine after fourteen rubs. After thirty-two rubs an extensive mucous patch began to develop on the right posterior pillar. There was no evidence of gingivitis. The spinal fluid count, on the patient's admission, was 43 cells. After thirty-two rubs there were 38 cells. Bloody fluid was found after the patient had received three injections of arsphenamin. He reacted immediately to treatment with arsphenamin and showed no evidence of hydrargyria after forty-three rubs.

CASE 25.—J. A., a woman, aged 17, had condylomas of the vulva and anus, a faint, macular syphilitic, and patches on both tonsils and pillars. After twenty-four rubs the condylomas were markedly improved, but the patches in the throat were much worse, though they had showed some improvement after twelve rubs. The patient was given arsphenamin, and results were rapid. She took thirty-six rubs, with no evidence of stomatitis.

CASE 26.—R. H., a woman, aged 18, had mucous patches on both tonsils; a flat, papular syphilitic on the face, chin and neck, and a general macular eruption. After eighteen rubs the lesions had all disappeared. The patient developed marked stomatitis and gingivitis after twenty-one rubs. She was then given arsphenamin.

CASE 27.—H. P., a man, aged 28, had mucous patches on the lips, tongue, tonsils, pillars and uvula, and a faint macular eruption. After eighteen rubs the lesions on the lip and tonsils were practically gone, the skin showing a slight desquamation. The patient was then treated with arsphenamin.

CASE 28.—J. D., a man, aged 18, had mucous patches inside the upper lip and over the tonsils, pillars and uvula. After twenty-two rubs the patches on the left corner of the mouth had become almost condyломatous in character; those in the throat remained the same. There was a rapid improvement under treatment with arsphenamin. The patient took thirty-eight rubs, with no evidence of stomatitis or gingivitis.

CASE 29.—W. M., a man, aged 24, had maculopapular syphilitic and condylomas along the sulcus and around the anus. After thirty-four rubs there was no change in the condition. It cleared up rapidly under treatment with arsphenamin. The

patient took fifty-one rubs with no evidence of gingivitis or stomatitis.

CASE 30.—R. M., a man, aged 22, had phimosis with a papular chancre of four weeks' duration. Under treatment with rubs, a papulosquamous syphilitic appeared, and after twenty-three rubs the patient had severe patches in the throat and one on the upper lip. After thirty rubs he began to complain of loss of hearing, which was explained as an extension of the mucous patches and inflammation up the eustachian tubes. After thirty-six rubs the patient was given arsphenamin and rapid improvement followed. No evidence of stomatitis or gingivitis appeared after forty-two rubs.

CASE 31.—A. D., a woman, aged 33, had mucous patches on the tonsil along the edge of the tongue, flat, papular lesions over the labia and general papular syphilitic. The patient immediately salivated after twelve rubs. Patches were still present in the mouth after eighteen rubs, though the lesions on the vulva were somewhat better. She was given arsphenamin at this time because of the teeth.

CASE 32.—J. C., a man, aged 32, had marked phimosis with condylomas in the sulcus back of the glans. Spirochetes were present in the lesions. The patient was much worse after fifteen rubs, and was given treatment with arsphenamin. The lesions showed a marked improvement twenty-four hours later.

CASE 33.—J. L., a woman, aged 26, had mucous patches on both tonsils, the pillars and uvula. After seventeen rubs the lesions in the throat were more extensive, and the patient was given arsphenamin. She took thirty-two of the rubs with no evidence of stomatitis or gingivitis.

CASE 34.—J. C., a man, aged 51, had macular syphilitic. After ten rubs his eruption was fainter. After twenty rubs definite patches began to appear in both tonsils, and he was given arsphenamin. He had thirty rubs with no evidence of gingivitis. The spinal fluid count, on the patient's admission, was 11 cells. After twenty rubs, there were 22 cells in the spinal fluid.

CASE 35.—J. U., a man, aged 55, had extensive mucous patches on the right anterior pillar, on the shaft of the penis, and on the scrotum. Condylomas of the anus were present, and macular syphilitic. After twenty-two rubs, the patches in the throat extended high up on the soft palate, and arsphenamin was ordered. Rapid improvement followed. The patient took thirty-six rubs with no evidence of stomatitis or gingivitis.

CASE 36.—J. R., a man, aged 29, had a macular eruption, extensive mucous patches on both tonsils and on the pillars, and large patches on the under surface of the right side of the tongue. After twenty-one rubs of the proprietary, the lesions on the tongue had become an ulcer, and the patient developed severe headache. He was given arsphenamin, and all symptoms cleared up rapidly. He received twenty-six rubs with no evidence of stomatitis or gingivitis. On the patient's admission, the spinal fluid cell count was 1. After twenty-one rubs, the fluid was bloody.

CASE 37.—J. J., a woman, aged 25, had a fine military syphilitic. After twenty-four rubs, the rash was fading. After thirty-seven rubs, a follicular syphilitic appeared on the face and forehead, and a definite mucous patch on the tonsil. The patient was given arsphenamin, and there was a rapid improvement. She took fifty rubs with no evidence of gingivitis or stomatitis. The spinal fluid cell count, on her admission, was 3. After thirty-seven rubs, there were 27 cells in the spinal fluid. The count dropped to 3 after four injections of arsphenamin. In this case the proprietary preparation was not used.

CASE 38.—L. G., a man, aged 45, had an extensive ulcerocrustaceous syphilitic on both legs. After twenty-three rubs of the proprietary preparation, the lesions on the thigh had improved 50 per cent., and the patient had a slight gingivitis in conjunction with an old, extensive pyorrhea. At this time he developed gangrene on his leg. Operation was refused and the patient died.

CASE 39.—Peter H., a man, aged 26, had a generalized maculopapular eruption, with patches in the mouth and on the genitalia. After ten rubs with the calomel, the lesions on

the genitalia had disappeared, and the eruption was entirely gone after the patient had taken eighteen rubs. The tonsils were still large and swollen, however, and a new mucous patch appeared on the right tonsil. There was no salivation. The patient was given the diarsenol brand of arsphenamin.

CASE 40.—M. S., a woman, aged 32, had a chancre of the lip, a generalized maculopapular and pustular eruption, iritis of the right eye, patches on the soft palate, and enlarged and indurated tonsils. After ten rubs, there was a slight fading of the eruption. After eighteen rubs, the eruption of the face was clearing up, and there was some fading of the eruption on the body. After thirty five rubs of the proprietary, the patient developed some new lesions on the right side of the lower lip. There was no improvement in the eye condition until she was given arsphenamin and mercury injections.

CASE 41.—M. P., a woman, aged 26, had a chancre of the lip and mucous patches inside of the left cheek and over the soft palate. After twelve rubs, the lesions cleared up. This patient was not observed further, but was given arsphenamin at once.

CASE 42.—M. M., a woman, aged 32, had a primary lesion of the left labium majus, with marked edema of the parts, and headache and rheumatism. There was practically no reaction to thirty rubs with calomel ointment, but a rapid improvement under arsphenamin treatment.

CASE 43.—C. G., a man, aged 28, had extensive patches in the mouth and over the scrotum. The spinal fluid count was 20 cells. After nineteen rubs, the lesions in the throat and over the scrotum were practically gone. The patient had a slight salivation. He was given the diarsenol brand of arsphenamin and discharged.

CASE 44.—J. F., a man, aged 28, had a history of chancre given months before. There were no physical signs of syphilis except headaches and a +++ Wassermann reaction. After seven rubs with calomel, the patient was severely salivated.

CASE 45.—J. P., a man, aged 22, had a lesion of the glans of two weeks' duration. Spirochetes were present in large numbers with dark field illumination. The lesion was unchanged after twenty-three rubs, and the patient was given arsphenamin.

CASE 46.—Grace M., a woman, aged 21, had a maculopapular eruption and extensive patches in the mouth. After fifteen rubs the eruption had practically disappeared, but the mucous patches in the throat showed no change, and the patient complained of dizziness and severe headaches. She received a buccal puncture. Rubs of 50 per cent. unguentum hydrargyri were given and, after ten of them, all symptoms and lesions disappeared. She was then given arsphenamin and discharged.

CASE 47.—R. C., a woman, aged 21, colored, had condylomas of the vulva and an annular syphilitic of the face and neck. The lesions had practically cleared up after sixteen of the proprietary rubs, but, beginning with the twenty-third daily rub, some mucous patches appeared in the throat which lasted until she had had forty-one rubs. The patient then received the diarsenol brand of arsphenamin, and the patches cleared up rapidly. There was no salivation.

CASE 48.—N. B., a woman, aged 23, had a diffuse maculopapular eruption which entirely disappeared after twenty-five rubs. After thirty-two of them, a heavy trace of albumin and casts appeared in the urine. The skin was entirely clear.

CASE 49.—A. G., a woman, aged 24, had a generalized maculopapular eruption, and patches in the mouth. After twenty-three rubs, the mucous membranes and skin were clear, and the treatment was continued until thirty-two rubs had been given. There were no further symptoms.

CASE 50.—L. W., a man, aged 28, had a lesion of the glans of two weeks' duration. There was no reaction to twenty-eight of the calomel inunctions. The lesion cleared up quickly under treatment with arsphenamin. A Wassermann reaction was ++++.

CASE 51.—S. S., a man, aged 31, had a lesion of the glans and prepuce of three weeks' duration, occurring four weeks

after intercourse. Spirochetes were present in large numbers. The patient took thirty-eight rubs of calomel with no change in the lesion. It cleared up immediately after the use of arsphenamin.

CASE 52.—M. S., a man, aged 23, had a marked papulopustular syphilitic on the head, face, neck, trunk and arms, and patches on the left tonsil. After thirteen rubs with calomel ointment, the patient demanded arsphenamin. All the lesions cleared quickly.

CASE 53.—N. N., a man, aged 36, had a periurethral chancre of two weeks' duration, and spirochetes were present in large numbers. After ten rubs with 50 per cent. calomel ointment the patient showed no improvement and demanded arsphenamin. The lesion healed at once.

CASE 54.—F. N., a man, aged 33, had a generalized maculopapular eruption, with a patch on the left tonsil and a mucous patch on the genitalia. There was no change after thirteen rubs with 50 per cent. calomel ointment, and the patient refused further therapy and was given arsphenamin.

#### ANALYSIS OF RESULTS

An analysis of the foregoing results shows several things: In the first place, we note among these fifty-four cases that nineteen times (35 per cent.) the lesions, especially those on the mucous membranes, became much worse; five times (9 per cent.) they grew worse; sixteen times (29.5 per cent.) there was no change; five times (9 per cent.) there was a slight improvement; three times (5 per cent.) they were quite markedly improved, and three times (5 per cent.) the patients' symptoms disappeared entirely. In other words, there is a great preponderance of instances in which the patients got much worse under therapy, and this despite the fact that over forty rubs to a patient were used eight times (15 per cent.), that twelve times (22 per cent.) between thirty and forty rubs were used, and that thirteen times (24 per cent.) between twenty and thirty were used.

We had hoped to keep all the patients under treatment by calomel inunctions until from forty to fifty rubs had been given. This was impossible, however, as we have explained, for many times the patients refused further therapy, and in many instances they kept getting so much worse that strenuous measures had to be used to check the course of the disease. It will be noted from the reports that there was practically never any improvement in primary lesions when inunctions were used.

It is interesting to note that in one of the cases, after six rubs, a generalized exfoliating dermatitis developed as a result of the calomel inunctions, with a complicating acute nephritis and edema of the entire skin. These lesions all disappeared rapidly after discontinuing the use of the drug.

The lack of salivation is in striking contrast to results after the use of unguentum hydrargyri. It is difficult, if the patient is using unguentum hydrargyri properly, to give him more than eighteen or twenty rubs without marked symptoms of gingivitis and salivation. But in our fifty-four cases in which calomel inunctions were used, this was present in only three (1.5 per cent.) cases. In one patient there was a slight salivation after eighteen inunctions. In another there was a moderate salivation after nineteen inunctions, and one patient with a bad pyorrhea had a marked salivation after seven inunctions. Salivation was entirely absent in twenty-nine patients (53.5 per cent.) who used from twenty to forty rubs. We wish to call attention particularly to this point, and we agree with Dr. Sollmann that this striking lack of sali-

vation after the use of calomel inunctions means a very low grade of mercury absorption.

We are quite sure that if any one will carefully follow a series of cases such as our own, checking them up carefully from day to day, he will come to the same conclusions. Calomel inunctions, though cleanly and pleasant for the patient, do not compare in efficacy with inunctions of unguentum hydrargyri.

CONCLUSIONS

Observations on a series of fifty-four patients treated intensively with calomel rubs show that:

1. Calomel inunctions are almost totally inefficient against primary and secondary syphilis.
2. Calomel inunctions very rarely produce salivation or gingivitis. This means poor absorption of the mercury and explains this clinical inefficiency.
3. Calomel rubs may occasionally produce a dermatitis.

These results have led us to abandon calomel inunctions, and we would strongly advise against their further use in the treatment of syphilis.

ABSTRACT OF DISCUSSION

DR. JAY FRANK SCHAMBERG, Philadelphia: I have been greatly interested in this valuable and practical contribution to the therapy of syphilis with particular reference to inunctions. It is obvious that the patients who received the calomel inunctions did not absorb enough mercury in the blood. There is no essential difference in the effect of different mercurial preparations. With the mercurials now in use it makes little difference whether an inorganic or an organic compound is used, the question is how much mercury reaches the blood stream. Gray oil has been used for years for intramuscular injections. The French preferred calomel. If syphilitic manifestations failed to yield to calomel injections, it was felt that no mercurial treatment would accomplish the result. Before the days of arsphenamin, calomel injections constituted the "dernier ressort." From the therapeutic failures narrated by Dr. Cole, it is evident that not sufficient calomel reached the blood. It is therefore pertinent to inquire the reason for this. A certain school of physicians in Europe has long held the belief that the effect of mercurial inunctions was largely due to volatilization of the mercury and absorption through the lungs. In order to determine the truth of this thesis, Drs. Kolmer, Raiziss and myself carried out a very thorough series of experiments on rabbits in a specially contrived box apparatus. We caused one series of rabbits to be rubbed, and another to breathe a mercury laden atmosphere. While some mercury was absorbed into the lungs, the evidence in favor of cutaneous absorption as the dominant channel of entrance was convincing. In this article we called attention to the fact that blue ointment was more volatile than calomel. In order to administer calomel ointment and blue ointment in parallel doses, a larger amount of the former would have to be used, inasmuch as calomel contains only 85 per cent. of mercury. Furthermore, the lesser volatility would also require a further increase of the calomel content as compared with an ointment of metallic mercury. Dr. Cole's conclusion as to the therapeutic superiority of mercurial ointment over calomel ointment appears to be thoroughly justified by his careful observations. In view of this and of the fact that his patients were not salivated by the calomel ointment, it is evident that not enough calomel reached the circulating lymph and blood stream. In view of the disadvantage of the dirty blue ointment as compared with the cleanly calomel ointment, it would be worth while trying calomel ointment in considerably larger dosage, say (A) grains of calomel to an inunction.

DR. JOSEPH ZEISLER, Chicago: I consider this paper of value because it will help to destroy a fad that has come into use, for I consider the use of calomel rubs nothing but

a fad. The remarks of Dr. Schamberg might be misleading when it comes to the question of intramuscular injections. There, of course, we deal with an entirely different proposition. There is no question that intramuscular injections properly done are very valuable, but in the case of inunctions we deal with an entirely different proposition. The value of inunctions with blue ointment need not be discussed. That is a historical fact that amounts to absolute knowledge but in the case of calomel inunctions the technical conditions are entirely different. I would remind you of the old calomel vaporizations, where efficiency on localized lesions was quite manifest, but in that case it was vaporized by heat. In the ordinary calomel inunction there is no chance for vaporization. While I have never used calomel rubs Dr. Cole's experience will only confirm my previous belief.

DR. HARRY G. IRVINE, Minneapolis: Dr. Cole's observations are very timely. Many of us hoped that this would give us something clean that could be used in place of the blue ointment. I should like to comment about one particular point, however. I think that every man who has treated a large amount of syphilis will remember back in the old days quite a large number of cases such as Dr. Cole mentioned. Many of his patients had mucous membrane lesions. In the old days, before arsphenamin came into use, there was great difficulty in clearing up these mucous membrane cases with any form of mercury. I would suggest that in order to come to a conclusion Dr. Cole should change to some other form of mercury rather than change to arsphenamin. It would have been very interesting if he had tried the blue ointment in some of these cases to see if there was any difference in the agents rather than change to the arsphenamin injections. This would have given us an idea of the relative values of the two preparations.

DR. RICHARD L. SUTTON, Kansas City, Mo.: We frequently experience considerable difficulty in clearing up lesions of the mucous membranes with mercury. With regard to the relative value of ointments, and particularly blue ointment and preparations containing calomel, I have had a good deal of experience with the mixtures recommended by Schamberg and his associates and suggested by Wise and Elliott, and I do not believe that Dr. Cole has run up his dosage high enough. Another point to bear in mind is that the application should be placed on a moist, warm surface, such as the soles of the feet or the axillae. By doing this, the vaporized mercury gets into the circulation almost as quickly as when administered hypodermically. I believe the amount of calomel ointment should be increased until the physiologic action is secured, even though four or five drams of the ointment are required each day.

DR. HENRY H. HAZEN, Washington, D. C.: I do not see why we should make such a furor about inunctions. In the dispensary cases none of the patients will rub in the mercury satisfactorily. In private practice, certainly among the men, no proportion of them can be trusted to rub in inunctions. The women will sometimes use them because they do not like to have injections. In a large percentage of cases in private practice and in all the dispensary cases we cannot trust to inunctions. The patients will not so do it, no matter what drug is used, as to get any real value out of it.

DR. HAROLD N. COLE, Cleveland: I write to Dr. Schamberg and received a letter suggesting that we use larger amounts and we had started that. We have used 4 gm. of calomel in the inunctions in quite a large number of cases where we are still continuing the experiments. One patient has had sixty rubs of 4 gm. each and another has had thirty-six rubs of 4 gm. each and they developed an acute syphilitic iritis within thirty-six hours. It was the most striking thing I ever saw in the way of an acute syphilitic iritis. In my experience any amount of the calomel is useless as an inunction. In a few cases there seemed to be a certain amount of absorption and that explained why they seemed to get better results. In two or three cases we carried them on to a certain point and then changed over to unguentum hydrargyri and then saw results within a very few days. I think there is no comparison whatever between calomel and mercury rubs.

FIELD EXPERIMENTS IN MALARIA CONTROL\*

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Malaria is recognized as one of the most serious of the disabling diseases of man. It is estimated that in India alone it causes on the average each year about 1,130,000 deaths and more than 100,000,000 cases of illness. The economic losses resulting from it are incalculable. The failure of the early Panama Canal project and the difficulties encountered in building the Madeira Railroad are only spectacular examples of what it is doing continuously and on an enormous scale to hinder industrial enterprise. On farming populations its burden falls with peculiar emphasis. Many of the richest agricultural lands in warm climates cannot be developed until the infection in these regions has been brought under control. The direct annual cost of the sickness and death that it produces in India alone is estimated at about \$284,000,000; and this does not take into consideration the vastly greater losses due to the impaired productive power of labor.

More serious still are its effects in retarding the development of individuals and communities. Like hookworm, the malaria plasmodium is an anemia-producing parasite. It saps the life of its victims by destroying their blood. The disease is most prevalent among children under 15 years of age, and therefore preys on the vitality of the race during the important period of physical and mental growth. Its effects, moreover, are cumulative. They are handed on from one generation to the next, and

become to the community an increasing handicap in all things that make for social development. And these results are widespread. Malaria in mild form is almost world-wide in distribution, and in its malignant form belts the globe in a broad zone including tropical and semitropical regions. Of the 1,600,000,000 inhabitants of the earth, more than half live in countries in which the infection is prevalent and constitutes a serious menace to life and health and working efficiency.

And these conditions prevail in spite of the fact that malaria is a controllable disease. It is twenty years since the discovery by Ross, confirmed and extended by the Italian scientists and others, definitely established the life cycle of the malaria parasite and thus gave us the facts on which to base an intelligent program of control. It is well understood, not only by scientists but also by intelligent laymen, that the spread of the infection may be prevented by mosquito control, by protecting people from being bitten by mosquitoes, or by destroying the parasite in the blood of the human carrier. It has been shown, moreover, by repeated demonstrations that by application of any one of these measures or of any combination of them the amount of malaria in a community may be reduced indefinitely. There are few diseases that present so many vulnerable points of attack and none perhaps the control of which may be made more definite or certain. Still the infection persists. And still we refer to it as the chief obstacle to the development of civilization in the tropics. Comparatively little has been done during these twenty years to bring into general operation the practical measures for which the scientific basis has been so well laid.

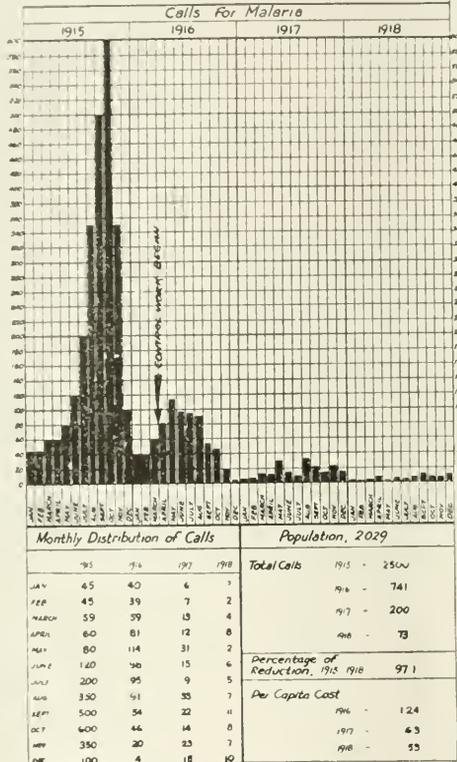


Fig. 2. Record of malaria control by antimosquito measures, Crosssett, Ark., 1916-1918.

\* The field tests here reported under the head of malaria control in Crosssett, Arkansas, by screening and by immunizing quinin marts carried out in cooperation with the U. S. Public Health Service and the Arkansas Department of Health, Dr. H. A. Taylor having in charge the antimosquito work and Dr. T. D. Haas of the University of Arkansas in charge of the quinin tests. The experiment in malaria control, sterilizing the human carriers was conducted under the general supervision of the Mississippi Department of Health and under the scientific direction of Dr. C. C. Bass of Tulane Medical School. In the preparation of this paper, earlier reports, particularly the Fourth Annual Report of the International Health Board and Bulletin No. 83 of the U. S. Public Health Service, have been drawn on freely.

\* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of certain maps. It will appear in full in the author's reprints.

THE ITEM OF COST AS A DISCOURAGING FACTOR

Nothing has done more to discourage the general application of antimalaria measures than the item of cost. Many of the early demonstrations that attracted wide attention were relatively expensive. Watson's brilliant results in the Federated Malay States, 1901 to 1905, were accomplished at a cost of \$50 per acre treated at Klang and \$250 per acre at Port Swettenham. More recently, large areas have been treated on rubber estates near Klang at a cost of from \$25 to \$30 per acre. The cost of operations in the Canal Zone—our most conspicuous demonstration in malaria control—was on the average for a period of five years about

\$365,000 annually. With an average population of about 100,000 for the area treated, this represents an annual per capita cost of \$3.65. Controlling mosquitoes at from \$25 to \$30 per acre is a sound business investment on rubber estates that pay more than 100 per cent. in annual dividends and in a region in which the death rate among the coolies on unprotected estates runs as high at times as 176 per thousand. Such expenditures, however, are practical only under exceptional conditions. As a necessary part of digging the canal, the cost of sanitary operations on the Zone is negligible; but as a part of normal public health work such measures are feasible only in limited areas in which there is a dense population to support them.

More recent demonstrations indicate that malaria control may be brought within reach of the average community. It was with a view to contributing, if possible, to this end that the series of field experiments here to be reported were undertaken. In these experiments it has been assumed that if communities are to be induced to undertake the work they must be shown that the investment pays, and that it can be carried out within limits of expenditure that they can afford. It has been assumed also that no single measure can be made universally applicable; that the effective program in malaria control will comprehend the free employment of all means that are known to be serviceable, and will place emphasis at any particular time and place on that measure or combination of measures that under the given conditions will accomplish the result with least expenditure. It is assumed, furthermore, that the successful operation of a program of this character will presuppose, on the part of

the person administering it, definite understanding of the conditions under which the work is to be done and of the possibilities and limitations of each of the measures that he is to employ. No attempt has been made, therefore, in these first experiments to put into operation a full program of malaria control, but rather to try out the possibilities of some of the more important elements that would enter into such a program. Thus far, four types of field experiments have been undertaken for the purpose of ascertaining as far as practicable the degree of efficiency under given conditions and the cost of malaria control by antimosquito measures, by the screening of houses, by administration of immunizing quinin and by direct attack on the parasite in the blood of the human carrier.

I. CONTROL BY ANTIMOSQUITO MEASURES

That malaria may be successfully controlled by antimosquito measures alone, and that this procedure is economically feasible for cities and large towns, is well understood. The early demonstrations at Ismailia in Egypt, a town of 10,000 inhabitants, where complete control was effected at a cost of \$1 per capita initial expenditure and about 40 cents per capita for annual upkeep, and at Port Saïd, a city of 100,000 population, where satisfactory control was maintained at a cost of about 10 cents per capita, are examples of what has been done and is being repeated in many localities representing a great variety of conditions. In the experiments here reported, effort has been made to test the feasibility of malaria control in small commu-

nities by resort to such simple antimosquito measures as would fall within the limits of expenditure that such communities might well afford. The habits of the three mosquitoes—*A. quadrimaculatus* Say, *A. punctipennis* Say, and *A. cruzians* Wiedermann—which are responsible for the infection in these communities have been made the subject of constant study with a view to eliminating all unnecessary effort and thereby reducing cost.

*Experiment at Crossett, 1916.*—The first of these tests was undertaken at Crossett, a lumber town of 2,129 inhabitants, situated in Ashley County in southeastern Arkansas, about 12 miles north of the Louisiana line. Crossett lies at the edge of the so-called "uplands," in a level, low-lying region (elevation 165 feet), with sufficient undulation to provide reasonably good natural drainage. Climatic conditions and abundant breeding places favor the propagation of anoph-  
cles. Malaria in its severe

form is widely prevalent as an endemic infection, and according to the estimate of local physicians is the cause of about 60 per cent. of all illness throughout the region. Within the town itself the malaria rate was high and was recognized by the lumber corporation and the people as a serious menace to health and working efficiency.

The initial step in the experiment was a survey of the community to determine the malaria incidence, to ascertain the species of mosquitoes responsible for the spread of the infection, and to locate the breeding places of these mosquitoes. Breeding places were exhibited on a community map (Fig. 1), and organized effort was centered on their destruction or control. The program of simple measures excluded all major

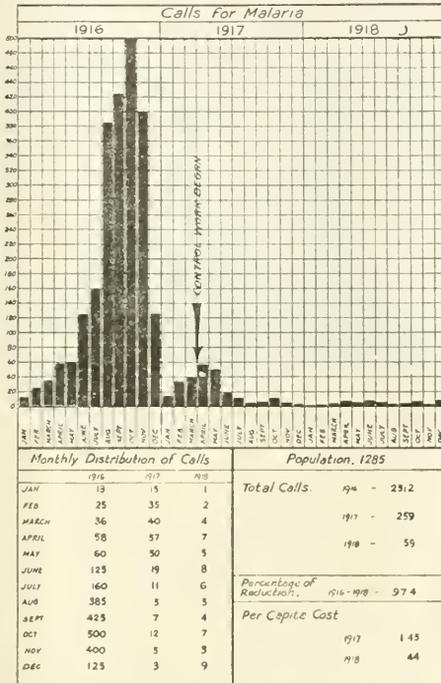


Fig. 4. Record of malaria control by antimosquito measures, Hamburg, Ark., 1917-1918.

drainage. Borrow pits and shallow ponds were filled or drained; streams were cleared of undergrowth when necessary to let the sunlight in; their margins and bays were cleared of vegetation and obstructions; and they were trained to a narrow channel, thus providing an unobstructed off-flow. Artificial containers were removed from premises; water barrels on bridges were treated with niter cake. All remaining breeding places were regularly treated by removing vegetation, opening up shallow margins to give free access to small fish, and spraying once a week with road oil by means of automatic drips or a knapsack sprayer. All operations were under the supervision of a trained lay inspector. Care was exercised to eliminate all unnecessary effort and to secure, not the elimination of the last mosquito, but a reasonably high degree of control at a minimum cost.

The first conspicuous result apparent to every person living in the community was the practical elimination of the mosquito as a pest. The reduction in malaria, as shown by a parasite index taken in May, 1916, and again in December of the same year, was 72.33 per cent. The reduction in physicians' calls for malaria in 1916, as compared with the number of calls for the previous year (company's records), was 70.36 per cent. The per capita cost of the work—omitting overhead—was \$1.24 (Fig. 2). During the year the Crossett Lumber Company had repeated these measures at two of its large logging camps with results that were convincing as to the soundness of the investment.

At the end of 1916 the community took over the work, and for two years has maintained it at its own expense and under its own direction. The measures have been continued under the supervision of a trained native lay inspector.

*Results Confirmed at Hamburg (1917).*—After the work at Crossett had been turned over to the community, operations were transferred to the neighboring town of Hamburg with a view to putting the practicability of antimosquito measures to test under somewhat more difficult conditions. Hamburg was not governed and financed by a wealthy corporation. It had no hospital. It depended for medical service on private practitioners who were deriving about 60 per cent. of their income from malaria. The town was less compact, and with only 1,285 inhabitants had a higher malaria rate and more abundant breeding places for mosquitoes (Fig. 3) than had Crossett.

The measures that had stood the test of the previous year at Crossett, with the introduction of certain economies that experience had suggested, were repeated here. Physicians' calls were reduced from 2,312 in 1916 to 259 in 1917, a reduction of 88.8 per cent. For the latter half of the year—July to December, inclusive—there were only forty-three calls for malaria in 1917, as compared with 1,995 calls for the same period the previous year, a reduction of 97.8 per cent. The per capita cost—omitting overhead expenses—was \$1.45.<sup>1</sup>

At the end of the year again the community took over the work, assuming entire responsibility for its continued maintenance and direction. Figure 4 exhibits graphically the results for the two years. As a result of community effort during 1918, the total calls for malaria fell to fifty-nine, and the work was maintained at a per capita cost of 44 cents.

*Demonstration in Four Communities (1918).*—

Taking as a basis the plan of operation that had been tried at Crossett and further developed and confirmed at Hamburg, effort was made during 1918 to carry out a demonstration on a somewhat larger scale and under a variety of conditions. For this purpose four small Arkansas towns were selected. They are rural towns ranging in population from 975 to 3,023. Lake Village, county seat of Chicot County, presented the problem of a level, low-lying area of buckshot soil with 2 miles of lake frontage and an extensive area of shallow swamp in the rear. Dermott, about 20 miles away, also in the flat lands of the Mississippi, presented the peculiarity of having abundant anopheles breeding places throughout the municipal area, owing chiefly to

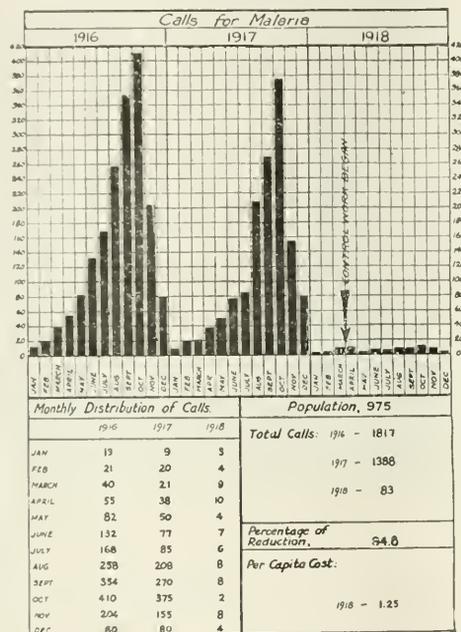


Fig. 9.—Record of malaria control by antimosquito measures, Lake Village, Ark., 1918.

TABLE I. PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, CROSSETT, ARK.

CALLS*		2,029
1915	2,500	7.41
1916	741	2.00
1917	290	0.73
1918	59	0.15
Reduction for the three years		97.1%
PER CAPITA COST		
1916 (omitting overhead)	\$1.24	
1917 (total cost)	.63	
1918 (total cost)	.53	

\*Company's records

Figure 2 exhibits in graphic form the results for the three years.

1. The overhead expenses omitted comprise, in addition to general supervision, expenditures for outside surveys, for blood examinations, etc., which are desirable as affording useful information but are not properly a part of the cost of control operations in the given community. The costs as given include all capital expenditures and the complete local organization necessary to the conduct of the work.

the utter neglect of the most elementary principles of drainage in the grading of two railroads and the streets of the town. Monticello, county seat of Drew County,

TABLE 2.—PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, HAMBURG, ARK.

Population .....	1,385
CALLS	
1916 .....	2,312
1917 .....	259
1918 .....	59
Reduction 1916-1918 .....	97.4%
PER CAPITA COST	
1917 (omitting overhead) .....	\$1.45
1918 (total upkeep) .....	.54

is a typical hill town for which a number of clear streams with adequate fall over a stiff clay soil furnished an abundant supply of anopheles. Bauxite, a rambling mining community of about 2,500 inhabitants, presented the difficulties of a large area to be treated, a heavy sand flow in the beds of its numerous small streams, and extensive hillside seepage areas offering ideal breeding conditions. Figures 5, 6, 7 and 8 exhibit for these communities the breeding places to be treated.

A preliminary survey of each community at different seasons during the previous year made it possible to omit from the working plans much that otherwise would have been waste effort. Each community was presented in advance with an estimate of its malaria prevalence, a chart exhibiting its breeding places, a working plan with budget, and an estimate of what might be expected as a result in degree of malaria control. The community in each case provided the funds required except for general supervision, and agreed to assume entire responsibility for the work after the first year.

The plan of operation followed at Crossett and Hamburg, with improvements suggested by experience

TABLE 3.—PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, LAKE VILLAGE, DERMOTT, MONTICELLO, AND BAUXITE, ARK.

	Lake Village	Dermott	Monticello	Bauxite
Population .....	975	2,700	3,023	2,500
Physicians' calls for malaria:				
1916 .....	1,817	1,399	1,413	862
1917 .....	1,318	1,198	1,274	729
1918 .....	83	152	139	172
Per cent. reduction, 1917-18 .....	94.8	87.8	90.0	76.4
Per capita cost, 1918 .....	\$1.35	1.74	\$0.46	\$1.11

and adaptations to local conditions, was repeated in each of these towns. For the four communities combined, physicians' calls for malaria were reduced from

5,065 (the average for the two previous years) to 554, a reduction of 89.1 per cent. The per capita cost of the entire work, omitting general overhead expenses, was 74 cents. Results and costs by communities are graphically exhibited in Figures 9, 10, 11 and 12.

Comparison of cost of operations with results accomplished in these six towns tends to show that malaria control in such communities, considered merely as a business proposition, pays. At two dollars per physician's call, Crossett has been paying annually more than four and one-half times as much in doctors' bills alone for the privilege of having malaria as it expended in 1918 for the upkeep of the work that kept it practically free from malaria and from the mosquito as a pest. Hamburg's annual doctors' bill for malaria had been eight times the cost of protection in 1918. In the four new communities the annual payment for physicians' calls would cover even the relatively heavy cost of first year operations, almost one-and-a-half times over. And the doctors' bills are but an insignificant fraction of malaria's total cost to the community.

II. CONTROL BY SCREENING

For communities situated above there seems to be little need of resort to other procedures than those directed against mosquitoes. The control of malaria in towns, however—even in small towns—does not reach the heart of the matter. Malaria is essentially a rural disease, bearing most heavily on the people and the industries of the farm. There are large rural areas, moreover, in which, in the light of our present knowledge, the control of mosquito breeding is not practicable. Malaria in these localities, if it is to be controlled at all during the pioneer period of settlement, must be attacked from another angle. It has been shown by demonstration that under conditions that make the cost of mosquito control prohibitive, it is still possible to reduce the malaria rate by the screening of houses, by the systematic administration of immunizing quinin, and by detecting the human carriers and destroying the parasites in their blood.

In order to test the efficiency and the cost of screening as a control measure, a field experiment was conducted in 1916 on a group of cotton plantations near Lake Village, Ark. The community, which lay along the shore of Checot Lake, had an abundant supply of anopheles and a high malaria incidence. The houses on these plantations were typical negro cabins, many of them loosely constructed and therefore difficult to protect against entrance by mosquitoes. All selected

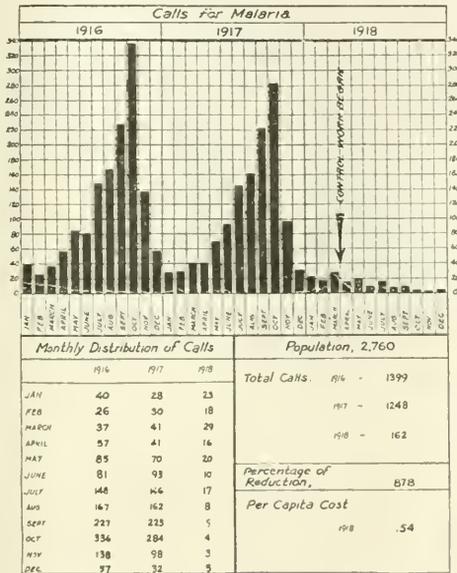


Fig. 13.—Record of malaria control by antimosquito measures, Dermott, Ark., 1918.

houses were screened with galvanized wire cloth, 10 mesh, the work being carefully done by carpenters and having cost to the owners. The people were taught to house-to-house visits the importance of keeping the screens in good condition and the dangers of exposure to mosquitoes on the outside after dark. Each home was inspected at regular intervals throughout the season. No other measure was employed.

The estimate of result was based on parasite index. An index taken in May, 1916, when the work began, showed an infection of 11.97 per cent, a second index taken in the same month of the same year showed an infection of 3.52 per cent, a reduction of 70.9 per cent. Unfortunately the index for May, 1917, which would have afforded a more instructive comparison, is wanting.

On a visit during the season of the following year it was found that the screens were still in good repair and that the people—mainly typical plantation negroes—were convinced of their value. The average cost of screening for the community was \$14.59 per house. Estimating the life of the screens at two years, the average annual cost would be \$7.29. On this basis the annual per capita cost of the screening alone was \$1.75.

#### IX. CONTROL BY ADMINISTERING QUININ

In another plantation community, immunizing quinine was put to similar test. This second community lay along the bank of a sluggish bayou from which it derived its supply of amphibi. Under the direct supervision of the physician in charge, quinine was administered to all persons in the community in doses of 5 grains morning and evening—making 10 grains a day—for two successive days each week. For children under 15 years of age the dosage was reduced to 1 grain for each three years and was administered in the same way. A parasite index taken in May, 1916, at the beginning of the work, and again in the same month of the same year, showed a reduction of 14.47 per cent. A general estimation of the index for May, 1917, can be presented. The per capita cost of the work, counting the overhead expense, was \$7.00.

These tests of malaria control by screening and by the administration of immunizing quinine are to be regarded as preliminary and their results as suggestive only. Generalization may be attempted only when they have been carried out on a much larger scale under a variety of conditions and with a more reliable measure of results.

#### IX. CONTROL BY TREATING THE CARRIERS

Since all infected mosquitoes have derived their infection from the blood of infected persons, it is theoretically possible to prevent the infection of mosquitoes and thereby prevent the spread of malaria in a community by destroying the parasites in the blood of the human carrier. Robert Koch first suggested the possibility of controlling malaria by the treatment of carriers during a visit to Italy in 1878, and in 1900 he demonstrated his theory by a definite reduction of the malarial rate in a small community of 734 persons at Stephansort, German New Guinea. The measure has been rather widely employed in German colonies and with varying degrees of success. Malaria has been reduced, but in no community does the method seem to have been put to an adequate test and with sufficient attention to measure of results and to counting of costs.

*Initial Experiment in Bolivar County, Miss. (1916-1917).*—As a preliminary study, a two-year field experiment, in which more than 30,000 persons were registered, was conducted in Bolivar County, Miss., during 1916 and 1917. The large number of blood examinations confirmed with emphasis the importance of the malaria carrier. Persons who have had clinical attacks are likely to carry the parasites in the blood for months after the clinical symptoms have disappeared. The examinations revealed also that the usual doctor's treatment of malaria, although breaking the chill and sending the patient back to his work, does not, in most cases, sterilize his blood. The results of chill tonics, on which so many people depend, are still less satisfactory. A very large percentage of malaria patients treated by physicians, or by the use of chill tonics, continue for months, after apparent cure, to carry the parasites and to be therefore subject to relapse and a possible source of infection to others. These tests, furthermore, established the fact that 10 grains of quinine a day for eight weeks sterilized the blood of about 90 per cent. of the carriers to whom it was administered.<sup>2</sup>

With this standard course of treatment established, effort was made during 1918 to carry out a test demonstration in malaria control by treating the carriers.

*Test Demonstration in Sunflower County, Miss. (1918).*—For purposes of the demonstration, a typical rural area was selected in Sunflower County, Miss. This area, like the delta region in the heart of which it

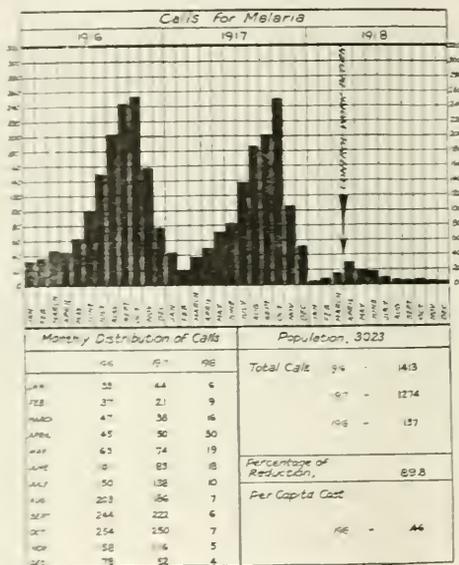


FIG. 10.—Cases of malaria control by antimosquito measures, Mississippi, 1916.

<sup>2</sup> There is reason to believe that this result does not hold for all cases. It seems to be much more difficult, for example, to sterilize the blood of carriers in certain tropical regions.

lies, is level, low-lying, and covered at frequent intervals with a net-and-patchwork of sluggish streams, bayous and swamps. Mosquito breeding is abundant throughout the season, and the cost of its control under present conditions is prohibitive. The area contains about 100 square miles and a population of about 9,000, about 1,000 living in the town of Ruleville and about 8,000 on cotton plantations under typical delta conditions. The blacks outnumber the whites by about four to one. Most of the negroes can read, but as compared with a white population living under similar conditions the grade of intelligence is relatively low. The dominant industry of the region is the growing of cotton, and the life of the community centers in and revolves about the cotton plantation. There are relatively few small farms operated by their owners, the prevailing type being a large plantation operated with negro tenant labor under the supervision of a resident manager.

The disabling disease of the region is malaria. At cotton cultivating and picking time, when labor is in greatest demand and when delay means direct money loss, malaria is most severe. It is estimated that from one third to three fourths of the people on these plantations have one or more attacks of malaria each year, and that 70 per cent. or more of all sickness disability in the community is due to this cause. On one plantation, for example, having a tenant population of about 600, the average annual doctor's bill for the last ten years has been approximately \$4,000. Of this sum about \$3,000, or \$5 per capita, is attributed by the manager to malaria. The loss to the tenant and the landlord in crop returns is much larger. And since the landlord must look to the tenant's crop both for return on his capital investment in land and equipment and for reimbursement for his large current advances to his tenant families, he is most deeply concerned in any condition that impairs the health and efficiency of the workers on his plantation.

The first step in the demonstration was to map the area, locating roads, streams and homes; to take a census of the population, and to make a survey involving a record of each person on the census roll. This survey showed that of the rural population 40 per cent. had had clinical malaria within twelve months, and that of the remaining 60 per cent. who had not had a clinical attack, 22 per cent. had the parasites in their blood. All persons giving a history of clinical malaria within twelve months and those who were found by blood examination to be carrying the parasites were given sterilizing treatment, namely, 10 grains a day for eight

weeks. Effort was made by personal instruction and by repeated house-to-house visits to have the prescribed course of treatment followed to the end. Irregularities occurred and are under such conditions inevitable; but, in general, instructions were followed. In the rural area no other measures were employed.

In the town of Ruleville, malaria control was based in the main on antimosquito measures. Here inspection disclosed the fact that mosquito breeding, which was abundant, was due almost exclusively to running hydrants and leaking pipes supplied by flowing artesian wells. The problem was extremely simple. The enactment of an ordinance followed by the imposition of a number of fines resulted in the destruction of breeding places and the consequent extermination of mosquitoes in the town.

*Results.*—Unfortunately no reliable record of the number of physicians' calls within the area before the work began is available, and the second parasite index will not be taken until next season. The results of the test, so far as they may be estimated in advance of the final report, may be thus summarized:

1. There has been no transmission of malaria within the area before the work began is available, and the town has been free from the mosquito as a pest.

2. The degree of malaria control resulting from the measures carried out in the rural area is estimated by the director in charge at approximately 80 per cent. This estimate is based on the record of malaria histories, intimate observation during the season, informal reports by tenants and plantation managers, and regular monthly reports submitted by physicians.

3. Physicians practicing within the area report a marked decline in malaria cases.

4. Plantation owners and managers operating within the area are of one accord in reporting an obvious decrease in malaria as compared with previous years. One manager, for example, operates a large plantation within the demonstration area and a smaller one outside the area. The plantation under control has a tenant population of about 600, the one not under control about 180. The doctor's bill for the year on the smaller plantation has been greater than on the large one. This difference he attributes altogether to the malaria control on the larger plantation.

5. These reports and estimates were checked by personal inspection on a recent house-to-house visit among tenant families on plantations, and families in a community of small landed proprietors. Of the first ten families visited (Table 4) within the month

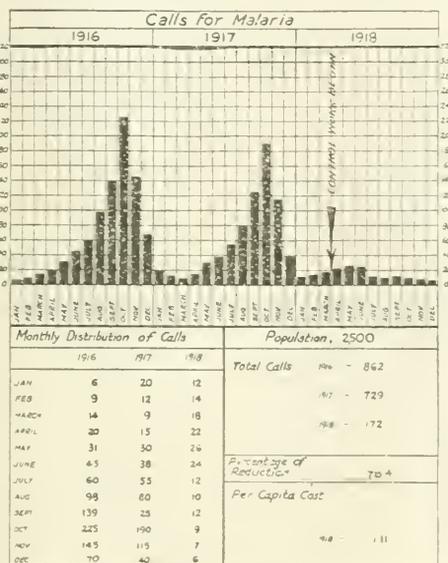


Fig. 12.—Record of malaria control by anti-mosquito measures. Parham, Ark., 1918.

Neighboring counties in Mississippi have asked that the work be extended to them and have indicated a willingness to provide the funds. The demonstration, however, is only begun. It is suggestive, but far from complete. No conclusion will be attempted until the test has been continued over a period of years within the same area, has been tried under a variety of con-

TABLE 4—MALARIA CONTROL ON PLANTATIONS OF SUNFLOWER COUNTY, MISS., 1918. RECORD FOR FIRST TEN FAMILIES VISITED

Order Visit	No. in Family	Positive Malaria History	Negative History but Parasites in Blood	Malaria This Year
1	1	1	0	0
2	6	4	1	0
3	4	0	0	0
4	2	0	0	0
5	8	0	2	0
6	7	1	5	0
7	4	3	0	0
8	4	3	0	0
9	1	1	0	1
10	5	—	—	—
Total	58	32	8	4

Percentage of Reduction ..... 87.5

ditions, and has been submitted to a more definite measure of results.

#### SUMMARY AND CONCLUSIONS

1. For the average town in our Southern states having a thousand or more inhabitants and a reasonably high infection rate, malaria control by antimosquito measures is economically feasible; it is, in fact, a sound business investment.

2. In heavily infected regions, in which the cost of mosquito control would be prohibitive, the amount of malaria may be greatly reduced by resort to screening, to immunizing quinin, or to destroying the parasites in the blood of the human carriers. The indications would seem, in fact, to justify the hope that by the systematic application of these measures the malaria in a community may be held within reasonable bounds, and that this result may be accomplished within limits of cost that the average community may well afford.

3. The people in these communities are prepared to provide the funds by public taxation for malaria control when they have been shown by demonstration that the program proposed will accomplish definite results that justify the expenditure.

4. The results thus far accomplished would seem to justify continuing these field experiments until the

TABLE 5—SUMMARY OF RESULTS OF MALARIA CONTROL DEMONSTRATION IN SUNFLOWER COUNTY, MISS., 1918

Population rural area	8,000
Estimated degree of control	86%
Per capita cost	\$1.08
Per capita cost for Ruleville	\$ .41

principal procedures that have been found useful in controlling malaria have been pretty thoroughly tested separately and thus evaluated. It will then be possible to operate intelligently a combination program in which each control measure will be given its place and will receive varying emphasis from time to time according to the local conditions that have to be met. This freedom in the use of our tools will in turn contribute toward the object that we have in view, namely, the highest degree of malaria control consistent with a reasonably low per capita cost.

## FACTORS INFLUENCING RECOVERY AND RESOLUTION IN LOBAR PNEUMONIA

WITH SPECIAL REFERENCE TO THE CHEMISTRY OF THE PNEUMONIC EXUDATE\*

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Various factors may be operative in the recovery from lobar pneumonia and in the resolution of the fibrinous exudate:

### I. PREVIOUS OBSERVATIONS WITH A BEARING ON RECOVERY AND RESOLUTION

Recovery from lobar pneumonia is at present thought to be due to the elaboration of protective substances during the course of the disease. Through the work of G. and F. Klemperer,<sup>1</sup> Neufeld and Haendel,<sup>2</sup> Dochez<sup>3</sup> and Clough<sup>4</sup> the blood serum from patients at about the time of or after the crisis has been shown by animal experiments to possess protective power against otherwise fatal doses of pneumococci. These protective substances in small amounts are usually present, but at times are not demonstrable at all. The use of both pneumococci and serum from the same patient is important in their recognition.

An advance in the study of the mechanism of recovery is the demonstration by Bull<sup>5</sup> of the importance of agglutinins in the disappearance of pneumococci from the blood, and by Cole<sup>6</sup> of soluble inhibiting substances in the blood with the property of neutralizing pneumococcus antibodies.

It is, of course, possible that the methods at present available for the demonstration of humoral immunity are inadequate and that it is a more potent factor than animal tests indicate. The inconstant presence and small amount of the protective substances, however, suggest that the humoral factors, while important, are, by themselves alone, an insufficient explanation of so striking an incident as the crisis in pneumonia.

In explanation of resolution, it has long been clear that enzymatic action must account for the solution of the exudate. Sørensen<sup>7</sup> called attention to the important relation between H-ion concentration and enzymatic processes in general. Derby's<sup>8</sup> work on the autolysis of animal tissue has been of assistance in suggesting methods applicable to the investigation of enzymatic processes in the pneumonic exudate.

### II. OTHER FACTORS INFLUENCING RECOVERY

The following data suggest that local biochemical changes as well as humoral factors may be of importance in recovery from pneumonia. These may be grouped under these headings:

1. *Acidosis in Pneumonia*.—Various observations have shown that in the metabolism in pneumonia a considerable amount of acid is produced. This is indicated by a diminished carbon dioxide content of

\* Read before the Association of American Physicians, June 17, 1919.

1. Klemperer, G., and Klemperer, F.: *Berl. klin. Wchnschr.* **28**: 833, 869, 1891.  
 2. Neufeld and Haendel: *Ztschr. f. Immunitätsforsch.* **3**: 168, 1909; *Arch. a. d. k. Gsundheitssamt.* **24**: 166, 1910.  
 3. Dochez, A. R.: *J. Exper. Med.* **16**: 665, 1912.  
 4. Clough, P. W.: *Bull. Johns Hopkins Hosp.* **24**: 295, 1913.  
 5. Bull, C. G.: *J. Exper. Med.* **22**: 457, 1915.  
 6. Cole, R. L.: *J. Exper. Med.* **26**: 453 (Oct.) 1917.  
 7. Sørensen: Enzymstudien über die Messung und die Bedeutung der Wasserstoffionkonzentration bei enzymatischen Prozessen, *Biochem. Ztschr.* **21**: 131, 1909.  
 8. Derby, K. G.: *J. Biol. Chem.* **35**: 179 (Aug.) 1918.

the blood, an increased ammonia output in the urine, an increased titrable acidity, and an increased alkali tolerance. In his study of thirty cases of pneumonia, Palmer<sup>9</sup> found that in many, usually the more severe cases, the urine contained a large amount of an organic acid which is free at a H-ion concentration of 5.0.

2. *Partial Isolation of the Pneumonic Lung.*—The exudate fills the alveolar spaces and is separated from the general circulation by the limiting alveolar wall. Kline and Winternitz<sup>10</sup> have shown that the pneumonic lung in experimental pneumonia communicates imperfectly with the circulation. This partial isolation suggests that within the involved region biochemical changes may occur which are reflected only to a limited degree in the body as a whole. An increase in H-ion concentration of the exudate may thus occur without a change in H-ion concentration of the blood.

3. *Acid Death Point of the Pneumococcus.*—Experiments with the pneumococcus<sup>11</sup> indicate that it is susceptible to varying H-ion concentrations. The production of acid is the most important bactericidal factor in the short viability of the pneumococcus in glucose bouillon cultures. Such cultures, allowed to grow and die out, usually reach a final H-ion concentration of about 5.1. The exposure of living pneumococci to 5.1 or a higher H-ion concentration shows that the organism does not survive longer than a few hours in a H-ion concentration of about 5.1, and that it may live for at least many days at 7.4 to 6.8. In the intervening H-ion concentrations, between 6.8 and 5.1, the pneumococcus is killed with a rapidity which bears a direct relation to the H-ion concentration, that is, the greater the acidity, the more rapid the death. The following observations suggest that some other factor, also influenced by the degree of acidity, may be responsible for destruction of pneumococci:

4. *Dissolution of Pneumococci.*—As shown by Lord and Nye,<sup>12</sup> a critical degree of H-ion concentration has a bearing on dissolution of pneumococci. Cloudy suspensions of washed pneumococci in H-ion concentrations varying from 8.0 to 4.0 show, after incubation, disappearance of organisms apparently due to their dissolution in lower H-ion concentrations than about 5.0. This dissolution is most marked at about 5.0 to 6.0; some also takes place toward the more alkaline end of the scale. An enzyme set free from the bacteria themselves may be the explanation. Dissolution of pneumococci under the favoring influence of a change in H-ion concentration may be a factor in the disintegration of organisms observed in the pneumonic exudate in the more advanced stages.

5. *H-Ion Concentration of the Pneumonic Lung.*<sup>13</sup>—The H-ion concentration of the press juice from the pneumonic lung at necropsy in fatal cases is higher than that of other tissues of the body, and reaches a  $p_{H}$  of about 6.0. The pneumonic exudate in experimental Friedländer and pneumococcus pneumonia in dogs may likewise be more acid than the press juice of other organs and the blood. In one dog with experimental pneumococcus pneumonia killed on the third day, the H-ion concentration of one involved lobe, taken immediately from the body, was 6.0, and that of

another 5.4. From the former, pneumococci were grown in pure culture, but from the latter no growth of pneumococci was obtained.

The pneumococcus can usually be cultivated from the pneumonic lung after death, even when the H-ion concentration is about 6.0. To judge from the observations on the acid death point of the pneumococcus, however, slightly higher H-ion concentrations than this, as in the dog's lung with a  $p_{H}$  of 5.4, would probably have resulted in death of the organisms.

These observations were made, using the colorimetric method after dialysis through a celloidin membrane. It is desirable that the H-ion concentration of the pneumonic lung and its influence on the pneumococcus in the tissue itself be determined during the course of pneumonia in the living subject by the electrometric method.

### III. FACTORS INFLUENCING RESOLUTION

As has been shown elsewhere,<sup>14</sup> cellular material obtained from the pneumonic lung in the stage of gray or red-gray hepatization contains a proteolytic enzyme capable of digesting coagulated blood serum at an H-ion concentration of 7.3 to 6.7 inclusive and inactive in more acid concentrations. Such cellular material also contains a proteolytic, peptone-splitting enzyme operative at H-ion concentrations of 8.0 to 4.8 inclusive and most active at 6.3 or 5.2. A digestive action on coagulated blood serum probably indicates a similar action on fibrin, the split product of which is then acted on by a second enzyme and reduced to amino-acid. The products of protein digestion may thus be converted into a form in which they can be absorbed.

The finding of two enzymes in the pneumonic exudate, one digesting coagulated blood serum in weakly alkaline and weakly acid mediums and the other splitting peptone to amino-acid nitrogen with an optimum activity in still more acid mediums, may serve to suggest, independently of the previous observations, that the pneumonic exudate undergoes an increase in H-ion concentration, according to the principle Michaelis<sup>14</sup> established for enzymes in general, that the H-ion concentration of tissue fluid, containing specific enzymes, is the same as that at which the enzymes work best.

### IV. LOCAL BIOCHEMICAL CHANGES AS AN EXPLANATION OF RECOVERY AND RESOLUTION

The findings suggest a theory in explanation of recovery from pneumonia in the course of which humoral immunity is assisted by local biochemical changes. Acidosis in pneumonia may be due to partial isolation of the pneumonic lung, permitting a local increase in H-ion concentration, the excess of acid formed in the exudate gaining entrance to the circulation. Dissolution of the pneumococcus may proceed at first slowly and later more rapidly as the local acidity increases. When the local H-ion concentration reaches the acid death point of the pneumococcus, crisis and recovery follow.

The findings also suggest an explanation of resolution in the course of which the fibrinous exudate is locally split to a form in which it may be readily and harmlessly absorbed. With the breaking down of the cellular exudate, an enzyme digesting protein (fibrin) in weakly alkaline and weakly acid mediums is liber-

9. Palmer, W. W.: J. Exper. Med., **26**: 495 (Oct.) 1917.

10. Kline, B. S., and Winternitz, M. C.: J. Exper. Med., **21**: 311, 1915.

11. Lord, F. T.: Tr. Am. Soc. for Clin. Investigation, 1916, p. 8; Bronchopulmonary Disease, J. A. M. A., **67**: 191 (Dec. 30) 1916.

12. Relation of Pneumococci to Production of Acid in Fluid Culture Mediums and Reaction of Pneumonic Lung, *ibid.*, **72**: 1364, 1919.

13. Lord, F. T., and Nye, R. N.: J. Exper. Med., **30**: 389 (Oct.) 1919.

14. Lord (footnote 11).

13. Lord, F. T.: The Relation of Proteolytic Enzymes in the Pneumonic Lung to H-Ion Concentration, an Explanation of Resolution, J. Exper. Med. **30**: 379 (Oct.) 1919.

14. Michaelis: Die Wasserstoffionkonzentration, Berlin, 1914, p. 86.

ated. As the acidity increases, the action of this enzyme ceases. An enzyme capable of splitting pepsin to amino acid nitrogen, also active during the proteolysis of the fibrin, is still further activated at an H-ion concentration of 6.3 or 5.2. The exudate may then be dissolved, and resolution takes place.

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## TECHNIC OF NERVE SUTURE AND NERVE GRAFTING\*

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NEW YORK

From the beginning of a peripheral nerve operation to its end a very perfect technic is necessary. The freeing of the ends of a divided nerve and the excision

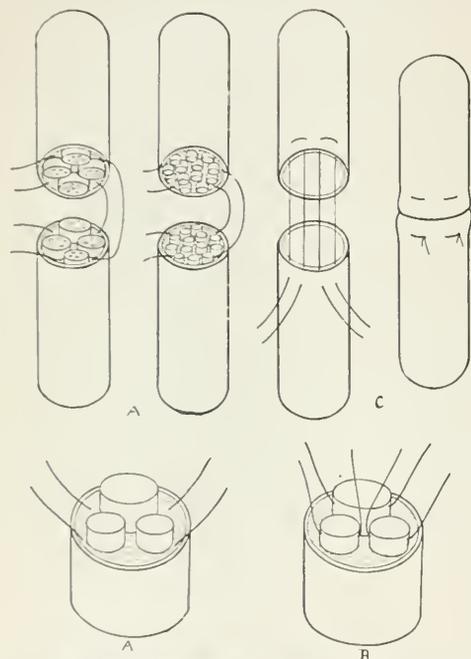


FIG. 1.—A, traction is made the perineurial sutures are passed; B, epineurial suture should never be used; C, epineurial mattress suture.

of the surrounding scar tissue with the least injury to the delicate nerve structure, the perfect control of bleeding, the accurate sectioning of nerve bulbs until good nerve fibers are exposed, the proper approximation and suture of the nerve ends without tension—all these and many other details are of great importance. One minute fault in technic—whether it be the failure to obtain a dry wound, too rough handling of the nerve trunk, insufficient excision of scar tissue from the bulb or from around the nerve, improper application of the sutures, etc.—and the chances for a good nerve regeneration are much diminished, no

matter how skillfully all other manipulations have been accomplished.

On account of lack of time and space, nothing will be said, in this paper, concerning the proper incisions for exposing injured nerve trunks—incisions so planned as to cause the minimum amount of injury to the muscles. Nor shall I touch on the manner in which nerves should be handled, the methods by which they are to be freed from the surrounding scar tissue—neurolysis—and the means by which the formation of adhesions between the nerves and the surrounding tissues can be prevented. On account of its great importance, I shall limit myself to an account of the technic of nerve suture and nerve transplantation which we have followed, and shall only mention in an abbreviated form certain guiding principles in the surgery of the peripheral nerves.

### PRINCIPLES IN SURGERY OF PERIPHERAL NERVES

1. *Identification of the Injured Nerves.*—Identification may appear difficult when many of the ordinary landmarks have been destroyed. According to my experience, care and patience and a good knowledge of anatomy are all that are required. If the surgeon will first expose a normal part of the nerve, or nerves, below and above the lesions, and will work from normal to scar tissue, the identification of injured nerves and their branches—even in complicated plexus injuries—is always possible.

2. *Exposure.*—The lower end of a divided nerve should always be exposed and freed first, because it is the degenerated end. The upper end should be exposed for as short a time as possible, and should be handled with special care. Strong traction should never be made on it, and it should not be stretched in the effort to approximate the ends of a divided nerve.

3. *Examination for Nerve Bundles.*—If there is no gross separation of the ends of the nerve, but only a bulbous thickening, the bulb should be minutely examined before being sectioned transversely. No matter whether the patient presents the symptoms and signs of a complete interruption or not, the bulb should be carefully incised in a longitudinal direction in the search for nerve bundles which can be saved. In a considerable number of patients, some perfectly good nerve bundles are preserved on the surface of or in the deep parts of the bulb, and such nerve bundles may be freed from the scar tissue and not divided. When these nerve bundles run on the surface of the bulb, they can be isolated without much difficulty. When they run through the center of the bulb their isolation and preservation may require much patience.

4. *Excision of the Bulbous Enlargement or of End Bulbs.*—When the operator has demonstrated that there is a complete anatomic discontinuity of the nerve, the bulb or end bulbs should be divided transversely, with a sharp scalpel, in successive sections until normal funiculi can be readily recognized by their characteristic appearance. As the upper end of an injured nerve is often swollen, perfectly good funiculi may present an edematous or glairy appearance. Usually—and this was especially noted in the sciatic nerve and its branches, and in the median nerve—there is fairly active bleeding from the intraneurial blood vessels when normal funiculi are reached. This bleeding can usually be controlled by gentle pressure with a sponge wrung out in hot saline solution. Occa-

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sionally, the bleeding from the central end of the sciatic nerve is so active that the isolated vessel must be grasped with fine mosquito forceps and must be

and should remain in place until part of the end to end suture has been completed. By this means the handling of the nerve in the succeeding manipulations can be reduced to the minimum, and rotation of the one or other end prevented.



Fig. 2.—Suture of posterior intersosseous nerve, showing the perineurial sutures passed.

ligated with very fine catgut or silk. While the vessel is being exposed, the bleeding can be controlled by gentle compression of the nerve with the fingers cephalad to the bleeding point.

There is an interesting and easily understandable difference between the central and the peripheral end bulbs. When the peripheral end bulb is being sectioned, the successive cross sections present the appearance of smooth, shiny scar tissue, until one section is reached which contains the ends of many normal funiculi without any scar tissue. When the sections of the central bulb are made, the transition from scar to normal is much more gradual. In successive sections there is an increasing number of good funiculi until an altogether normal transverse section is exposed. When end bulbs are sectioned outside of the body, this difference between the central and peripheral bulbs will identify which of the bulbs was the central and which was the peripheral one.

5. *The Prevention of Rotation of the Nerve Ends and Distortion of the Nerve Pattern.*—Before the sections of the bulb or bulbs are made, the epineurium on the outer and inner aspects of the nerve is grasped with mosquito forceps a little cephalad (in the central end) and a little caudad (on the peripheral end) to the points at which, it is estimated, the final sections will have to be made. These forceps grasp only scar tissue and epineurium,

The ideal apposition of the ends of the nerve would be one in which the cut end of each funiculus is placed exactly opposite to its corresponding end, but in practice this is impossible. For the best apposition of the nerve ends with the least distortion of the nerve "pattern" a good understanding of the arrangement of funiculi in the different nerves, and in the different parts of each nerve, is indispensable. The investigations of Stoffel, Compton, Langley and Hashimoto, and others have shown that there is probably a definite nerve pattern and that within each nerve trunk there is a definite arrangement of the nerve funiculi and even the nerve fibers. Langley and Hashimoto, and Compton have demonstrated that there is a complicated arrangement of the funiculi and fibers within a nerve trunk, as "nerve plexuses" occur within the nerve trunks because of the frequent rearrangement of the fibers within the nerve.

I have made a large number of observations in my peripheral nerve operations, and Dr. H. A. Riley and I are investigating this subject on human cadavers. In the large majority of nerves, there are, at different levels, definite groupings of the funiculi, easily recognizable with the naked eye. In very many instances these groupings are so regular that by the proper suture the end of each divided funiculus can be brought into approxi-

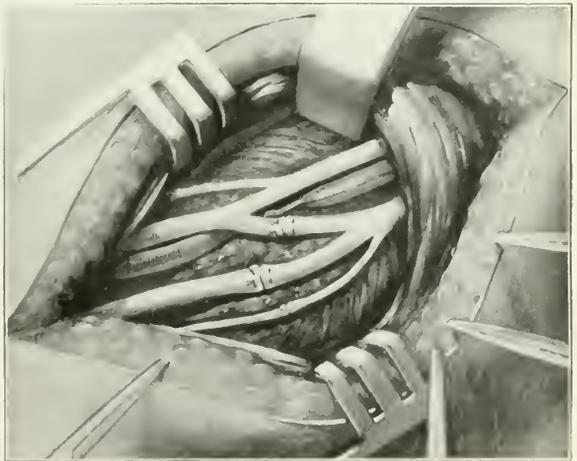


Fig. 3.—Suture of the outer head of the median nerve, and the ulnar and the internal cutaneous nerves, showing epineurial mattress sutures.

mate apposition to the corresponding end, and rotation of the ends of a divided nerve and distortion of the nerve pattern can be prevented.

In the majority of instances in which I have resected bulbs in gross continuity, or end bulbs in complete separation, the nerve patterns in the central and peripheral ends visible to the eye were either identical or very similar. An entirely different pattern was observed in a surprisingly small number of the patients.

It is certain, I believe, that ideal peripheral nerve surgery will be possible only when we have learned a great deal more of the minute structure of the peripheral nerves, and of the arrangement of fibers and bundles of fibers (funiculi) to form the nerve "pattern," and have developed a finesse and delicacy of technique which an ideal nerve suture demands.

without tension by relaxing the nerve by flexion of adjoining joints (flexion at the wrist for injury of ulnar and median nerves in the forearm; flexion at the elbow for median and musculospiral nerves in the arm and forearm; extension at the elbow and adduction of the arm for the ulnar nerve in the arm and forearm, plantar flexion of the ankle, flexion at the knee, etc., for nerves in the lower extremity). Transplantation of the ulnar nerve to the front of the internal epicondyle is often necessary for the approximation of the ends of an ulnar nerve injured above or below the elbow. When this is done, especial care must be taken that the branch of the ulnar nerve to the flexor carpi ulnaris is not injured. If all of these procedures have

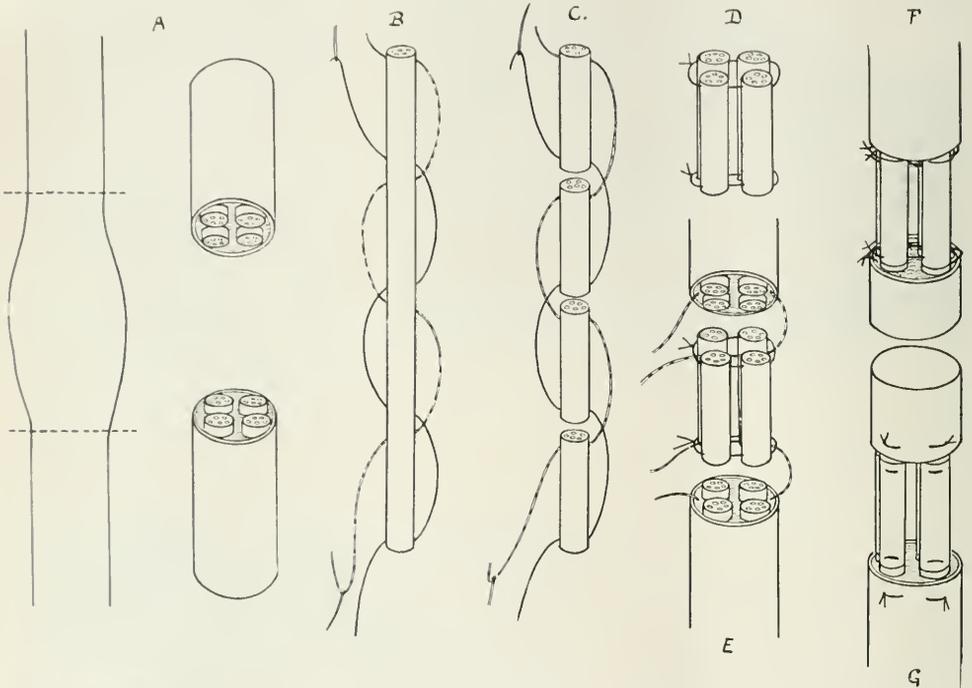


FIG. 4.—The cable graft. *A*, bulb resected and ends of nerves exposed; *B*, sutures passed through the cutaneous nerve used from cable graft; *C*, cable graft ready for transplantation; *D*, cable graft ready for transplantation; *E*, sutures passed through ends of cable graft and ends of nerve; *F*, sutures tied; *G*, perineurial sutures tied. (Diagrammatic.)

We can obtain additional knowledge of nerve pattern by the electrical stimulation of the ends of a recently divided nerve. I have been investigating this aspect of the subject in the nerves of freshly amputated limbs. My investigations are far from complete, but a number of definite observations have been made, which will be reported at a later date.

#### *G. Approximation of the Divided Ends of a Nerve.*

The approximation should always be made without tension. In the majority of instances, this can be accomplished by freeing the nerve ends—especially the peripheral part—for a considerable distance. In this procedure, however, due consideration should be given to the location of branches, and care should be taken that important sensory and motor branches are not injured. The nerve ends can often be approximated

been used and the nerve ends cannot be approximated, a nerve grafting operation must be performed.

#### TECHNIC OF NERVE SUTURE

The suture of the divided ends of a nerve is a very delicate procedure. For suture material I use fine Carrel needles with very fine silk. For the actual union perineurial and epineurial sutures are used. I do not believe that epineurial sutures, alone, will bring the ends of the nerve into the best approximation. If a little bleeding occurs into the nerve, the blood is apt to collect between the ends of the funiculi, and the resulting scar tissue is apt to interfere with the down growth of the neuraxons. After the proper relation of the nerve ends has been determined, so that the minimum amount of distortion of the nerve pattern will

occur (effected by the attachment of mosquito clamps to the sides of the nerve so that the arrangement of the funiculi in both ends is made visible) one, two or three fine perineurial stitches are passed, the number

beautifully how nerve fibers will pass around such a fine perineurial suture.<sup>1</sup>

All of the perineurial sutures should be passed before they are tied, and, when they are tied, care should be taken that the sutures just bring the funiculi into apposition. If the sutures are tied too tightly, the funiculi are bent at their ends with a resulting poor approximation.

After the perineurial sutures have been tied, the mosquito forceps can be removed. The epineurial stitches should be placed with exactness, so as to approximate the free borders of the epineurial sheath. I believe that the best approximation can be obtained by mattress sutures (Figs. 1 and 3); they are much less apt to tear out than are simple sutures. From four to five mattress stitches suffice, each suture being left long for traction while the succeeding one is being passed. In some sutures of the sciatic nerve, I have made a continuous running suture of the epineurium, as in the Carrel technic for blood vessel suture.

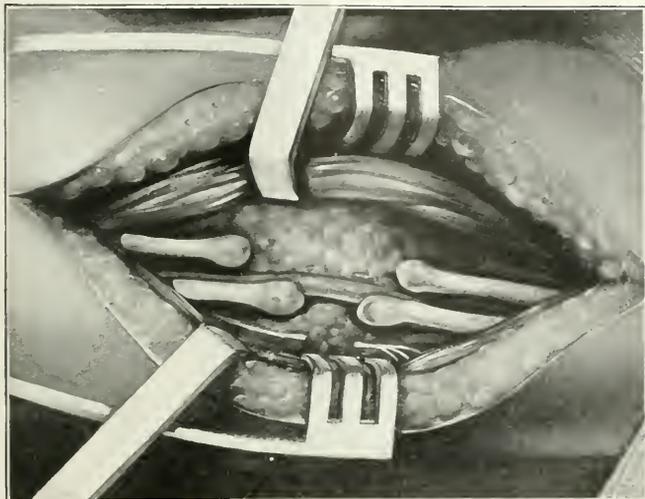


Fig. 5.—Median and ulnar end bulbs.

depending on the arrangement and number of the funiculi. The epineurium will usually have retracted, and no special difficulty should be encountered in passing the stitches through the perineurial tissue between the funiculi if the needle and the suture material are sufficiently fine. I have found it practical to hold the needles in fine mosquito forceps rather than in the fingers, and to grasp the needle with the forceps about 0.5 cm. from its point. When the nerve consists of a number of small funiculi (as in the ulnar, median and sciatic nerves) two or three of these perineurial stitches are necessary. When the nerve consists of from two to four large funiculi, two of these stitches are usually sufficient to approximate the funiculi. If the sutures are well placed, with due regard to the nerve pattern, a fairly accurate apposition of the ends of the funiculi is possible (Figs. 1 and 2). This apposition would be more perfect if the sutures were passed through each one of the large funiculi, but such a suture is inadvisable on account of the interference with a certain number of nerve fibers which such an "end to end funicular suture" would entail. Professor Huber, to whom we are indebted for very remarkable experimental and histologic studies, has shown me microscopic sections which demon-

NERVE TRANSPLANTATION

Transplantations of the nerve to a more superficial level are sometimes necessary. To separate the line

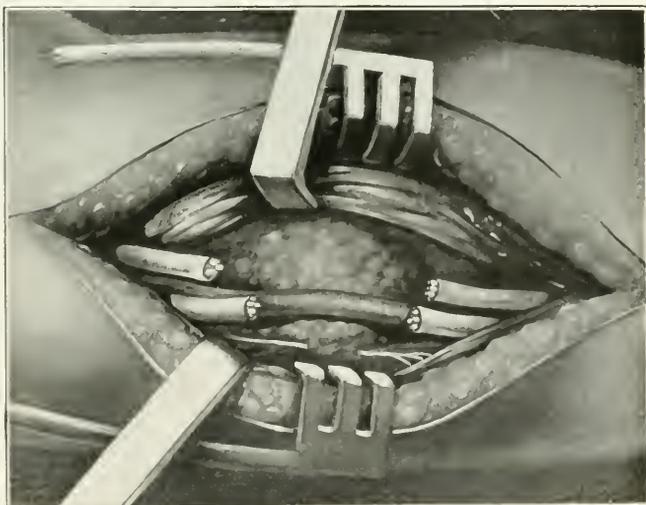


Fig. 6.—Bulbs resected. The defect has to be filled in by a graft.

of union from the bone, muscle or fascia, plastic operations must often be performed, to surround the line

1. All those who have had the good fortune to be present at Professor Huber's lectures and demonstrations at the sessions of the New Surgical School of New York for Medical Officers of the U. S. Army have derived not only much information, but also a great stimulus from his as yet unpublished work.

of union with a cuff of tissue and thus to protect it from the surrounding scar tissue. Fat transplantation is sometimes of value, and Cargile membrane may sometimes be useful for a similar purpose.

#### TECHNIC OF NERVE GRAFTING

As all experience in human surgery and all animal experiments have shown, a direct end to end suture is far preferable to a nerve grafting. If, however, the ends of a divided nerve cannot be approximated by all the methods above described, a graft must be inserted between the ends of the nerve. I shall not enter into a discussion of the comparative value of autografts, homografts and heterografts, and of homografts preserved in cold storage, or in alcohol (Nageotte). The results of animal experiments and experiences in human surgery have shown that the autograft is to be preferred. We have limited ourselves to the use of autografts obtained from the patient himself, and have used cutaneous nerves—the external cutaneous of the thigh, the internal saphenous in the leg, the anterior and posterior cutaneous branches of the musculo-cutaneous, and the internal cutaneous in the upper extremities.

The grafts were obtained by the method later described, and we made use almost exclusively of the "cable grafts"—that is, grafts consisting of a number of strands of a cutaneous nerve. I believe that wherever possible the cable grafts should be made up of as many strands as there are funiculi of the same size in the nerve ends. The nerve strands which are to be united into a cable should be handled as little as possible with instruments or the hands, and for this reason, I have devised the following method (Fig. 4):

After having determined the length of the defect which is to be bridged over by the graft, and the number of strands that will be required, one or several cutaneous nerves are exposed and carefully dissected out until they remain attached only at their upper and lower ends. Two sutures are then passed in and out of the nerve at measured distances. For the sake of description, let us say that the graft is to be 7 cm. long and is to consist of three strands. The one suture (*A*) is passed through near the attached upper end of the freed nerve, from the inner to the outer side of the nerve; a loop is left loose, and the needle is then passed through the nerve from the outer to the inner side a little more than 7 cm. from the first point; again a loop is left, and the needle passed through the nerve, from its inner to its outer side, at the same distance

from the last point. The needle is then laid aside and a second needle and suture taken. This needle (*B*) is passed through the lower end of the nerve, from its outer to its inner side, a little more than 7 cm. from the point of emergence of needle *A*. A loop of the suture is left and the needle passed through the nerve, from the inner to the outer side, at a point 3 mm. above the point of emergence of suture *A*; finally, the needle is passed through the nerve, from its outer to its inner side, 3 mm. proximal to the next point above. The points at which the suture *A* has passed through the nerve correspond to the upper ends of the graft; and the points through which needle and suture *B* have been passed correspond to what are to be the lower ends of the strands. After the loops have been carefully arranged, the nerve is cut with fine scissors or a fine scalpel (1) 1 mm. above the beginning of *A*, (2) 1 mm. below the beginning of *B* and (3) between each two points through which sutures *A* and *B* are passed, apart in the nerve. An assistant then grasps

the two ends of suture *A* and the operator the two ends of suture *B*. When traction is made, the strands are drawn together. Then each suture is loosely tied. *A* brings all of the upper ends of the strands together; *B* brings all the lower ends together.

After the cable graft has thus been made, it is transferred to its place between the divided ends of the main nerve and sutured in position, according to the method shown in Figures 4, 5, 6 and 7.

I have performed fourteen cable grafts by this method, and have found it a very

satisfactory procedure, in which the handling of the strands of the nerve to be used for the graft is reduced to a minimum. The method is a very simple one when its technic has been mastered.

There are a number of questions in grafting to which we have not yet any definite answer. How do these grafts act? Is it advisable to expose the graft eight or more weeks after the first operation, at a time when regeneration through the graft, down to its lower end, has occurred, in order secondarily to resect the lower union and freshly unite the end of the graft to the peripheral end of the nerve? These and other questions cannot be considered here. I have exposed the lower end of one graft ten weeks after the first operation, and have found it in such a good condition, without scar tissue, that the wound was closed without interfering with the lower end suture. It is possible that in some cases, at least, the resection and the resuture may be necessary. This will depend on whether or not the regenerating neuraxes will pene-



Fig. 7.—Cable grafts in place, bridging over defects in median and ulnar nerves. Epineurial stitches have been tied.

trate a recent suture line more easily than they will an older one.

If the condition of a nerve permits it, a neurolysis is always better than a resection and suture, and a resection and suture far better than a resection and grafting. The results of neurolysis, in cases in which it may properly be employed, are very satisfactory, and we have seen the improvement begin almost immediately after the operation. Insufficient time has elapsed to permit me to speak of the results of our nerve sutures and nerve grafts. Although nerve grafting has been very successful in animal experiments, the question of what results can be obtained in grafts in the human being has still to be answered. We believe that the era of perfect peripheral nerve surgery is still to come, when we have learned much more about the minute internal anatomy of the peripheral nerves. The wide and varied experience gained from the war is surely of great value, and has greatly enriched our knowledge. The points of view in this paper are taken in an effort to develop new points of view in the surgery of the peripheral nerves.

### THE INDICATIONS FOR SURGICAL INTERVENTION IN PERIPHERAL NERVE INJURIES \*

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NEW ORLEANS

Lesions of peripheral nerves have proved to be a rather common complication of gun-shot injuries of the extremities. This is especially true of shell wounds, in which the rough, serrated fragments produce extensive laceration of the soft parts and comminution of the bone.

The nerve trauma may result in a complete division of the nerve trunk, or only a portion of its fibers may be injured. It may be crushed against a bone and its fibers interrupted without rupture of the nerve sheath. Frequently it is only bruised, producing swelling and hemorrhage in the nerve substance. In all these conditions, function is usually lost immediately, and if the nerve fibers have been divided, it is not regained until the axis-cylinders have completely regenerated and connected up with the end-plates which subserve the function of motion, sensation, etc. This regeneration of the axis-cylinder consists of a complete outgrowth from the point of division to its terminal end-plate, along the distal segment of the divided nerve which acts only as a conducting structure for the direction of their course. When scar or other interposed tissue prevents the downgrowing axis-cylinders from reaching the divided end of the distal segment, they stray in all directions in their futile efforts, and meeting only the antagonistic reception of a foreign tissue, continually change the direction of their search, until the result of these never-ceasing contortions is the production of a bulky mass of nerve tissue which constitutes the neuroma frequently found on the proximal end of the divided nerve. With the contraction of scar tissue about a divided nerve or within a nerve trunk, the axis-

cylinders gradually lose their regenerative activity, and with their complete strangulation, all growth ceases. A nerve may even escape injury at the time of the wound and subsequently become caught in bone callus or scar tissue and compressed until it can no longer convey impulses, producing a physiologic interruption. If this compression is severe enough to interfere with the blood supply of the nerve trunk, degeneration of the axis-cylinders is the result. Such lesions do not develop a neuroma, and at operation, if it is possible to dissect the nerve out from the scar tissue it often appears as a flattened cord. When sectioned, the ends do not show nerve bundles but present rather a gelatinous appearance. This condition may extend some distance up and down the nerve trunk; and often after making many sections to find normal nerve bundles, we have been compelled to make a suture in nerve tissue having this appearance, believing it preferable to grafts; in all such cases, however, regeneration seems to be progressing favorably. Frequently nerves which have been compressed only to the extent of impulse interruption will regain their function in a few weeks after the scar tissue is removed, as there has not been anatomic interruption of the axis-cylinders.

The majority of patients with peripheral nerve injuries recover without operation; but it is always a question of considerable time before positive evidence of regeneration is to be seen in the return of voluntary motor power or the clearing up of areas of anesthesia. During the period of regeneration or the time required for the downgrowth of the divided axis-cylinder, there are months of patient waiting during which time it is difficult to determine positively whether or not regeneration is progressing satisfactorily. We believe the rate of growth of an axis-cylinder, in the process of regeneration, is from 1.5 to 2 mm. a day, provided its growth is not inhibited by scar tissue, sepsis, etc.

Practically all war wounds are infected and suppurate for some time, and it would be folly to attempt nerve suture during this period. Our experience has taught us that it is not safe to operate on wounds recently healed, especially those which have suppurred for some time. Many bacteria lie dormant in these tissues, and it requires only some slight traumatism to produce a recrudescence of the infection. As a rule we do not consider it advisable to operate in the vicinity of wounds which have suppurred until they have been completely healed three months or longer.

Most of the patients we now see in military hospitals are those who have waited a number of months for the clearing up of infections; and when the time has arrived after which operative procedures are justifiable from the standpoint of sepsis, the proposition has then to be confronted as to just how much progress the nerve has made toward regeneration.

When a diagnosis of peripheral nerve lesion has been made, the vital question as to the extent of regeneration immediately presents itself; and frequently this can be answered only after a comparison of notes made at several consecutive examinations. Only when it is possible to determine the progress or fixity of symptoms by the comparison of several accurately recorded examinations is it possible to determine with any considerable degree of certainty whether regeneration is progressing satisfactorily or not. It will be readily understood that if examinations are not accurate and the record of findings not complete, they may be responsible for entirely false conclusions. In the

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examination of muscles supplied by an injured nerve it is not sufficient to note simply that a certain group is paralyzed or that all muscles supplied by a given nerve are involved. Each muscle, as far as possible, should be examined individually to determine the slightest function as seen in the movement of its tendon or its influence on the position of a given joint. If some slight movement is overlooked at one examination and recorded at a subsequent observation, it might be considered as evidence of regeneration. Attention should here be directed to mistakes often made in the observation of muscular action as seen in false or substitution movements. Many patients will learn to simulate to a greater or lesser degree certain movements which are suggestive of function in paralyzed muscle; and unless examinations are made to determine individual muscular function, error is almost certain.

The examination and recording of sensory disturbance are of great value in determining the progress of regeneration, for one of the earlier signs of regeneration is the contraction of fields of anesthesia. Here definite charts should be made at each examination to show the exact area of sensory disturbance. This must not only show the definite area of sensation involved but must also state the nature of the sensation examined, whether it be by light touch, by cotton or camel's hair brush, pin prick, pressure or other means. The examination for the more delicate sensations of degrees of temperature, etc., are of great interest, but at this stage give no information which we may consider of any great value in determining regeneration. The recording of sensory findings in terms of epicritic and protopathic is to be discouraged, as a much more reliable chart may be had by recording the findings of the individual sensations.

The electrical examination of paralyzed muscles is of great value in questions of diagnosis, and very often the differentiations of functional and organic lesions is impossible without its use. But after the diagnosis of division is definitely made it is of little value in determining the presence or absence of regenerative changes. The reaction to faradism is always slow to return, and as a rule does not appear until after definite voluntary motion is evident. The galvanic current gives definite signs of degeneration by its slow contractions, and in neglected cases suggests the fibrous character of the muscular tissue by the complete loss of all response to such stimulation; but outside of giving us such information, which is indispensable from a standpoint of diagnosis, it gives us very little regarding regeneration until a late stage. The quickening of the galvanic response and the return of normal polar reactions are suggestive of regeneration; but we frequently see all of these changes brought about in completely non-regenerating nerves by proper physiotherapeutic treatment.

Muscular tone is lost from the time of injury and does not return until the motor fibers are connected with their end-plates. It is a valuable indication of regeneration, but it is manifest only a short time before actual voluntary movement are noticed. After a careful study of our comparative findings with regard to voluntary motion, areas of anesthesia, electrical findings, tone, trophic changes, etc., it may readily be seen that while it is possible to make a diagnosis of complete division of a nerve, the question of determining its regeneration is difficult, even in the hands of those who have had considerable experience in this class of

work. It is often only after months of close observation that one may make a diagnosis of satisfactory regeneration on the foregoing clinical findings. In fact, many operators of experience consider that at the end of six months, if there is no decided evidence of regeneration as seen in the return of voluntary motion, the nerve should be exposed, and at that time a decision should be made as to the operative procedure which should be adopted—whether resection with suture or simply freeing the nerve of scar tissue.

We do not believe that a properly conducted aseptic exposure of a nerve and the freeing of it from scar tissue can in any great degree be productive of harm; in fact, many cases have shown the value of such a procedure. But it has been our experience that, as a rule, it is not possible to determine completely the condition of a nerve after exposure, and the tendency is too often to resort to resection and suture. This, of course, is indicated when the ends are definitely separated and a neuroma is present; but this is very often not the case, the nerve being found simply incorporated in a mass of scar tissue. From the microscopic appearance alone the operator is unable to say whether or not axis-cylinders have been able to penetrate through the scar tissue, and should he perform a resection and suture it would mean interruption, and all the regenerative efforts and progress attained in these months would be lost.

When a nerve is partially or completely divided, the divided portion has a tendency to retract, and the formation of a neuroma is the rule. When this neuroma is absent, it is almost impossible to differentiate between anatomic division or a strangulation of the nerve trunk. When there is no definite neuroma, it is probably a case of strangulation. Whether or not it is a complete anatomic division or strangulation with degeneration of the axis-cylinders, the process of regeneration must proceed the same. The question immediately asked is, Why not perform a resection of the part involved in scar tissue, and make a suture where the section shows normal appearing nerve bundles? There would be no objection to this procedure if it were possible to make nerve sutures perfect in respect to the physiologic topography of the nerve trunk. This we are unable to do at the present time with any degree of certainty in spite of all precautions directed toward the prevention of axial rotation of the nerve trunk. In nerve suture, the impossibility of correct approximation of the individual physiologic fascicular elements, makes it an imperfect operation; motor fibers most certainly will be connected with sensory pathways in the lower segment, and sensory fibers with motor pathways, so that in this way many fibers are physiologically lost. Motor fibers of the upper segment, accustomed to the control of a given muscle may be directed to another muscle and there will be a question of reeducation involved. A realization of our limitations in nerve surgery should compel us to pay the greatest respect to the physiology of nerve structure in individual nerves and we should be on our guard against assuming a too radical attitude with reference to nerve suture.

When the proximal end of a divided nerve is subjected to mechanical irritation, the patient complains of a tingling sensation resembling an electric shock in the area of the sensory distribution of that nerve. For instance, after a division of the musculospiral nerve,

pressure on or tapping over the nerve at the level of the lesion gives this peculiar tingling sensation, which the patient immediately localizes on the dorsum of the thumb, index finger and the adjacent portion of the dorsum of the hand. The sensory distribution of all other nerves, when divided, will be just as accurately located. Tinel, who called attention to this phenomenon, has demonstrated that when axis-cylinders are not protected by their normal coverings they are very easily stimulated by the slightest mechanical irritation.

The progress of the downward growth of the sensory axis-cylinders can be followed very accurately along their course by this method, and from month to month their progress may be judged by the persistently lower level at which this tingling may be elicited by gentle tapping along the course of the distal segment of the nerve. At first, it is possible to elicit the sign only at the level of the lesion; at the end of six weeks, if regeneration is progressing favorably, it may be found an inch or an inch and a half below the level of the lesion. At the end of three months it may be found 4 or 5 inches lower, and so on until it is present at the distal extremity of the nerve. This indicates that certainly some sensory fibers have been able to bridge the nerve gap, that they have found the separated end of the distal segment, and that they are progressing down. It gives us no information regarding motor fibers, but we consider it a valuable sign of at least some regeneration; and if sensory fibers can find the distal end of the nerve, there is certainly reason to expect a certain proportion of motor fibers to do the same. It is true that not all the fibers may get through the scar tissue; but when this formication or tingling on percussion progresses steadily down the course of a nerve, that is, with maximum intensity as compared with that found at the level of the lesion, and at a rate equivalent to the growth of a millimeter and a half a day, we may conclude that scar tissue is not seriously influencing the regenerative process. Though there are no other signs of regeneration present, the finding of formication advancing steadily downward should be considered a favorable indication of spontaneous regeneration. When it is present at the level of the lesion and does not progress below, we have always considered it to be a positive indication for operation, and our operative findings have always borne this out. When formication is not intensive by percussion below the lesion, or when it only extends a short distance, stops, and shows no further progress, the indications are for surgical intervention.

I have several times heard surgeons say that formication was present along the course of a nerve and at operation they had found the nerve completely divided. It is quite possible for just a few sensory fibers to get through what appears to be a complete division; but I am quite sure that immediately after the operation these surgeons found the formication absent. The sign of formication has a very definite prognostic value, the favorableness of which depends on its intensity and rate of progress, and, like most other diagnostic signs, requires experience for its interpretation. We are constantly seeing patients with nerve lesions of from eight to ten months' duration completely recover motor and sensory function. If we had depended on other signs of regeneration alone and ignored Tinel's sign, many of these patients would have been operated on, and much valuable time would have been lost. We have on many occasions seen complete

motor and sensory function regained after more than twelve months had elapsed, during which time the only evidence of regeneration seen was the progressively downward course over the nerve trunk, at which formication could be strongly elicited.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. ELSBERG AND NEY

DR. FREDERICK C. KIDNER, Detroit: I want to say one word in substantiation of what Dr. Ney has said in regard to the probable recovery of very large numbers of injured nerves. I disagree with him, however, regarding the necessity for operation. A very large percentage of nerve injuries should be explored; because there are numbers of cases that will be greatly hastened in recovery by an early freeing from dense scar tissue. The objection he has raised to operation, based on the probable recurrence of sepsis, is, I believe, to be largely avoided by the use of the two stage operation. That is, as soon as a wound is healed, where there is a severe nerve injury, it is possible to do an exploratory operation that does not in any way involve the nerve itself, but makes a pathway to the nerve, so that if sepsis does recur, it is easy to throw the wound wide open and drain it. If sepsis does not recur, it is possible, in a week or ten days, to go in again, explore the nerve itself and suture it, if necessary. What he says about leaving nerves alone when they seem to be badly scarred, but are not actually cut across, is very wise. The nerves that look almost impossible at the time of exploration, if dissected free, will many times recover of themselves. The matter of nerve suture is an encouraging one. The trouble with the people who have made such discouraging prognoses on nerve suture, it seems to me, is the fact that they have not been content to wait long enough. In my service in England, I began to do nerve sutures in July, 1917; but in few cases did I begin to see results before July, 1918, when I left the British service. My total results are just beginning to come to me now, in July, 1919. They are not yet put together, but they are very encouraging and are so good that I am convinced that we should give nerve suture every chance, rather than to resort to early tendon transplantation and other destructive operations. I think that in nerve injuries, tendon transplantation has a very limited place, and should not be resorted to until three or four years after the receipt of the injury to the nerve.

DR. SAMUEL W. BOORSTEIN, New York: It was worth while to attend a meeting of this kind and learn of the cooperation necessary in these cases between the neurologist, neurologic surgeon and orthopedic surgeon. This is possible, even in a small hospital. I have had the good fortune of working with Dr. A. S. Taylor and Dr. Byrne at Fordham Hospital, N. Y., in many of these cases, and the best results were secured because the preoperative and the postoperative orthopedic treatments were not neglected. If this cooperative work were generally carried out, the results would be more encouraging than they have been. The orthopedic surgeon should, however, always assist at the operation. I really cannot add much to the details of the technic. Dr. Taylor follows the same technic as Dr. Elsberg. The only thing I would emphasize is the importance of support for a long time. If massage is used, we do not get much atrophy. We have kept one case on a support for a long time; and on leaving it off for three weeks, we had to resort to it again.

DR. DEAN D. LEWIS, Chicago: One of the first things that comes to the consideration of the nerve specialist is whether peripheral nerve suture should be done. From experience in the evacuation hospital, it seems to me that every nerve injury that comes into the evacuation hospital should be explored. In some cases, end to end suturing should be done. I agree with Dr. Ney that the majority of these patients recover. We are operating in 30 per cent. of peripheral nerve lesions, and the majority of patients are recovering slowly. If the diagnosis of anatomic division is

made, end to end suture should be done, with an autograft inserted. The only surgery that is reliable is end to end suture without tension. If the case goes two or three weeks without recovery and remains stationary, it should be explored. Muscle neurolysis is much superior to any other neurolysis that I have tried. I have seen many cases that have gone on for six months with complete physiologic interruption. Dr. Danforth's statement that the cards giving the history of the cases should be sent through with the patients is timely. This is one of the most essential things in war surgery. How it happened that the field medical cards were taken away at the port of embarkation, so that when they arrived we had no idea of what had been done, is hard to understand. We had to take the patient's word until we could verify it from the adjutant general's office.

DR. MARTIN B. TINKER, Ithaca, N. Y.: I hesitate to prolong discussion, but on the basis of experience with 600 peripheral nerve injuries at Base Hospital No. 26, I wish to confirm what Major Ney has said about the number of spontaneous recoveries. In the second place, I wish to call attention to the unreliability of the so-called Tinel's sign, deep tingling on percussion. Dr. Ney has emphasized its value. It is a subjective sign. The patient tells you whether he feels or not; and he is often so anxious for recovery that he feels as if he were getting it, when he really is not. In many instances patients would tell us that they felt it, when, at operation, we found complete severance of the nerve with several millimeters gap between the divided ends. I feel, therefore, that this sign is unreliable. A third point was brought out by several of the speakers: the desirability of delay in operation. Dr. Porter will confirm this experience that we had, that mild manipulation only, and no operation whatever, lighted up serious streptococcal infection in several cases that had been healed for months, leading us to believe that we should act with great caution in handling these cases.

DR. TOM A. WILLIAMS, Washington, D. C.: A diagnostic feature that has not been mentioned is ascertaining whether or not there has been regeneration by means of the periodic or augmentative current, a sign that is not subjective but objective. Suppose that there is a partial division of the musculospiral nerve and the nerve does regenerate partially. Let us suppose, also, that some of the fibers that have not regenerated are motor fibers. In what way do we ascertain whether all the fibers have not regenerated and that a suture is therefore necessary? The way it is done is to ascertain the response of the muscles to stimulation by what is known as a periodic current. That current stimulates only muscles in which the nerve fibers have undergone degeneration. If the response of any of the muscles that have been stimulated by the periodic current alone disappears when this current is applied, you may assume that that nerve has regenerated. If one of the proximal branches of the musculospiral, the radial, ulnar or even the sciatic, which goes to a muscle near the room of a limb, has been damaged and we find within a certain length of time that there is no regeneration of the axons to these muscles, that is to say, that their stimulation by a periodic current does not disappear, we know that there is no regeneration in these fasciculi, even though there is ulnar or distal motor regeneration. Hence, in that case we must join that portion of the nerve. Even when Tinel's sign is readily present and is not merely in the suggestion of the doctor, that does not mean that there is a true reconnection of the nerve. It is common to find a partial division in the nerve. What we want to know is whether there are any fibers that have not regenerated. When they are there, only in that way can we arrive at a conclusion regarding the point. It is a method that has not been utilized in this country but has been in France. One cannot wait for years before one can record a hopeless prognosis and resort to limb transplantation, which at best gives only a minimal efficiency of the limb. Now that we have so much better methods of grafting with grafts from other animals, we should never resort to limb transplantation until the methods of approximation and interpolation of nerves and grafts have been employed.

DR. W. WAYNE BAROCK, Philadelphia: I should like to refer to a phase of reasoning in Dr. Ney's paper regarding recoveries after these important wounds of war; that is, the assumption that nerve injury inflicted by gunshot is more prone to recovery than that from a surgeon's knife. The argument apparently is, do not operate except in very limited number of nerve injuries, for nerves mangled by bullet or shell usually do better when uncorrected by surgical art. To carry out this idea to its final conclusion, one should advocate shooting through nerves as the best method of preparing them for regeneration. This logic recalls the old statistics of cesarean section, showing that these operations when performed by the horns of enraged bulls actually gave better results than when performed by the hands of surgeons. To claim that nerves that have been badly mangled and have had no operative attention will make a better recovery than those that have had a skilled operation correction under aseptic conditions seems rather curious. Yet a number of neurosurgeons apparently believe this. In more than 500 nerve injuries treated in U. S. Army General Hospital No. 6, Fort McPherson, Ga., 142 of these cases were mild, showing evidence of spontaneous recovery and were treated only by massage and electricity without operation. Up to May 1, 33 per cent. of these unoperated cases remained the same, and 67 per cent. have improved. In contrast; out of 148, much more severe cases subjected to herbage or neurolysis, 80 per cent. now show improvement. A number have shown improvement in the first few weeks after operation. As to cures: 17 per cent. of the unoperated; 20 per cent. of the neurolyzed and 10 per cent. of the heresaged cases show practically complete sensory and motor restoration; in other words, in our operated cases, progress is better and more rapid than in the milder unoperated patients.

Of about 170 cases of nerve sutures, 25 per cent. already show improvement and progress viewed in relation to the periods of time that have elapsed since operation; that gives us much confidence as to the final satisfactory outcome of these cases. A large percentage of gunshot injuries of nerves should be operated on because, first it is best for the nerve, and, secondly, it enables the associated correction of important orthopedic conditions. Because a man has a nerve injury, should he be deprived of the benefit of a needed orthopedic operation? Practically all these patients have large deforming scars with muscles bound together as a result of infection. Many have retained foreign bodies or joint or bone involvement. For unhealed wounds of soft tissues, we have found wound excision after the zinc chloride and ethereal methylene blue sterilization with immediate operation on the nerve both safe and time saving. A nerve that has been damaged will recover in a progressively decreasing ratio the longer the delay after the injury. An early operation, if safe, is the desirable operation. Granted an aseptic field it is much better, in nerve injuries to look and see, than to wait and see. In operating, it is not enough to isolate a trunk that looks like a nerve. It may be only a mass of connective tissue. If you cannot demonstrate fasciculi the nerve sheath should be split. If that is not enough you should open the nerve along the normal line of fibers until you determine accurately the amount of nerve substance present. If only a few fasciculi remain undestroyed it is often better to resect freely the damaged area and do an accurate suture so that the man will have a chance to get from 90 to 100 per cent. return of function, rather than 10 to 20 per cent.

DR. KARL W. NEY, New Orleans: I did not wish to leave with you the impression that it is a discouraging procedure, but there are refinements in nerve surgery which should receive more attention, and the fascicular topography that Dr. Elmsberg showed you in the slides is important. It is perfectly safe to remove scar tissue, but the great tendency is to do a resection when one finds a nerve that looks bad. In the suturing of nerve trunks there is always the probability of connecting up sensory fibers with motor and motor with sensory, also fasciculi which have had control of one muscle will be connected up with another muscle whose functions are different; for this reason nerve suture is not

a perfect operation from a physiologic standpoint. If it is possible not to do a resection of a nerve but simply free it from scar tissue I think we are doing the proper thing. However, the last word in nerve surgery has not been said.

## SYPHILIS OF THE EPIDIDYMISS\*

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Syphilitic involvement of the epididymis or cord, independent of disease of the testicles, is rare, and, if present, is overlooked in the examination of patients when one is searching for signs of syphilitic infection.

The discovery of several cases of infiltrated epididymides and thickened cords, due to syphilis, led to a search for more minute descriptions of these conditions, but little could be found.

Dr. Benjamin Bell, surgeon to the Royal Infirmary at Edinburgh in 1793, first called attention to syphilitic diseases of the testicles. Ricord denied the existence of syphilitic epididymitis, while Nélaton, Fournier, Dron (1863), Balme, Gosselin, Pinner, Shadek and others gave accurate descriptions and classified types. Very little has been written in late years on the subject. In 1916, Franklin R. Wright<sup>1</sup> gave descriptions of two cases, and, in 1918, Hinman and Lisser<sup>2</sup> described a single classical case. These two articles are the only ones recently published on the subject. The following notes are gathered from various sources, and are an effort to give a clinical description of syphilitic diseases of the epididymis and to bring the subject to the attention of this section, with the hope that the scrotal contents will be examined more often in the routine survey of syphilitics, and that patients presenting symptoms of disease of the scrotal contents will be examined for syphilis.

Three forms of syphilitic epididymitis have been described: (1) acute diffuse interstitial; (2) chronic diffuse interstitial, and (3) gummatous (circumscribed).

### THE ACUTE DIFFUSE INTERSTITIAL TYPE

The diffuse type is the more acute type, and may occur after the second month of infection. Gosselin, however, states that it does not occur before three and one-half months. Very few cases have been reported which occurred before the third year, and the majority of cases occur after the fifth year. Zeissl<sup>3</sup> reports a case which occurred in the second month of the disease, and was accompanied by grouped, papular syphilids in other parts of the body. Shadek has more minutely described the early type. He states that in the early, diffuse variety of syphilitic epididymitis there is a partial or total swelling of the entire epididymis. The swelling at first feels uniform, elastic and smooth, and does not attain a large diameter. As the process continues, distinct indurations arise, which are of variable size—from that of a bean to that of a hazelnut. Pinner states that these nodules are more often found

in the upper pole; more seldom, in the body, and rarely, if ever, in the lower pole. The enlargement is rather acute, somewhat painful, and is accompanied by some degree of hydrocele. After a few days, the acute, inflammatory symptoms subside, the swelling of the epididymis diminishes to some extent, and, as the hydrocele is partially absorbed, the condition of the epididymis can be detected by palpation as a painless, irregular, elastic, rather hard thickening of the entire organ. After a few months, the induration may become absorbed and the epididymis return to its normal size, but more often it remains very solid and somewhat sensitive. In some cases, the epididymis becomes atrophic, occluding the lumen. In the early type, the process seldom passes on to the testicle; while in the gummatous stage, on the contrary, the testicle is first attacked. The two epididymides rarely get diseased at the same time.

### THE CHRONIC, DIFFUSE INTERSTITIAL TYPE

The chronic, diffuse interstitial type is a connective tissue change which may follow the more acute variety, or it may come on independently of an acute attack. It is then a slow, insidious, chronic, diffuse process, or may consist of a series of distinct cartilaginous indurations. The condition is painless until the attention of the patient has been called to the enlargements, when he may complain of dragging sensations and tingling pains. Examination reveals indurations, usually confined to the upper pole of the epididymis; in most cases, we have found the entire epididymis to be involved. The indurations feel very solid; each may feel as though it were made up of several smaller ones, bound intimately together with a thick covering. They are only slightly tender to pressure. The entire epididymis makes a firm, resistant, solid, uneven, indented tumor in apposition with the testicle, without overlapping it (Lancereaux<sup>4</sup>). The induration ends abruptly and does not taper into normal tissue. The vas deferens is rarely involved.

Effusion, which is usually present at some stage, may perhaps be caused directly by the thickening of the tunica vaginalis, and subsequent disturbances of circulation (Finger<sup>5</sup>), or may be due to a chronic, passive congestion, with resulting transudate (Wright<sup>1</sup>). This fluid collects in the tunica vaginalis testes, leading to the mistaken diagnosis of hydrocele. The fluctuation may be very indistinct because of the much thickened tunica, or because of tension, so that it is difficult to isolate the testicle or the tumor mass. When the hydrocele sac is opened, the layers of the tunica are found to be closely adherent and lined with a thick, organized membrane, while numerous areas of slate-colored deposit are noted in quite a few instances. The fluid is not so great in amount as would be expected, and is thick (Joseph<sup>6</sup>). Wright's experience, however, is that the fluid has nothing characteristic about it and may be as much as 1,000 c.c. The Wassermann reaction on this fluid is negative.

### THE GUMMATOUS TYPE

The gummatous type of syphilitic epididymitis begins in the late periods of the disease, but earlier than tes-

\* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wright, F. R.: Syphilitic Epididymitis, *Urol. & Cutan. Rev.* 20, No. 12, 1916.

2. Hinman, F., and Lisser, H.: Syphilis of Epididymis (good bibliography), *Am. J. Syphilis* 2: 465 (July) 1918.

3. Von Zeissl, Maximilian: *Venerische Krankheiten*, Stuttgart, F. L. G., 1902, p. 417.

4. Lancereaux: *Traité on Syphilis*, New Swedenham Society, 1866, p. 274.

5. Finger, Ernst: *Syphilis*, Leipzig and Vienna, F. Deuticke, 1901, p. 170.

6. Joseph, Max: *Geschlechtskrankheiten*, Leipzig, G. Thieme, 1901, Part 2, p. 172.

ticular gummas (Pinner). Several small nodules, varying in size from that of a bean to that of a hazelnut, develop independently of each other, more often in the body or head of the epididymis. These nodules may be closely grouped, or dispersed at various points. The process is chronic and develops insidiously, but may be preceded by the history of an injury. The masses are smooth, quite hard and painless. They rarely break down to the extent that they rupture externally. When this is the case, the discharge is scanty and thick, and the subsequent ulceration has a decidedly indurated periphery, the entire mass and ulcer making a tumor with fungoid ulceration. The tumor has a connective tissue origin, either from the external coats of a blood vessel or from connective tissue membrane. It is made up largely of fibrous tissue, and goes through the various phases which are characteristic of all gummas. Gummas of the epididymis may be secondary to gummatous involvement of the testicle. Langhans reported a gross section of a syphilitic epididymis discovered postmortem. He described it as a solid, caseous knot of angular, ramified shape, about 1 cm. in diameter, with a small transparent zone along the edges. The vas deferens was not invaded, which fact, he said, differentiated the process from a tuberculous one.<sup>7</sup>

#### REPORT OF CASES

The following case reports are taken from the files of Dr. Franklin R. Wright, with whom I am associated.

**Case 1 (1440).—Syphilitic Funiculitis and Hydrocele.**—A man, aged 30, a taxicab driver, had had a chancre in 1911. He was married, had no children, and his wife had had no miscarriages. The early history was not important. The patient had received only local treatment for the chancre and had noticed no subsequent signs of syphilis. In September, 1918, the right side of scrotum began to enlarge. The enlargement proceeded rapidly until, at presentation, the scrotum measured  $9\frac{1}{2}$  inches in circumference. It was painless and rather hard. No distinct tumor could be felt, nor could the testicle be made out except at the lower, posterior pole. The cord could be felt as thick as a thumb at the ring. The patient was seen by Dr. Wright and the condition diagnosed as syphilitic hydrocele and funiculitis from the history and thickened cord. A Wassermann reaction was positive. After two injections of mercuric salicylate, the circumference of the scrotum diminished 2 inches. The patient was given twelve injections of mercuric salicylate and four 0.6 gm. doses of the neosalvarsan brand of neo-arsphenamin, followed by twelve injections of mercuric salicylate, from Nov. 4, 1918, to March 26, 1919, when both sides of the scrotum were of equal size, and no indurations could be felt, except a slightly enlarged cord on the right side. The patient gained 10 pounds and continued routine treatment.

**Case 2 (1489).—Subacute Syphilitic Epididymitis.**—A married salesman, who had no children, had persistent shreds of the urine and a pain, with some swelling of the right epididymis. He denied ever having had gonorrhea, but a year previously he had had a small sore on the prepuce, followed by a "boiling" of the skin. He had taken no treatment. A Wassermann reaction was negative. A prophylactic dose of arsphenamin was given one 0.6 gm. dose of the neosalvarsan brand of neo-arsphenamin. The test was then strongly positive. He reported that he felt better after the administration. The course of treatment was

continued. The slight induration of the entire right epididymis entirely vanished. He gained 9 pounds. Twelve injections of mercuric salicylate were given and the patient continued the treatment. This case, although the diagnosis was not definitely made, proved to be one of a diffuse, syphilitic epididymitis, as discoverable by the rapid response to antisyphilitic treatment. The wife's blood gave a positive reaction to a Wassermann test.

**Case 3.—Syphilitic Interstitial Epididymitis and Hydrocele.**—A colored porter, aged 25, referred to Dr. Wright for hydrocele, had had a chancre five years before. Three months before coming to Dr. Wright he had noticed an enlargement of the right side of the scrotum. It had filled rapidly. The enlarged, hardened, elastic epididymis could be felt back of the testicle. The circumference of the scrotum was  $11\frac{3}{4}$  inches. The diagnosis was syphilitic epididymitis and hydrocele. The treatment consisted of mercuric salicylate injections, and large doses of potassium iodid. After three treatments the circumference was reduced by  $2\frac{3}{4}$  inches. The patient then lapsed in taking treatments, and it was not possible to follow the case further.

**Case 4.—Gummatous Epididymitis.**—An unmarried plumber, aged 27, who had been infected with syphilis four years before he was seen by Dr. Wright and who took pills on and off for two years, noticed a small lump in the left scrotum three months previous to coming to Dr. Wright. This enlarged for a few weeks—was not painful; then subsided. A month before his first visit he received a blow in the scrotum. The swelling again appeared and the enlargement became painful. The skin became red and finally burst through, discharging a small amount of gelatinous pus. An ulceration followed, the size of a nickel, on the posterior surface of the left scrotum. The edges became much indurated, and the discharge scanty. The testicle could be palpated, and seemed to be matted in a mass the size of a walnut. The patient lost 18 pounds. The diagnosis was gumma of the left epididymis. Three injections of the neosalvarsan brand of neo-arsphenamin and potassium iodid were given. The healing was prompt. The patient gained weight, but refused to continue the treatment. He was married a year later, and his wife gave birth to a healthy (?) baby. No further report is available.

**Case 5 (1418).—A trainman, aged 45, with no history of chancre, had had gonorrhea, which lasted one month one year before he was seen. No complications followed. Eight months later the left epididymis began to swell. There was no pain. A large hydrocele appeared and was opened. The epididymis was indurated; the sac was semielastic and thickened, and the entire cord was thickened. The Wassermann reaction was negative. Iodids were given and the thickening began to disappear. The patient was then given four injections of the neosalvarsan brand of neo-arsphenamin, which resulted in a decided softening of the epididymis. The patient has not subsequently been seen.**

**Case 6.—Diffuse Syphilitic Epididymitis and Funiculitis.**—A brakeman, married, with no children, had a thickening of the left epididymis, which a physician had been treating as gonorrheal. He had never had gonorrhea, and his wife was reported well by a gynecologist (Dr. Condit). The left epididymis was hard and knotted, being made of numerous distinct indurations. The entire cord was thicker and harder than the right. The patient admitted having had syphilis seven years previously. He had had some pills, but no arsphenamin. The patient was called out of town before the examinations were completed. There was no Wassermann report and no therapeutic test.

**Case 7.—Gummatous Epididymitis.**—A boy, aged 2 years, a first child and of foreign parentage, concerning whom little history was obtainable, had an illness beginning with a lump in the left scrotum, which enlarged and finally ruptured externally. There was a mass the size of an olive in the upper portion of the epididymis. The ulceration showed a decidedly indurated border. Internal antisyphilitic treatment brought the lesion under control, with complete healing in two months' time.

<sup>7</sup> In addition to the references already given, the following will be found of interest:

Wassermann, A., *Die Syphilis*, 1908, p. 100, Erlangen.  
Wassermann, M., *Intern. J. Derm.*, 1, p. 39.  
Hermann, J., *Journal of Syphilis and Gonorrhea*, Lea Brothers & Co., 1911, p. 7.

Two other cases observed were reported by Dr. Wright.

COMMENT

1. Syphilitic involvement of the epididymis is not an extremely rare occurrence, and will be more frequently found, if looked for.
2. Bilateral involvement is unusual.
3. The more common type is the chronic diffuse interstitial type.
4. Some cases of hydrocele are due to syphilis.
5. All patients presenting themselves for disease of the scrotal contents should be examined for syphilis.
6. The diseased portion is not necessarily confined to the upper pole, the entire epididymis being frequently involved.

RAGWEED DERMATITIS\*

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The important part played by anaphylaxis in the causation of various eruptions has long been recognized. In a paper dealing with drug exanthems in relation to anaphylaxis, Cole<sup>1</sup> includes a brief but comprehensive review of the literature of the subject, and defines anaphylaxis as "a state of hypersusceptibility of the organism to foreign substances, which is brought about by the introduction of certain foreign proteins and their cleavage products."

The incubation period of sensitization varies in different species of animals from six to twenty-one days; and is shorter after intravenous than after subcutaneous injection. After an animal has once become sensitized, the hypersusceptibility persists almost indefinitely, and as Rosenau and Anderson<sup>2</sup> have demonstrated, may be transmitted from a mother to her offspring.

CAUSE OF ANAPHYLAXIS

Cooke<sup>3</sup> summarizes as follows: A foreign protein, not in itself toxic, gains entrance into the circulation for the first time. It stimulates the production of specific antibodies which previously did not exist. More antibodies, which may or may not be enzymes, are produced by certain cells of the body and seem to be intimately associated with the cells which produce them. If enough time is allowed for a sufficient number of antibodies to accumulate, and a second dose of the same protein is then introduced, the antibodies react with the protein, splitting it into toxic fragments, which in turn injure the body cells, and give rise to anaphylaxis. If, on the other hand, an excess of antibodies has been produced and these are free in the blood stream, they combine with the foreign protein and prevent it from reacting with the body cells, just as antitoxin neutralizes toxin. In other words:

When antibodies are absent or few in number, we have the nonsensitive state; when numerous and attached to body cells, we have the sensitive or anaphylactic state; and when in excess, with many unattached to body cells, we have the immune state. Anaphylaxis and immunity are the same in principle, differing only quantitatively.

Danysz<sup>4</sup> calls attention to the fact that certain symptoms are a result of anaphylaxis induced by microbes, living or dead, or their products, a fact which has also been emphasized by Duke,<sup>5</sup> Major<sup>6</sup> and others. Sensitization may be single or multiple. Cooke found multiple sensitization in more than 50 per cent. of his cases.

Moschowitz<sup>7</sup> calls attention to conditions that must exist in order to bring about a state of hypersensitization:

1. There must be previous susceptibility, which may be congenital or acquired.
2. The reaction is specific.
3. The reaction can be obtained by mouth, as well as by injection; also by cutaneous inoculation, such as rubbing the offending substance into an abraded surface.
4. Acquired susceptibility can be transferred by heredity to posterity.

The constitutional symptoms are respiratory disturbance, dyspnea, hyperemic and urticarial skin eruptions, and similar toxic phenomena.

Many if not all skin conditions thus far considered as anaphylactic are associated with eosinophilia.

Immediately following anaphylactic shock and repeated injections of antigen in small doses, there is a state of immunity to anaphylactic shock from further injections of the same antigen. This is called anti-anaphylaxis; it is absolute, though only temporary; thus differing from immunity (Strickler<sup>8</sup>). This method of desensitization is at times employed as a therapeutic measure and, occasionally, with a certain degree of success.

Chandler Walker,<sup>9</sup> in an extremely valuable paper on the causation of eczema, urticaria and angioneurotic edema, concludes that the proteins of horse dandruff, ragweed, and timothy pollens, may cause eczema in predisposed persons, both from external exposure and from internal injection.

Eczematous patients tolerate very small doses of the offending protein, and the eczema seems to improve; but a slight increase above this small amount makes the eczema worse. Therefore, desensitization for eczema, if such is possible, must be a very slow and cautious process, even more than in asthma.

Charles J. White<sup>10</sup> of Boston was one of the first, if not the first, to call attention to anaphylaxis as a factor in the causation of some cases of infantile eczema; and his efforts to popularize cutaneous tests for the detection of the various offending proteins have been of great educational value.

Ayres<sup>11</sup> has recently published an instructive paper on the value of cutaneous tests in unearthing the causative factors in various disorders probably developing as a result of anaphylaxis.

SKIN REACTIONS

Kolmer<sup>12</sup> thus summarizes the various skin reactions:

1. The true, or specific, anaphylactic reaction, due to the interaction in the skin of specific protein antigen and specific antibody.

4. Danysz: *Presse méd.*, **24**: 367, 1918.  
5. Duke, W. W.: *Oral Sepsis in Relation to Systemic Disease*, St. Louis, C. V. Mosby Company, 1918.  
6. Major: *Deutsch. Arch. f. klin. Med.*, **111**: 248, 1914.  
7. Moschowitz: *New York M. J.*, **92**: 15, 1911.  
8. Strickler: *New York M. J.*, **104**: 198, 1916.  
9. Walker, J. C.: *Causation of Eczema, Urticaria and Angioneurotic Edema*, *J. A. M. A.*, **70**: 897 (March 23) 1918.  
10. White, C. J.: *Two Modern Methods to Be Employed in the Treatment of Chronic Eczema*, *J. A. M. A.*, **68**: 81 (Jan. 13) 1917; *J. Cutan. Dis.*, **34**: 57 (Feb. 16) 1916.  
11. Ayres, S., Jr.: *Boston M. & S. J.*, **17**: 697 (May 23) 1918.  
12. Kolmer, J. A.: *Bull. Johns Hopkins H. sp.*, **28**: 163 (May 17) 1917.

\* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Cole: *Cleveland M. J.*, **10**: 442, 1911.  
2. Rosenau and Anderson: *Bull.*, **30** and **45**, U. S. P. H. S., April, 1907, and June, 1908.  
3. Cooke: *Med. Clin. of N. America*, **1**: 721, 1917.

2. The pseudo-specific or nonspecific protein reaction, due to the interaction in the skin of general protein substances and nonspecific proteolysis.

3. The traumatic reaction consequent on the operation, or the irritant qualities of such substances as preformed bacterial toxins and various preservatives, as phenol and cresol contained in the injected material.

The intradermal method, which is the most delicate, but also more likely to yield traumatic and nonspecific reactions.

Strickler,<sup>13</sup> and Strickler and Goldberg<sup>14</sup> have adopted these standards as to what constitutes a positive cutaneous reaction:

1. Persistence of the lesions for more than twenty-four hours after the injection. (They fix the standard at forty-eight hours.)
2. The presence of a distinct papule.
3. The presence of a distinct erythema.
4. The presence of tenderness at the point of injection.

Blackfan<sup>15</sup> thinks there is no justification for the forty-eight hour standard, and believes that less time would suffice. Judging from my own experience, I believe a twenty-four hour period practicable.

In a final review of the subject of anaphylactic eruptions in general, Strickler and Goldberg conclude that:

Just as a syphilitic subject with a positive Wassermann reaction may develop a skin eruption that is unrelated to his systemic infection, so a patient with a positive food anaphylactic reaction may develop a cutaneous affection due to other factors than his food.

As Ayres has said:

The exact mechanism by which the multiple local edema characteristic of anaphylaxis is produced is not positively known. Heidenreich has suggested local anuria with increased permeability of the vessel walls; Vertz has a deficiency of calcium salts in the blood; and Martin Fischer, a localized increase of acid products.

All three of the foregoing explanations are open to criticism, although each is supported by well recognized facts.

While all of us are familiar with the eruptions which develop occasionally as a result of anaphylaxis following the ingestion of various articles of food, and many of us recognize the part played by bacterial products in the causation of certain diseases of the skin, such as infectious eczematoid dermatitis and kindred disorders, I do not believe that the cutaneous phenomena which occur as a result of the absorption of foreign proteins through the respiratory tract and possibly

through the skin itself have received the attention and study that they deserve.

About seven years ago, I had an opportunity to study a case of goldenrod dermatitis, with an associated asthmatic disorder, due to the same agent. The patient was a little girl, and direct exposure to even small amounts of goldenrod pollen invariably and promptly produced a severe dermatitis, which quickly became generalized, and an asthma of varying degree, which persisted for twenty-four hours or more and then gradually subsided. Examples of dermatitis from this source are rare, however, probably owing to the fact that the flower is insect pollinated, and direct inhalation or direct contact must necessarily precede absorption.

#### REPORT OF CASES

CASE 1.—My first case of ragweed dermatitis was seen in a Kansas stockman, aged 48, referred to me by Dr. W. C. Labrop of Norton.

The patient's hypersusceptibility to ragweed pollen had existed about eight years; and, during an attack, the manifestations were almost wholly confined to the integument. Unlike some victims of the disorder, he had never suffered from hay-fever; and, so far as he knew, pollens other than those of ragweed did not affect his skin. The disease recurred annually, during August and September, and each time persisted for two or three months.

The face, chest, hands and forearms were the parts principally affected, although the trunk and the lower limbs occasionally were involved. Exposure to the dried weeds, in hay mows and stacks, during the winter and spring months, invariably brought on an attack.

The cutaneous eruption which developed as a result of these brief periods of exposure was comparatively mild, however, and generally subsided quite promptly under the influence of soothing, astringent lotions, as aqueous solutions of aluminum acetate.

The seasonal exacerbations were much more serious, however, and practically incapacitated the patient for many kinds of farm work.

The cutaneous lesions varied in form from macules to bullae, the majority being macular, maculopapular and vesicular in character. Itching was invariably present, together with more or less burning and stinging. Free exposure to pollen would invariably precipitate an attack in from one to three hours, and twelve hours later the patient's face would be so badly swollen that he could hardly see. In this instance, no specific vaccines were employed.

CASE 2.—My second patient, also a farmer, referred to me by Dr. Frank McDermald, of Kansas City, had a clinical history which almost duplicated the one recorded above. In order that the affection might be the more easily investigated, I asked my friend, Dr. W. W. Duke, to make an exhaustive laboratory study of the case. This was done, and it was found that the patient possessed a marked hypersusceptibility to the pollen of common ragweed (*Ambrosia elatior*), and a slight susceptibility to the pollen of giant ragweed (*Ambrosia*



Fig. 1.—Common ragweed (*Ambrosia elatior*), principal cause of hay-fever in the Eastern and Southern states. (From "Illustrated Flora of North America," by Britton and Brown—after Scheppegrell.)

13. Strickler, J. N. *New York M. J.* 101:198 (July 29) 1916.  
14. Strickler, A., and Goldberg, J. M. *Anaphylaxis*, J. A. M. A. 69:249 (Jan. 22) 1916.  
15. Blackfan, K. D. *Am. J. Dis. Child.* 11:441 (June 16) 1916.

*trifida*). There was no reaction to timothy, goldenrod or cottonwood.

The use of ragweed pollen vaccine, in gradually increased dosage, afforded much relief; and at this time, after almost two years of interrupted treatment, the attacks are so infrequent in number and so mild in character that the patient is inconvenienced but little by them.

CASE 3.—In my third case, which occurred in a farmer, aged 43, referred to me by Dr. Edward Ashell, of Kansas City, there was a history of mild annual attacks of "rose fever," extending over a period of eight or ten years; but during the six years that immediately preceded the date of my examination, the patient had been entirely free from the nasal disturbance. The cutaneous disorder, which was characterized by the presence of irregularly distributed but roughly symmetrical collections of macules, papules and vesicles, involved the face, chest, trunk and forearms, and had at first appeared only during the late summer months. For the past two years, however, the patient had at no time been entirely free from it.

In view of the histories of the two preceding cases, it was a comparatively easy matter to discover, and prove, the nature of the offending agent. The hypersusceptibility in this instance was very great, so much so that the simple inhalation of a small amount of ragweed dust, contained in a wide-mouthed bottle, was sufficient to bring on a severe exacerbation of the cutaneous disorder. The ingestion of capsules containing pollen and particles of leaves had no appreciable effect on the patient's skin. As in Case 2, *Ambrosia elatior* was the offender.

Treatment with pollen vaccine was instituted, but it was not possible for the patient to report regularly for the injections, and they were discontinued altogether before any material benefit was derived from their use.

CASE 4.—In my fourth case, which also occurred in a farmer, referred to me through the courtesy of Dr. William J. Frick of Kansas City, the disorder was of five years' duration, and the patient, who was a very observant individual, had already discovered its cause.

Unfortunately, it was not practical for him to adopt so radical a prophylactic measure as the abandonment of his occupation, and he had tried a large number of local and internal remedies without securing relief.

Owing to the ease with which the remedy could be procured, Mulford's fall pollen extract was tried in this case. The result of the treatment was very satisfactory, relief from the burning and itching being almost immediate. After a series of twelve injections, in gradually increasing doses, the patient temporarily discontinued treatment. At that time, he could safely handle hay containing considerable amounts of ragweed, and, at present, he believes that he is cured. He has promised to report again later in the year, however, after the "ragweed season" is over, and the permanence of the cure can then be ascertained.

OFFENDING PLANTS

The plants that cause so-called "ragweed dermatitis" are probably the same as those causing hay-fever. The

principal offenders, as Lowdermilk,<sup>16</sup> Scheppegrell<sup>17</sup> and others have demonstrated, are the common ragweed, and the giant ragweed, with mugwort (*Artemisia heterophylla*), western ragweed (*Ambrosia psilostachya*) and bur marsh elder (*Iva xanthifolia*) in the lesser rôles.

As Scheppegrell has said, the responsibility of the noxious plants for hay-fever is dependent, first, on the proximity of the plants, and secondly, on the size of the pollen, which has a marked effect on its buoyancy. The pollen of the common ragweed is only 15 microns in diameter, and its buoyancy is so great that a wind velocity of 20 miles will carry it over large areas of territory.

PREPARATION OF POLLEN

The preparation of the pollen for dermal tests is a comparatively simple matter. Duke advises that a known amount of pollen be placed in a small, sterile mortar, together with a drop or two of sterile water. The pollen is then thoroughly triturated, being ground repeatedly until, when examined under a microscope, it is found that the grains are completely broken up. The mixture is then diluted with tenth normal salt solution, to which 10 per cent. of glycerin and 0.5 per cent. of phenol (carbolic acid) have been added, so that 1 c.c. of the mixture contains 10 mg. of pollen.

The same preparation may be used for treatment purposes; but if this is done, the solution should again be diluted serially, in order to guard against possible overdosage.

The initial dose should be small, not over from 0.0001 to 0.0003 mg. of pollen protein. Afterward, the dose may be increased in size, depending on the reaction secured. A safe plan is to inject the vaccine every third or fifth day, increasing the amount injected from 10 to 30 per cent. each time. Occasionally, the ensuing reaction is very severe and even violent; and it is wise always to have conveniently at hand atropin and epinephrin solutions, in case they are needed. The local treatment is that of an eczema.

Since this paper was written, Hannah<sup>18</sup> of Sander-ville, Ga., has published a report of a very interesting case of ragweed dermatitis of five years' duration, in a woman, aged 49. A specific diagnosis was made by means of intradermic tests, and prompt relief followed the hypodermic use of pollen extract.

1034 Riato Building.



Fig. 2.—Giant ragweed (*Ambrosia trifida*). Replaces the common ragweed in most parts of the Eastern and Southern states and is also found in some sections of Nebraska, Colorado and New Mexico. (From "Illustrated Flora of North America," by Britton and Brown, after Scheppegrell.)

16. Lowdermilk, R. C.: Hay-Fever. *J. A. M. A.* **63**:141 (July 11) 1914.

17. Scheppegrell: *Pub. Health Rep.* **31**:1907 (July 21) 1916; *ibid.* **32**:1135 (July 20) 1917.

18. Hannah, L.: Ragweed Dermatitis. *J. A. M. A.* **72**:853 (March 22) 1919.

## ABSTRACT OF DISCUSSION

Dr. C. A. SIMSON, Washington, D. C.: I enjoyed Dr. Sutton's case report very much. It is unfortunate that he has not endeavored to make a serious study of the subject of anaphylaxis, which would have prevented his confusing the term with skin sensitization. The two terms while superficially similar, in reality are quite different. The reaction of anaphylaxis is better understood, and its production requires certain definite specific factors. It must be produced by a protein in an animal or man who has become previously sensitized to that specific protein. The authorities, serologists and pathologists, not dermatologists, claim that so far no substance other than a protein can produce the anaphylactic phenomena. Ford, the only serious contender of this general opinion, was unable to duplicate his results with his so-called glucosid, von Audlung later showing that he was not working with a pure glucosid, but a compound. For Dr. Sutton to get a skin reaction with ragweed ground up in the menstruum he employed may mean almost anything. The requirements of true anaphylaxis are far from complied with, in fact, the reaction is simply an example of skin sensitization such as we see following the injection of arsenphenam or the ingestion of pure chemicals (not proteins), such as quinin and iodine. In my work with the primrose plant I at least made an effort to discover the irritating elements of the plant. I isolated a protein with which I sought to (1) produce a skin reaction in a susceptible patient, (2) actively sensitize a guinea pig, (3) produce an anaphylactic shock in two sets of pigs, one previously sensitized (?) by the patient's serum, the other sensitized (?) by a previous injection of the same primrose protein. All of these protein tests were negative. When an alcoholic extract of the plant (which had precipitated all proteins) gave an intense skin reaction, I was doubly sure that protein had nothing to do with the skin irritability. In a further analysis of the plant I obtained two compounds, both without a protein content, one an oleo-resinous mixture probably containing an acid, the other a crude glucosid, both of which produced the characteristic skin reaction where the protein failed. It is unfortunate that Dr. Sutton, at this late day, should confuse the two entirely different reactions. A casual investigation of the literature in *THE JOURNAL of the American Medical Association* might right his rather hasty and entirely incorrect conclusions.

Dr. J. H. BLAISDELL, Boston: I recently had a patient, a boy, 6 years of age, who reacted to ragweed in the usual way and in addition was very sensitive to the external application of dog dandruff. Every time he played with a neighbor's dog he suffered from an acute attack of asthmatic eczema of the parts that had come in contact with the animal. Another case was that of a lawyer who was susceptible to horse dandruff. He was so sensitive that if any one came into his office in the winter time and shook a fur overcoat after they had been driving a horse he would have an acute attack of asthma. Harnessing or carrying a horse could produce asthma and a dermatitis of the parts exposed to the dandruff.

Dr. LARRY S. LAM, Oklahoma City: I have looked up the subject for several years and have noticed a dermatitis which I had thought was produced by ragweed. I have however, attributed these cases more to the direct contact or friction, irritation by the hairs of the plant itself, than I have to the pollen. I do not doubt the possibility of plant pollen also producing a dermatitis when it comes in contact with a susceptible portion of the skin. I have noted several cases of ragweed dermatitis on the legs of children wading through the weeds on the way to and from school. If there is an abrasion on the skin they develop a dermatitis very easily. The subject of plant dermatitis is growing larger all the time and I think we should take careful notice of the various plants that produce it because the farmers and the city people who take their vacations in the rural districts are anxious to know about these plants and how to avoid them. Poisonous plants are classified by many botanists, though they classify them more especially as regards internal toxicity, produced accidentally or otherwise.

Of their poisonous substances very little is known or written. Take, for instance, the large nightshade group—nearly all members of this family are toxic when administered internally and a large number will produce a dermatitis when applied externally. I believe Dr. Sutton will find that not only is the ragweed toxic by means of the pollen which floats, but also by means of the fine plant hairs which perhaps prick the skin and deposit a poisonous glucosid.

Dr. WILLIAM ALLEN PUSEY, Chicago: I wish to defend Dr. Sutton's use of the term anaphylaxis. We all know that the term anaphylaxis was applied primarily to reactions from protein sensitization. We also know now that other reactions of the same character as these protein reactions occur from other substances. It is all very well to be purists in the use of language, but you cannot readily confine the use of a word to a phenomenon which is produced by one substance and deny its use to exactly the same phenomenon produced by another substance. For example, if a man has a reaction which we call anaphylactic to an infinitesimal amount of egg white, how are we going to prevent the application of this term to a clinically identical reaction to an infinitesimal dose of quinin in a quinin-sensitized person? Etymologically there is no objection to this broadening of its meaning; in fact, I believe there are many reasons for it.

Dr. HAROLD N. COLE, Cleveland: I would like to raise the same question as Dr. Pusey did in regard to anaphylaxis. They used the term first in relation to proteins. It has been shown by Ford that the same thing can be obtained from glucosids and I think the same thing may apply to asthma. When you get these symptoms I do not see why it should not be spoken of as anaphylaxis.

Dr. FRED WISE, New York: There is one point which I think will interest the section. Yesterday Dr. Schanberg told us that he produced desensitization to the reaction from poison ivy by the internal administration of rhus toxicodendron.

Dr. JAY FRANK SCHAMBERG, Philadelphia: For several years I have been using the tincture of rhus toxicodendron to desensitize patients susceptible to ivy poisoning, and so far I have never had a failure. It is perfectly possible to keep the patients free from ivy dermatitis. I use 1 c.c. of the rhus toxicodendron with 10 c.c. of alcohol with some fluid vehicle sufficient to make 100 c.c. I begin the treatment with one drop well diluted after the first meal, two drops after the second meal, and so on, until 20 drops are reached, and then for the purpose of simplifying the treatment I give one teaspoonful, well diluted, once a day through the ivy season. The immunity seems to last for about one month after the last dose has been taken. It is very simple, does not disturb the digestion and patients are able to keep themselves free from ivy poisoning in this way. I made brief mention of this at the session of the American Medical Association in Detroit, 1916, and since then I have had many cases and not one that was not protected. One patient was a young girl who was usually confined to bed for about three months of each year because she could not walk down a lane where ivy grew without becoming attacked. I have no doubt that other forms of dermatitis from poisonous plants could be prevented in the same way. I believe that Dr. Pusey will, on recollection, agree with me that patients who are susceptible to ivy poisoning do, as a matter of fact, have certain periods of immunity. Patients do not have recurring attacks without a number of weeks of relative or complete freedom. I think it is quite well established that persons susceptible to ivy poisoning may be attacked with ivy dermatitis without actual contact with the plant. The effect of the treatment to which I have referred is; after all, not to be prejudged by theoretical conditions, but by actual results obtained.

Dr. WILLIAM ALLEN PUSEY, Chicago: The proposition to produce immunity to poison ivy by the administration of tincture of rhus arouses in my mind the question why we do not see acquired immunity to poison ivy from previous attacks. Patients who are sensitive to the plant have attacks so readily on exposure that the duration of immunity produced by an attack must be very short, if it exists at all. If the attacks themselves do not produce immunity, how

much success are we going to have in producing immunity by the ingestion of a tincture of the drug?

DR. H. J. PERRY, Boston: I wonder if the members of the section have heard of immunizing patients by feeding them the leaves of the poison ivy. Some one called my attention to this method of feeding a leaf to an exposed or already poisoned patient every day, and said he had been able to protect them by this method and bring about a rapid cure of all symptoms.

DR. J. FRANK SCHAMBERG, Philadelphia: I believe that Dr. Pusey infers that patients do not have a period of immunity; but they do at times have a period of immunity; otherwise, they would be having successive attacks of ivy poisoning, but within two or three months they will again become susceptible. As regards the question of having an attack of ivy poisoning without coming in contact with the ivy, that has been substantiated. After all, it is not a matter of theory but of practice.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I might follow out Dr. Simpson's argument "to its ultimate termination," but a rose by any other name smells just as sweet, and if he does not care to call it anaphylaxis, he can call it anything he pleases. With reference to Dr. Blaisdell's case of sensitization to horse dandruff, several well authenticated instances of anaphylaxis due to this substance are now on record. Dr. Duke has reported a very unusual example in which the patient, a young woman, was sensitized to the protein thrown off by cat fur. A friend of the patient once thought he would play a joke on her, and brought near her a small kitten, concealed in the pocket of his coat. The ensuing attack was so severe that a physician had to be summoned and an injection of epinephrin given to relieve the attack. So far as ragweed pollen in particular is concerned, I think the cutaneous reaction following the intradermal injection of even very minute amounts of the substance is amply sufficient to establish the relationship. When a severe attack of asthma, with an associated and clinically typical, dermatitis, invariably develops in certain individuals as a result of the injection of even so small an amount as 0.001 mg. of ragweed pollen, then if we are not dealing with anaphylaxis the condition is an utter stranger to me.

## THE FUNDAMENTAL PHYSIOLOGIC REACTION IN ANAPHYLACTIC AND PEPTONE SHOCK

PRELIMINARY REPORT \*

J. P. SIMONDS, M.D.  
CHICAGO

The causes of the remarkable differences in the manifestations of anaphylactic and peptone shock in different animals has been the subject of no little speculation. In the dog, anaphylactic and peptone shock are characterized by a marked immediate fall in arterial blood pressure, a simultaneous fall in venous (external jugular-superior vena cava) pressure, a rise in portal pressure, an increase in the volume of the liver, and, at least in peptone shock, an increased flow of lymph from the thoracic duct. It is evident, therefore, that in the dog, the flow of blood through the liver is greatly impeded in these conditions. The exact location of the obstruction has not heretofore been determined.

In reasoning from these facts it appeared that the only possible location for an obstruction that would explain all of them was not the extrahepatic splanchnic area, nor the portal vein and its intrahepatic

branches, nor the intralobular capillaries, but the hepatic vein and its branches. It has been shown that a fall in blood pressure such as is seen in the dog is not characteristic of anaphylactic shock in the guinea-pig (Auer and Lewis) or in the rabbit (Auer) or in peptone shock in the guinea-pig (Hirschfelder). In searching for a reason for this difference, a study has been made of the comparative anatomy of the hepatic vein in different animals. It has been found that the hepatic vein in dogs differs from that of the guinea-pig, rabbit and other herbivorous animals examined, in the relatively enormous amount of smooth muscle which is present in its walls. A report of the results of this study, made in collaboration with Dr. L. B. Arey, will be published later.

It appears, therefore, that the fundamental physiologic reaction in anaphylactic and peptone shock in dogs is a spasm of the smooth muscle in the walls of the hepatic vein and its branches. Experiments which make this evident will be reported later.

This interpretation of the physiologic mechanism of anaphylactic and peptone shock has certain practical bearings which will also be made the subjects of forthcoming publications:

1. It is known that in the guinea-pig the finer bronchioles are "practically nothing but muscular tubes" (Oppel, cited by Auer and Lewis). The characteristic clinical manifestation of these conditions in this animal is a violent dyspnea in which it can get air into its lungs but is unable to get it out. The dog and certain other animals have hepatic veins supplied with exceptionally large amounts of smooth muscle. The manifestations of anaphylactic and peptone shock in dogs have just been described. It seems possible, therefore, that the basis for these differences in the reaction of different animals in shock of this kind is an anatomic difference in the distribution of smooth muscle in the body. A similar anatomic anomaly may also account for certain types of asthma and serum reactions in human beings.

2. This observation may also bring peptone shock into relation with surgical and wound shock. It is only necessary to recall that among the theories advanced by various authors who have studied shock under war conditions is one which makes the absorption of the soluble products of damaged muscle in wounds responsible for the condition. Furthermore, it is obvious that any prolonged spasm of the hepatic vein and its branches, such as occurs in peptone shock in the dog, will lead to the same condition in the general circulation, or at least in the splanchnic area, of sequestration of blood in the venules and capillaries as was observed by Jackson and Janeway in the shock produced by them by the mechanical obstruction of the vena cava for limited periods of time.

3. It is evident, also, that in interpreting the results of experiments on dogs, especially those which have to do with blood pressures, this peculiarity of the hepatic vein must be taken into consideration. This will be discussed more fully in a paper on the interpretation of the blood pressure curve following injections of epinephrin (adrenalin).

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**Cancer Mortality.**—During the great war the United States lost about 80,000 soldiers. During the same two years 180,000 people died of cancer in this country. Cancer is now killing one out of every ten persons over forty years of age.—American Society for Control of Cancer.

\* From the Department of Pathology, Northwestern University Medical School.

THE METABOLIC GRADIENT UNDER-  
LYING PERISTALSIS \*

WALTER C. ALVAREZ, M.D.

SAN FRANCISCO

Why does food normally go in one direction down the intestine? Why sometimes does it go slowly and haltingly, giving rise to symptoms of indigestion? Why sometimes does it turn around and come back through the mouth? These questions are fundamental; and the future of gastro-enterology as an exact science depends on the fulness with which they are answered. Until we obtain such physiologic knowledge we must face the fact that in practice we are trying to repair a machine, the normal structure and workings of which are largely unknown to us. Naturally the results are often unsatisfactory, just as they would be if we were trying to repair broken-down adding machines or wireless telephones.

What could the heart specialist learn about the arrhythmias until Gaskell, McWilliam, His, Keith, Lewis and others showed him where the beat normally arises and how it is transmitted from sinus to ventricle? Given that information, the student of heart pathology became inspired and rejuvenated; his knowledge advanced by leaps and bounds; and his textbooks had to be rewritten and remodeled. We should take hope from this good fortune which has come to our confrères and should seize on the methods of study which have been so productive in their hands. With these I believe we can advance to similar triumphs over the baffling problems in our own chosen field. We should study the gastro-intestinal tract in embryos and in lower and simpler forms of life; we should look for structural and metabolic differences in the neuromuscular apparatus in different parts of the tract, and we should study minutely the reactions of the muscular coat—its rhythmicity, irritability, conductivity, reaction to drugs, etc.—in different regions. As clinicians, we must get over the habit of thinking in terms of plumbing and rigid tubes held in one position. We must think instead of a muscular tube which has to contract in a coordinated way if material within it is to be pushed for many feet in one direction or the other.

Six years ago I showed that there is a very definite gradient of rhythmicity in the muscle of the small intestine from duodenum to ileum<sup>1</sup>. It seemed to me then that this gradient of rhythmicity or perhaps some underlying gradient of tone might be the essential factor in determining the direction of peristalsis. This gradient might conceivably be reversed by any distention, irritation or inflammation which would increase the tone and activity of the lower parts of the tract to a level above that maintained by the upper parts. In two papers<sup>2</sup> I reviewed much of the literature and showed how easily a great many clinical and roentgenologic observations can be explained on the basis of such a theory.

I cannot see now why there should be any great difficulty in accepting this idea of a gradient of

forces as a working hypothesis in the study of peristalsis. Wherever we find movement in this world we find a gradation of forces. Thus, water flowing in a ditch follows a gradient of gravity, i. e., the pressure on any one drop is greater on the upstream than on the downstream side. Electricity in a wire follows a gradient of potential or voltage; in a battery it follows a gradient of chemical activity, flowing from regions in which oxidation predominates to regions in which reduction predominates. The impulse in the heart follows a gradient of rhythmicity; and according to Tashiro<sup>3</sup> the impulses in nerves follow gradients of oxidation. In the stomach and intestine the contents move from regions of high rhythmicity, high irritability and high tone to regions of low rhythmicity, low irritability and low tone.

During the last two years I have been able to show that there is a definite gradient of oxidation and carbon dioxide production in the intestinal wall, underlying and probably giving rise to the other gradients of rhythmicity, tone, etc.<sup>4</sup>. In other words, the chemical processes of life go on at a faster rate in the duodenum than in the ileum or colon. Theoretically, if we should speed up these processes in the duodenum we might steepen the gradient and cause the food to go faster through the bowel; if we should speed them up in the ileum so that they would be faster than those in the duodenum, we might reverse the gradient and stop the downward progress of food. Recent study has shown that the local life processes are greatly speeded up by inflammation<sup>5</sup>, so it may be that the hypermotility actually seen in many cases of duodenal ulcer and cholecystitis and the hypomotility with appendicitis are due to changes in the metabolic gradient brought about by these lesions.

Galvanometric studies of bruised tissues suggest strongly that their metabolic rates are increased by the trauma<sup>6</sup>. If this be true in the intestine we can easily explain the fact that its contents cannot approach or pass through segments which have recently been pinched in hernial rings or maltreated at operations<sup>7</sup>. A local increase in the metabolic rate would make the gradient uphill in the section of bowel just oral to the lesion.

There is yet another and perhaps an even more important way in which the gradient may be reversed. Child<sup>8</sup> has shown repeatedly that tissues with a fast rate of oxidation are more susceptible to the effects of low concentrations of certain poisons, such as potassium cyanid, than are tissues with slow rates. If two lots of small planarian worms of different ages are put into a weak solution of potassium cyanid, the younger ones, with the faster metabolic rate, die first. Similarly, if children and old men were to be put into a room full of ether vapor, the children would probably all go to sleep first. Child showed that in some of the lower forms of life which have rows of swimming plates along their sides, the direction of the beat can be reversed by potassium cyanid because the pace-making region suffers most from the effects of the drug. Using excised segments from different parts

3. Tashiro, Shiro: A Chemical Sign of Life (Irritability), Chicago, University of Chicago Press, 1917.

4. Alvarez, W. C., and Starkweather, E.: *Am. J. Physiol.* **46**: 186 (June) 1918; *ibid.* **47**: 60 (Sept.) 1918.

5. Segale, M.: *J. Exper. Med.* **29**: 235 (March) 1919.

6. Hyman, L. H.: *Science* **48**: 518 (Nov. 22) 1918.

7. Cannon and Murphy: *Am. J. M. Sc.* **131**: 569, 1906; Alvarez:

J. A. M. A. **65**: 392, 1915.

8. Child, C. M.: *Am. J. Physiol.* **43**: 87 (April) 1917; Senescence and Rejuvenescence, Chicago, 1915.

\* Read before the Section on Gastro-Enterology and Proctology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

<sup>1</sup> From the George William Hooper Foundation for Medical Research, University of California Medical School.

1. Alvarez, W. C.: *Am. J. Physiol.* **35**: 177 (Sept.) 1914; *ibid.* **37**:

267 (May) 1915.

2. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, J. A. M. A. **65**: 388 (July 31) 1915; The Syndrome of Mild Reverse Peristalsis, *ibid.* **61**: 2018 (Dec. 15) 1917.

of the bowel, all beating rhythmically together in the same beaker of Locke's solution. I had no difficulty in showing that the duodenum is much more sensitive to potassium cyanid and to the lack of oxygen than is the ileum. Time and again while working in the laboratory I have been impressed by the great sensitiveness of the duodenum and of the pace-making region in the stomach to trauma of all kinds<sup>9</sup>. Compared with them, the ileum and the pyloric antrum are tough and hardy. I have also been impressed with the fact that the gradients of rhythmicity, latent period and metabolism are abnormal in sick animals. Just as we should expect, the duodenum and jejunum seem to suffer more from the effects of the toxins than do the ileum and colon. The distempered dogs and snuffling cats generally refused food. When it was put in their stomachs it remained there until it was vomited. Cannon has commented on the remarkable gastric stasis seen in distempered dogs. Similarly, food may remain for hours in the stomachs of people with tuberculosis and other intoxications. There I feel sure the stagnation is not always due to a failure in peristalsis; the waves may be seen traveling regularly over the stomach, but they do not force the contents through the pylorus. Something must be wrong with the gradient. I believe it has been altered by an unequal effect of the toxins on the muscle at the two ends of the organ. How simple this explanation is as compared with those which drag in a cumbersome and so far quite undemonstrated mechanism of nerves and internal secretions!

#### AN ILLUSTRATIVE SIMILE

Perhaps I can best express my ideas of what goes on in the intestine by means of the following simile: Let us imagine a game of push-ball played by a long line of men who have been graded according to their metabolic rates. At one end they are young, wide-awake and active; at the other end they are old and lethargic. These men represent the muscle fibers along the intestine. The ball is started by the first young man, who tries to force it past the second. The second resists but is soon overcome, owing to the greater activity and aggressiveness of number one. As soon as the ball passes number two, he joins with number one in trying to push it past three and four. Once past them, one and two rest while three and four push it past five and six, and so it goes. The men in the first third of the line (jejunum) play incessantly so long as the ball is near them, and they soon force it down among the old men. These play only occasionally, often letting the ball lie quiet while they sit down about it to rest. New balls are started down the line from time to time, and sometimes the old men will have three or four on their hands at once. Ordinarily they are roused to get rid of one or two of these when they see that a new one has started down (ileocolic reflex and defecation).

Usually the ball moves in one direction and there is small likelihood that the old men with their intermittent efforts will ever overcome the youths. But one day some of the old men get drunk, and under the influence of liquor they fight so fast and furiously that the others cannot push the ball anywhere near the lower goal. On another occasion some of the old men are injured and beg their comrades to relieve

them for a while from the trouble of handling the ball. Again these old men are stimulated to fight back so desperately that some of the balls are even thrown out the way they entered. On still another occasion a cloud of poison gas is liberated over them. All are weakened and made ill, but the young men who breathe the faster are more susceptible to the poison and suffer more from the lack of proper air than do the old men. Until they recover, the game is slower; the old men are more active than the young ones and the ball is sometimes sent back to the original starting place.

A change in the play might be brought about also by making the balls unpleasant or painful to handle. Let us suppose that they have been filled with pepper or stuffed full of sharp spikes. The first one or two to start down the line would probably be rushed through so that the players could get rid of them as rapidly as possible. The men would then be so irritated by this annoyance that they would probably throw back the next few balls that were offered them (diarrhea and vomiting).

If the game was being played on the side of a hill it would not make much difference whether the young men were above or below the old. The position of the line would not be the important thing. The essential factor determining the movements of the ball would be the gradient of activity in the line of players. If the men were to play in a lane between two board fences, a slowing of the progress of the ball would not mean necessarily that the lane had been narrowed or closed. As likely as not some of the players might be fighting back too hard, or those above might not be pushing down as they should.

I think most of my readers will recognize the bearings of this simile on the problems of gastro-enterology. Some may be surprised at the idea of one part of the bowel resisting the propulsive efforts of another part above, so I will say that I have watched this conflict take place so often, particularly in the rabbit's bowel, that I feel sure that it is a big factor in the regulation of diastalsis.<sup>10</sup> It is well known that it is this type of bowel action that keeps the food from pouring out of the stomach after pyloroplasties and gastrojejunostomies<sup>11</sup>.

#### CONCLUSION

I wish to point out briefly some of the ways in which these studies may throw light on the pharmacology of the heart and on the functional disturbances of that organ seen in asthenic states and during convalescence from acute infections. Since the heart beat follows a gradient of rhythmicity and almost undoubtedly one of metabolism, we should expect to find certain drugs and disease toxins reversing it just as they reverse other metabolic gradients. A review of the literature shows considerable evidence in favor of such a view. Thus chloroform will paralyze the auricle in concentrations which will only slightly inhibit the ventricle<sup>12</sup>; digitalis has a similar tendency, and I believe we must begin to ask ourselves whether this action may not flatten or reverse the gradient. Such changes might account for some of the retarding in conduction and also for the tendency to heart block and a reversal of the heart. Similar

10. Alvarez, W. C. *Am. J. Physiol.* **37**: 279 (May) 1915.

11. Cannon and Blake: *Ann. Surg.* **41**: 798, 1908. Dagarcw, W. F. *Mitt. v. d. Grenzgeb. d. Med. u. Chir.* **29**: 179, 1913. *Mitteilungen La cellule* **14**: 283, 1908. Van Gehuchten: *La cellule* **6**: 277, 1890.

12. Rasche, A. *Zeichr. f. Biol.* **55**: 469, 1911.

9. Alvarez, W. C.: *Am. J. Physiol.* **35**: 178, 179 (Sept.) 1914; *ibid.* **42**: 426, 430, 445 (Feb.) 1917; *ibid.* **45**: 346, 348 (March) 1918; *ibid.* **46**: 189 (June) 1918; **47**: 65 (Sept.) 1918.

upsets, with palpitation, nodal rhythm and even transitory blocks may arise through the activity of disease toxins. The disordered heart action and the digestive disturbances seen side by side in people recovering from infections such as influenza may easily be due to the fluttering effect of the one poison on the two gradients. I feel hopeful, therefore, that further study of the digestive gradients and of their modification in disease will not only bring rich rewards to those of us interested in gastro-enterology, but will also enable us to repay the heart physiologists and biologists with interest for the loan of their methods and working hypotheses.

#### ABSTRACT OF DISCUSSION

DR. FRANKLIN W. WHITE, Boston: We are under great obligation to Dr. Alvarez and to other physiologists who develop these new ideas which are likely to be of so much service later. Alvarez has compared the gastro-intestinal canal to a railroad under the control of a "block system," where delay low down the line regularly holds up the passage of material for several blocks above. My clinical and roentgen-ray observations have shown that delay in emptying the stomach is the exception, not the rule, in lesions of the lower bowel, and that a strong stimulus is needed from the lower bowel to slow the stomach. We made a few simple experiments a year or two ago to test the correctness of this theory. We irritated the cecum in cats with a few drops of mustard oil, injected through a rectal catheter, and we found that one of several things happened: moderate irritation had no effect on the emptying of the stomach; marked irritation caused either (a) delay in emptying the stomach up to about twice the normal time or (b) hyperperistalsis and rapid emptying of the stomach and whole digestive tract. Intense irritation caused prompt reverse peristalsis in the stomach with vomiting of its whole contents. Similar experiments were made in human beings by giving them a large enema and allowing them to retain it as long as it could be comfortably done, for twenty minutes or one half hour, and watching to see if that would slow the down hill progress of things, that is, the emptying of the stomach. We found, as a matter of fact, that their stomachs continued to empty. We could see the pylorus passing things on at very much the normal rate. Obviously, the effect of this gradient, which is undoubtedly present is not a perfectly simple affair. Its results depend largely on the grade of irritation at the lower end of the canal, and the action of the mechanism is complicated by the contrary results of spasm and hyperperistalsis.

DR. JAMES T. CASE, Battle Creek, Mich.: I am very pleased to hear the interesting and instructive theory advanced by the author of this paper. To the support of this theory I am bringing a large series of clinical observations which I have made during the last ten years, especially regarding the point to which an ingested meal will penetrate in the alimentary tract in cases of intestinal obstruction. In the early days of the roentgen-ray examination, when I treated cases of colonic obstruction by means of the barium meal, I found that in my estimate of the exact site of the obstruction I was usually off a foot or more too far up the canal. I judged the point of obstruction by the farthest point to which, as far as I could observe, the ingested meal penetrated. I did not realize at that time that there is a state of peristaltic unrest in these cases so that the meal may at one hour be advanced or withdrawn alternately.

Checking on these estimations by means of the opaque enema case showed us exactly the point of obstruction. These phenomena could be explained very easily by the theory of peristaltic gradient to which we have just listened. About ten years ago, I called attention to the fact that in colonic obstruction, for instance, the larum ingested by mouth would after entering the colon be found, as a rule, not just proximal to the obstruction, but on the contrary as far away from the

obstruction as it was possible to get it. In other words, in obstruction of the sigmoid we would usually find the collection of barium to occur in the cecum, only rarely in the distal colon. I have even known of cases of gangrene of the cecum in sigmoidal carcinomas. We have observed the same thing in the small intestine. The administration of the opaque meal is a valuable means of determining the fact of obstruction, but the farthestmost point attained by the barium is usually some feet short of the actual point of obstruction in the bowel. While the essayist's theory seems abundantly confirmed by our barium meal studies, it does not seem to be true regarding gas accumulations occurring throughout the bowel for these are apparently just as marked immediately proximal to the obstruction as in more remote segments of the bowel.

DR. NATHAN ROSEWATER, Cleveland: Rectal fissures produce a tendency toward constipation, sometimes alternating with diarrhea, because nature finally asserts itself and a forced movement takes place. I found that by giving individuals inclined to seasickness (antiperistalsis) a cathartic, and continuing it for two or three days before embarking, antiperistalsis would not occur. Patients who before that were so inclined to seasickness that they could not stand being on the water could be on it in spite of the greatest storm, while others were sick, even the sailors. By giving them something which would overcome antiperistalsis by hyperperistalsis, if the gradient is sufficiently strong outward or downward, you have no tendency toward antiperistalsis. We have all tried it in numerous ways, with cathartics in cases of nausea, but the treatment must be guided by that principle of overcoming antiperistalsis. Twenty years ago I maintained that headaches, colds, etc., are often due to fecal obstruction, the effect of such stasis on the vasomotor mechanism, demanding greater heart action to overcome the narrowed caliber of the vessels from stasis and drag; it is forced to greater effort and pressure than the vessels of the upper tracts are adapted for, therefore, some headaches are relieved by enemas or cathartics long before the bowels are emptied. After feces have passed downward enough so that the place of obstruction is relieved, together with the resultant vascular pressure, which causes the headache, the headache disappears. These headaches cannot be toxic; relief is too quick. They are obstructive. At that time I stated that enlarged thyroid glands or any vascular engorgement or enlargement in the thoracic or cranial cavities may be from cardiac overaction. In these locations there is too much blood sent to the upper tract relative to the quantity sent into the abdomen. If the greatest amount of blood reaches the thyroid, it slowly enlarges and begins to overfunctionate in quantity and quality; the tonsils enlarge the same way. So much free space in the oral cavity causes a greater tendency for engorgement there, also in the nose and throat, the wedged-shaped nasal spaces are engorged the soonest and occluded with oozing of serous fluid or mucus. Obstruction of the narrow nasal passages is the logical result; coughs, colds, congestions and inflammations of the nasopharyngeal and respiratory apparatus soon follow.

DR. WALTER C. ALVAREZ, San Francisco: As I remember Dr. White's paper, when he stimulated the lower bowel mildly, he was unable to see any change; but when he stimulated it powerfully, he could see stasis above and signs of reversal. This is what we should expect. I believe, however, that mild stimuli will produce disturbances which a man can feel but which we cannot demonstrate in an animal. For instance, an enema, particularly one made irritating by the addition of much salt and soap, will produce nausea. This, I believe, is a sign of mild reversed peristalsis. Similarly, a constipated man will stop regurgitating his food the minute the rectal plug is removed. With such mild stimuli I do not believe we could see any changes in an animal's peristalsis. What I would emphasize is that the gradient is there in normal animals; there is no difficulty in demonstrating it; moreover, it is found reversed or flattened in diseased animals. These things must have some significance and it is up to us to face the problem and carry it to a solution.

## Clinical Notes, Suggestions, and New Instruments

### A JUVENILE PARETIC AND HIS FAMILY

EDWARD LIVINGSTON HUNT, M.D., NEW YORK

P. A. came to my service in the City Hospital, an emaciated and crippled boy of 12. Physically, he showed pupils that were unequal, irregular and immobile, a coated and tremulous tongue, and a coarse tremor involving the entire body. The speech was hesitating and distinctly ataxic. He was paralyzed from the waist down.

The physical signs showed a spastic paraplegia with the reflexes all exaggerated, and loss of control of both sphincters. There were contractures of both legs so that he lay in bed a helpless paralytic.

Mentally, he showed marked dementia. If touched he would scream, and if given orders he would obey them only after considerable repetition and explanation.

The story that the family gave was that up to about 9 years of age he had been able to attend school. After that he was unable to keep up in his lessons; the teachers found him almost impossible to manage, and his schoolmates considered him irritable and uncompanionable. He was taken out of school, but the family found him too great a care at home, and he was sent to the hospital.

The laboratory reported a markedly positive Wassermann reaction in both the blood and the spinal fluid. In the latter the cells numbered twenty. The butyric acid test was positive, and the colloidal gold test revealed a typical parietic curve.

The case was diagnosed as one of juvenile paresis. The young patient is still in the hospital, slowly losing both physically and mentally.

The intern staff took considerable interest in a 14-year-old brother of the patient who came to see him. They induced him to allow them to take some blood for a Wassermann test. The laboratory reported this as being markedly positive.

It then developed that there was still a third boy, aged 10. After a time we succeeded in getting a specimen of his blood. The Wassermann test on this boy was like that of his brother, markedly positive.

The boys were sometimes accompanied by a little sister of 8. Her blood was then examined. The report showed a strong positive Wassermann reaction.

The parents of the children were next approached with a view to obtaining a blood test. The father absolutely declined; the mother consented. The Wassermann report in her case was positive.

Here, then, is a family of six, in five of whom the Wassermann blood test was markedly positive, and one of whom presented a typical case of juvenile paresis.

41 East Sixty-Third Street.

### CASE OF FOREIGN BODY IN THE NOSE

BRYED WILSON, M.D., CHICAGO

A foreign body in the nose of a child is a matter of comparatively common occurrence, but not common, I believe, in adults who are sane and of ordinary intelligence; therefore, I am prompted to report this case:

Mr. A. B., aged 33, a student of mechanical engineering, came to my office, Dec. 28, 1918, saying that during the past three years, breathing on the right side of the nose had been almost completely obstructed. At times he could inhale a little air through that side of the nose, but he could not exhale. He also complained of a very foul discharge dropping back into the throat which sometimes even produced nausea.

On examination, the nasal septum appeared moderately deflected toward the right. The left nasal chamber showed no particular abnormality, but it was possible to obtain a view of only about the anterior one third of the right nasal cham-

ber. The application of a little 4 per cent. cocain solution brought about enough shrinkage of the membranes to disclose a grayish brown mass of irregularly flat form lying against the septum and occluding inspection farther back; on examination with a probe this proved to be of a hard mineral or stony-like character and extended well back where the probe met definite resistance by what seemed to be a larger mass of like substance. Considerable thick, foul secretion was present in this side of the nose.

With a pair of Hartmann forceps I gently grasped what could be seen of this mass, and two small pieces were removed. This was followed by quite free bleeding which subsided shortly and the patient was directed to return two days later, at which time the two larger pieces were removed with some small fragments. The large and more flat piece was removed anteriorly, but the irregularly spherical piece had to be pushed backward and expectorated by the patient; rather free hemorrhage followed, which subsided shortly. The nasal chamber was irrigated and sprayed with an iodized oil and the patient directed to return the following day, when further examination of the nose did not reveal the presence of any more foreign substance. The nose was treated by mildly antiseptic oil sprays daily for about ten days, at the end of which time the foul smelling discharge had ceased and the patient was breathing freely through both sides of the nose. The large spherical specimen was found to contain in its center a cherry pit, which, it is quite evident, became lodged in the posterior part of the nasal chamber, and gradually the mineral-like substance became deposited around it. But the patient was at a loss to explain how the cherry pit became lodged there. The only explanation seemed to be that he had sneezed or coughed at some time when eating cherries and the pit had then been forced up through the nasopharynx and into the posterior part of the nasal chamber. No evidence of sinus infection was found.

7 West Madison Street.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY.  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1363)

#### OLIVE OIL AS A LAXATIVE

Olive oil, cottonseed oil and other food oils and fats can do all that liquid petrolatum can do—and one thing more: they can nourish the body.

That digestible oils may act as laxatives, it is necessary to give more than can be digested and absorbed. This, in the case of an infant, may be one or more teaspoonfuls daily. To obtain laxative effects from olive oil in an infant, it is well to commence with one-quarter teaspoonful once or twice a day after feeding, and to add one dose a day until a dose is given after each feeding. It may then be increased to half a teaspoonful at a dose, if required and if it is well borne. It is inadvisable, however, to use more than 10 or 15 c.c. in a day in case of a young infant; even less than this would be the limit, if the character of the stools becomes abnormal.

The adult must take considerably more of digestible oil than of petrolatum to obtain the same laxative action. The exact dose will differ, of course, chiefly with the amount of other fat ingested and with the

\* This is the fourth of a series of articles on the pharmacology, physiology and practical application of the common purgatives and cathartics. The first article appeared October 1.

digestive capacity of the individual. One or two tablespoonfuls may have to be given three times daily either an hour before meals, or, if this interferes with appetite, two hours after meals. Or else, if the patient prefers it, a single dose of from one-half to one wine-glassful may be administered on rising, or two hours after breakfast. If this dosage is insufficient, it must be increased, until the desired effect is produced or the limit of tolerance is reached.

When digestible oil is thus administered until laxative action follows, the physician makes certain that the patient is kept at the highest point of fat digestion and assimilation possible for him. Hence, in view of the high caloric value of fat, gain in weight may be expected, unless the patient's previous use of fat was up to the limit of his digestive capacity, or unless the increased fat ingestion impairs appetite or digestion.

#### CONTRAINDICATIONS

In view of the fattening quality of olive oil thus used, it is obviously contraindicated in obesity, while it is especially indicated in malnutrition. In other words, in an obese person, liquid petrolatum would be the superior laxative; in an emaciated individual, digestible oil ought to be preferred.

In further drawing special indications and contraindications for the laxative use of oil, we should take cognizance of its action on gastric secretion and movement. That oil decidedly lessens the amount of free as well as of total acid, and that it delays the emptying of the stomach, is the verdict of all authorities on this subject. That the diminution in acidity of gastric juice also occurs in conditions of pathologic excess has been shown as well. Hence, while hyperchlorhydria, pylorospasm and peptic ulcer furnish special indications for the use of olive oil, gastric atony or subacidity would contraindicate the prolonged medicinal use of this or of other oils, including liquid petrolatum.

#### METHOD OF TAKING OLIVE OIL

In the administration of large quantities of oil, such as are contemplated for therapeutic effect, the natural repugnance of many persons against the drinking of fat must be reckoned with. While considerable quantities of oil may be taken with relish in the form of mayonnaise or of French salad dressing, still the amount that can be introduced in cookery is limited. The method advocated by Rutherford<sup>1</sup> is of interest. He advises mixing cold olive oil with about an equal quantity of hot milk. As these are of about the same specific gravity, they will mix perfectly in the form of an emulsion and remain in this condition for a short time (half a minute). Those who dislike milk might prefer to take the oil floating in fruit juice, such as orange, or grape juice. In course of time, people almost without exception acquire a taste for oil, and thereafter use it with relish in any reasonable amount. There is reason to believe that the capacity for taking large amounts of fats may be increased by gradual increase in the amount ingested. It is well, therefore, to commence with small amounts, and to have the patient increase the dose as tolerance is developed.

With some persons the taking of considerable amounts of fat leads to attacks of indigestion, with coated tongue, offensive breath, loss of appetite, abdominal distress and unusually offensive stools as the most

prominent symptoms; the condition known as "biliousness." In such, of course, the use of olive oil as a laxative would be ill advised. Whether liquid petrolatum is better borne by such individuals is not known at present.

#### OLIVE OIL NOT ADVISABLE IN DIABETES

It is now fairly well established that in a person suffering from diabetes, the digestion of excess of fat carries with it the danger of acidosis, owing to incomplete combustion of fatty acids in this condition. Liquid petrolatum should, therefore, be used as an oil laxative in a diabetic, even though the patient's emaciation would make the use of olive oil seem desirable.

#### SUMMARY

To summarize: Olive oil might be particularly serviceable as a laxative in spastic constipation in an emaciated individual, provided a sufficient quantity to produce this effect can be ingested without causing loss of appetite or other digestive disturbance. The use of olive oil as a laxative would be contraindicated in obesity, in diabetes, in gastric atony and in hyperchlorhydria, as well as in those inclined to "biliousness."

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

**ACETANNIN.**—Acidum Tannicum Diacetylicum.—Di-Acetyl-Tannin.—Tannyl Acetate.—The acetic acid ester of tannin.

**Actions and Uses.**—Acetanin is claimed to be practically nonirritant to the stomach, and to pass unchanged into the intestine, there to become effective as an astringent in contact with the alkaline juice.

It is employed in diarrheal affections, such as intestinal catarrhs, cholera morbus, cholera infantum and dysentery.

**Dosage.**—From 0.2 to 0.7 Gm. (3 to 10 grains) four times per day, dry on the tongue followed by a swallow of water, or mixed with food, avoiding warm or alkaline liquids.

Acetanin is prepared by heating tannin and acetic anhydride, in molecular proportions, in the presence of glacial acetic acid in a flask under a reflux condenser, pouring the product of the reaction into water, washing the precipitate produced with warm water, drying and powdering.

It is a light creamy white, odorless or almost odorless, and tasteless powder, which melts at about 160 C. It is practically insoluble in cold water, scarcely soluble in hot water, but soluble in alcohol, and also in solutions of borax, sodium phosphate, sodium carbonate, etc., being precipitated from these solutions by acids. It is rapidly saponified by boiling sodium or potassium hydroxide solutions, or gradually in the cold, into acetic and gallic acids, while ammonium hydroxide produces acetic and tannic acids.

Its aqueous solutions produce with ferric salts a green color, instead of the blue-violet color characteristic of tannic acid. A slightly alkaline solution in sodium phosphate exhibits all the characteristics of an astringent and precipitates albumin, but these properties are destroyed by borax or more alkali.

Acetanin is incompatible with alkalis and with salts of iron; it should not be exposed to heat or moisture.

**Acetanin-Calco.**—A nonproprietary brand complying with the standards for acetannin.

Manufactured by The Calco Chemical Company, New York. No U. S. patent or trademark.

**ANTIPNEUMOCOCCUS SERUM** (see N. N. R., 1919, p. 271).

The Gilliland Laboratories, Ambler, Pa.  
*Antipneumococcus Serum, Combined Types I, II, and III (Gilliland).*  
Prepared by immunizing horses with dead and living pneumococci of the three fixed types (Types I, II and III) and standardized against

<sup>1</sup> Rutherford, H. H. Pure Olive Oil and Its Use in the Treatment of Chronic Dysentery and Allied Conditions. *Am. Med.* 7: 432, 1904.

Type I culture, so that 0.2 Cc. of the serum will protect a mouse against five hundred thousand fatal doses of virulent Type I pneumococci; in addition it contains antibodies for Types II and III.

Marketed in 30 Cc. gravity injecting packages ready for use and also in 50 Cc. and 100 Cc. vial packages.

**Cinchophen-Abbott** (see New and Nonofficial Remedies, 1919, p. 227).

The following dosage form has been accepted:

*Tablets Cinchophen-Abbott 7½ grains.*—Each tablet contains 7½ grains cinchophen-Abbott.

**ACRIFLAVINE AND PROFLAVINE**

The acridine dyes are derivatives of acridine, a base found in coal-tar. Most of the acridine derivatives have no bactericidal properties, but there are some marked exceptions. One of these (diamino-methyl acridine chloride) was found by Ehrlich to possess notable therapeutic effects in trypanosome infections and, on this account, he called it *trypanflavine*. Most of the studies, both bacteriologic and clinical, have been conducted by English investigators, who call it *acriflavine*. A closely related substance having similar properties is proflavine. Acriflavine and proflavine are claimed by some to have high antiseptic power, together with comparative freedom from toxic or irritant action and without inhibiting effects on the phagocytic action of the leukocytes or on the healing processes.

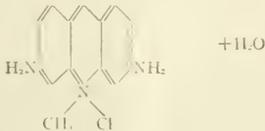
Acriflavine is believed to have greater antiseptic power than proflavine, but its action appears to be slower. Acriflavine and proflavine have been extensively used in the treatment of wounds, and acriflavine has been highly praised in the treatment of gonorrhoea. A great deal of literature on the properties of the flavines has appeared, but the reports are contradictory and the clinical evidence is so conflicting that judgment as to the therapeutic value of the substances must be withheld for the present.

**Actions and Uses.**—Solutions of the acridine dyes may be boiled, or they may be heated in an autoclave to 130 C. without decomposition. The solution most commonly recommended in the treatment of wounds is 1:1,000 in physiologic sodium chloride solution, although weaker solutions have been used. In suppurating wounds this solution is used for syringing and swabbing the wound after free incision, for irrigation after providing adequate drainage, and for soaking the gauze with which the wound is finally covered. Evaporation should be prevented by protective dressing. In cavities, gauze may be soaked in the solution (without wringing) and used as a light packing. Small quantities of the solution (100 Cc. or more) may be left enclosed in cavities or deep wounds. In fresh wounds the parts are cleansed thoroughly with the solution, as much of the solution as possible being left in contact with the injured surfaces. Such wounds may be closed by suture and may be expected to heal by first intention.

In gonorrhoea a strength of 1:1,000 in physiologic sodium chloride solution may be used for injection into the urethra. For lavation, when relatively large quantities are to be used, a 1:4,000 solution is preferable because it is less irritating. Solutions of from 1:6,000 to 1:8,000 strength have been used.

An ointment has been used containing 1 per cent. of proflavine oleate (prepared from proflavine base) in an ointment base composed of equal parts of petrolatum and calcium carbonate. A thick layer of the ointment may be spread on gauze and applied on the surface of the cleansed wound, or the ointment may be spread on the wound directly. The primary dressing need not be changed for several days.

**ACRIFLAVINE.**—3:6 diamino-10 methylacridine chloride (C<sub>13</sub>H<sub>9</sub>N<sub>2</sub>Cl<sub>2</sub>H<sub>2</sub>O).



**Actions and Uses.**—See preceding general article, Acriflavine and Proflavine.

**Dosage.**—See preceding general article, Acriflavine and Proflavine.

Acriflavine is a brownish-red, odorless, crystalline powder. It is soluble in less than 2 parts of water and in alcohol, forming dark red solutions which fluoresce on dilution and which have a bitter taste. Slightly soluble in ether, chloroform, liquid petrolatum, fixed oils and volatile oils.

An aqueous solution of acriflavine (1:250) is neutral to litmus paper (it dyes the litmus paper yellow).

Add a few drops of hydrochloric acid to an aqueous solution of acriflavine which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on further dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of acriflavine (1:250) and agitate the mixture. An orange-red, crystalline precipitate is produced. Under the microscope the crystals are seen to be mostly long needles or prisms arranged in sheaflike or brushlike forms.

An aqueous solution of acriflavine (1:250) gives a precipitate with silver nitrate solution (*distinction from proflavine*).

An aqueous solution of acriflavine (1:250) does not give a precipitate with barium chloride solution (*distinction from proflavine*).

An aqueous solution of acriflavine (1:250) does not give a precipitate with formaldehyde solution (*distinction from proflavine which gives a brown precipitate*).

Add 2 drops of diluted hydrochloric acid to 5 c.c. of an aqueous solution of acriflavine (1:250) and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. By the further addition of an excess of sodium nitrite solution, a violet precipitate is formed and, after a few minutes, the color of the solution becomes cherry red. This may be best observed after filtration (*distinction from proflavine, the filtrate from which is colorless*).

An aqueous solution of acriflavine (1:250) gives an orange precipitate with sodium hydroxide test solution (*distinction from proflavine, which gives a yellow precipitate*).

Inverenate about 1 Gm. of acriflavine, accurately weighed. The ash amounts to not more than 1 per cent.

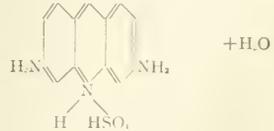
Dissolve about 1 Gm. of acriflavine, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 1 per cent.

Dry about 1 Gm. of acriflavine, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

**Acriflavine (Boots).**—A brand of acriflavine complying with the N. N. R. standards for acriflavine.

Manufactured by Boots Pure Drug Co., Ltd., Nottingham, England (Hynson, Westcott & Dunning, Baltimore). No U. S. patent or trade mark.

**PROFLAVINE.**—3:6 diamino acridine sulphate = C<sub>13</sub>H<sub>9</sub>N<sub>2</sub>.H<sub>2</sub>SO<sub>4</sub>.H<sub>2</sub>O.



**Actions and Uses.**—See preceding general article, Acriflavine and Proflavine.

**Dosage.**—See preceding general article, Acriflavine and Proflavine.

Proflavine is a reddish-brown, odorless, crystalline powder.

Proflavine is soluble in water and in alcohol, forming brownish solutions which fluoresce on dilution. Nearly insoluble in ether, chloroform, liquid petrolatum, fixed oils and volatile oils.

An aqueous solution of proflavine is neutral to litmus paper (the solution dyes the litmus paper yellow).

Add a few drops of hydrochloric acid to an aqueous solution of proflavine which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on further dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of proflavine (1:250), and agitate the mixture. A brown, crystalline precipitate is produced. Under the microscope the crystals are seen to be mostly prismatic needles.

An aqueous solution of proflavine (1:250) gives a precipitate with barium chloride solution (*distinction from acriflavine*).

An aqueous solution of proflavine (1:250) gives no precipitate with silver nitrate solution (*distinction from acriflavine*).

Add a few drops of formaldehyde solution to 5 c.c. of an aqueous solution of proflavine (1:250). A brown precipitate is given (*distinction from acriflavine, which remains clear*).

Add 2 drops of diluted hydrochloric acid to 5 c.c. of aqueous solution of proflavine (1:250), and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. On the further addition of sodium nitrite solution a brownish violet precipitate is formed and, after a few minutes, the color of the solution becomes cherry red. This may be best observed after filtration (*distinction from acriflavine, the filtrate from which becomes cherry red*).

An aqueous solution of proflavine (1:250) gives a brown yellow precipitate with sodium hydroxide solution (*distinction from acriflavine which gives an orange precipitate*).

Inverenate about 1 Gm. of proflavine, accurately weighed. The ash amounts to not more than 1 per cent.

Dissolve about 1 Gm. of proflavine, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 1 per cent.

Dry about 1 Gm. of proflavine, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

**Proflavine (Boots).**—A brand of proflavine complying with the N. N. R. standards for proflavine.

Manufactured by Boots Pure Drug Co., Ltd., Nottingham, England (Hynson, Westcott & Dunning, Baltimore). No U. S. patent or trade mark.

1. The Chemical Preparation Tablets that a certain patent was granted for the manufacture of acriflavine and proflavine, and the inventor claimed that the manufacture of a crystalline product in the manner described in this patent. In view of the foregoing, Hynson, Westcott & Dunning will discontinue the sale of their product after Dec. 1, 1921.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 8, 1919

## DEATHS INCIDENT TO AVIATION

The shocking losses of human life that attended the recent cross-continent aeroplane flights bring the reminder that aviation has created new problems, not only for the physiologist concerned with life at high altitudes and bodily adjustments in unusual environments, but also for the clinician and pathologist who are expected to deal with abnormalities of behavior and function on the part of organisms subjected to the unusual exigencies of aviation. The art of flying is, furthermore, still attended with grave dangers from accidents which in turn occasion death under circumstances rarely duplicated during the usual course of other fatalities of every-day life. In this country the special features of accidental death during aviation have not yet been critically discussed, presumably because the subject is still so new. During the war, however, the deaths of aviators were so common that the statistics of the injuries which they received in action have assumed considerable proportions.

A fall from a great height such as is frequently attained by an aeroplane at the moment of catastrophe is in itself an unusual experience, involving forces that are potent with harm for the person concerned. Added sources of danger and bodily damage are presented by the simultaneously falling machine with its heavy, moving masses of wood and metal. To crushing factors are joined the possibilities of severe laceration by revolving propellers and of burns by ignited fuel or heated parts. It is not surprising, therefore, that the injuries are manifold, complex and severe.

Certain recurring features have been summarized by Jaffé and Sternberg.<sup>1</sup> Fractures of the bones are almost invariably observed, the skull rarely remaining uninjured. Ruptures and injuries to the internal organs of the abdomen are liable to occur even though the walls of the latter remain intact; for owing to the varying weights of these organs they are subject to unlike movements and strains during the fall of the body through the air, often with attending irregularities of descent. Ruptured lungs have been observed

and, together with the extreme intra-abdominal distortions just referred to, they illustrate types of traumatism not often encountered in the usual run of accidents on terra firma. Almost every variety of crushing and bruising may be noted, as might be expected. Surprisingly numerous, however, are the accounts of the rupture of the aorta in those killed through aeroplane accidents. How the rupture of this strong vessel is so readily brought about has been debated. Its elasticity might be expected to afford protection against sudden stress in the form of pressure from within. When, however, the blood pressure is enormously increased in the upper region of the aorta, just beyond the heart valves, owing to compression of the vessel at some point farther removed from the blood pump, the walls evidently may be burst open. This is particularly possible when stretching of the aorta lengthwise to the limit of its elasticity decreases its effective resistance to blood pressure. Inward compression of the bony structures of the thorax may furnish the occluding factor; whereas the stretching may follow the displacement of the heart from its normal position. In any event, rupture of the aorta, however produced, may probably be regarded as an exceptionally frequent necropsy finding as a result of that complex group of maiming forces conspiring to produce death in aerial accidents.

## THE COLOR OF THE IRIS DURING INFANCY

The fact that the eyes of infants are almost invariably deep blue during the earliest weeks of life was recorded centuries ago. Modern investigations have furnished a clue to the explanation of the color changes in the iris during early infancy. The blue color is alleged to be due to the paucity of pigment in the stroma of the iris. This tissue is still very thin in early life, so that the posterior layer of pigment in the eye is plainly apparent through it. With increasing age, the stroma thickens. If no further pigmentation takes place in it, the iris tends to manifest a light blue or a gray shade; but when pigment is deposited in the iris layers, this organ becomes brown. Even in negro infants the iris may be blue in early life.

The progress of the changes of color shows some uniformity when large numbers of infants are observed. Doubtless they vary for different localities and races, which are well known to exhibit characteristic eye colors that show a hereditary constancy. The blond complexion of the Scandinavians is associated with the light blue, or less pigmented, iris. In a group of persons examined in Munich, only 32 per cent. of the adults retained the blue iris. Among the children of these persons the rate of alteration in iris color varied considerably. In the first three months of life three quarters of them still retained the blue color; in six months it was still characteristic of 70 per cent. of the infants; at the ages of 9 months and 1 year the

<sup>1</sup> Jaffé, R. H. and Sternberg, H. Der Fliegertod: ein Beitrag zur Frage der traumatischen Aortenrupturen, *Vrtljschr. f. gerichtl. Med.* 58:74, 1919.

blue-eyed infant population represented 63 per cent. and 53 per cent., respectively. These data thus indicate the slow progressive pigmentation of the eyes leading to darker iris colors in the Bavarian groups examined.

Schindler<sup>1</sup> has called attention in this connection to observations made in Pfaunder's clinic at Munich on a possible correlation between the rate of pigmentation, with corresponding change in the color of the iris, and the nutrition of the infant. According to her, the iris of many malnourished young, particularly among those suffering from somewhat chronic disturbances of digestion or metabolism leading to atrophic manifestations, may exhibit a change of shade at an age when healthy infants as a rule still retain the blue color. The appearance has been described as a dirty gray shade, sometimes fusing into a brownish tint.

If the premature pigmentation of the iris in early infancy is, in fact, a symptom of severe metabolic disorder—a suggestion which further careful clinical observation should help to establish or refute—its cause becomes an immediate occasion for speculation. In the absence of further experimental investigations on the subject, the Munich pediatricians conjecture that the darker color of the iris of malnourished infants is due to a deposition of pigment arising from augmented disintegration of blood pigment. Hemosiderosis has been described in the liver and spleen of atrophic infants. By analogy, a deposition of pigment elsewhere might be expected. At best, however, this is theorizing, for it is not even known whether the pigment of the iris is actually derived from that of the blood.

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#### THE RELATIONSHIP BETWEEN HERPES ZOSTER, SYPHILIS AND CHICKENPOX

The significance of herpes zoster is still a matter for speculation. While technically a disease of the skin, the condition is one that has always been of interest to the neurologist and to the general practitioner. Originally regarded as occurring along the distribution of peripheral nerves, it has been recognized, since the epoch-marking discoveries of Henry Head, as having a segmental distribution. Certain aspects of the disease, particularly its relationship to syphilis, have recently been discussed by Brown and Dujardin.<sup>2</sup> These observers noted that herpes zoster was distinctly more prevalent among a group of soldiers under observation for syphilis than it was among an unselected group of patients from the civilian population of the district. Among the syphilitics, zoster occurred in a proportion of four cases per thousand, while among

the general population the disease occurred only in the proportion of one case per thousand. It was noted, too, that in the syphilitics the herpes had a predilection for the lumbar and sacral ganglions corresponding to the well known observation that spinal syphilis is more likely to attack the lower segments. In connection with these cases of zoster, the authors studied the changes in the spinal fluid and found that there was frequently a lymphocytosis occasionally accompanied by an increase in globulin, and in the case of the syphilitics sometimes accompanied by a positive Wassermann reaction. The authors assume that zoster is an infectious process, and that syphilis acts simply by producing local conditions which predispose the ganglions of the spinal cord to infection with the agent producing the disease.

This paper raises several interesting points. It is pertinent to inquire whether zoster is really a disease per se or whether it is a syndrome which may result from any condition causing inflammation of the spinal ganglions. It is well known that syphilis is frequently latent in the spinal meninges without clinical manifestations of spinal disease. Is it not possible, then, that the unusual frequency of zoster among syphilitics is due simply to the frequency of inflammatory conditions of the spinal meninges in this disease?

There is, however, some evidence which suggests that zoster is a specific infection due to the virus that causes chickenpox. Scattered through the literature for a number of years are observations, such as those compiled by LeFeuvre and more recently those by Low, which indicate a curious relationship between zoster and chickenpox. Instances are recorded of one member of a family developing herpes zoster, to be followed later by the appearance of chickenpox in other members of the family. Instances of the opposite order, namely, the development of herpes zoster in a family after chickenpox, have also been recorded, and there are a few instances of herpes zoster and chickenpox in the same person. There are so many of these cases now on record that it would seem that there was here more than mere coincidence. Many observers are convinced, therefore, that herpes zoster is simply an atypical manifestation of the chickenpox virus.

Interesting though these observations are, they do not seem to warrant the conclusion that herpes zoster is invariably an evidence of infection with the chickenpox virus. Chickenpox is a disease that is usually so insignificant and so lacking in symptoms suggesting involvement of the central nervous system that it is doubtful whether anybody has investigated the spinal fluid in a large number of cases. It is quite possible that investigation may prove that a low grade spinal meningitis is a common accompaniment of chickenpox just as it is of the large pox. A careful study of the cerebrospinal fluid in this disease, as well as a more thoroughgoing investigation of the spinal fluid in all

1. Schindler, Emma: Ueber die Irisfarbe des Sauglings, ein Beitrag zur Symptomatologie der Ernährungsstörungen im Säuglingsalter, *Zeitschr. f. Kinderh.*, **19**: 153 (July) 1919.

2. Brown and Dujardin: *Brain*, **42**, Part 1, 1919.

cases of herpes zoster, might reveal illuminating information on this point. Incidentally, it is difficult to see how Brown and Dujardin could be sure that the spinal lymphocytosis in their cases was not due to the underlying syphilis rather than the zoster.

#### THE COMPOSITION OF THE BLOOD IN SUNLIGHT AND DARKNESS

The belief that sunlight is indispensable to human welfare has become strongly entrenched in modern hygienic propaganda. The scientific study of the possible basis for such views has lagged far behind the claims that have been advanced for the beneficent effects of light. Fresh air and sunshine are advocated the world over as desiderata in the campaign against disease; yet those who proclaim their virtues might often find it difficult to explain precisely how these climatic factors affect the human organism. Bacteriology has demonstrated the action of light in destroying various micro-organisms. In specific cases the effects of light rays of different sorts on the skin and the functions of the body as a whole are admitted; but at best the phenomena of heliotherapy are inadequately understood, and the influence of light is far from being clearly demonstrated in relation to the ordinary physiologic manifestations.

The marked contrast between the pale complexions of most urban residents and the more ruddy color of the rural population has doubtless given rise to the assumption, once somewhat prevalent, that the relative exposure to light in city and country, respectively, is responsible not only for differences in the pigmentation of the skin, but perhaps also for the composition of the blood. Statements have been published to the effect that the long months of darkness during the absence of sunlight in the polar regions are productive of a pallor that might be charged to anemia. Actual reports regarding the health of members of various polar expeditions seem to negative this explanation. Blessing, who acted as physician during Nansen's expedition on the *Fram*, made blood examinations from time to time and testifies to an absence of anemia in the persons examined by him.<sup>1</sup>

An interesting test of the possible effects of prolonged lack of sunlight on the composition of the blood was made just prior to the war by Grober and Semjoff in Jena. They examined a considerable number of horses in use in the coal mines. Many of these animals had been kept at work for years in the absence of sunlight below the surface. Anemia was not discovered in any case in which a satisfactory nutritive condition existed. It is therefore improbable that

sunlight is in any sense directly concerned with the hematopoietic functions. At any rate, if it is, compensatory processes render the lack of sunlight negligible so far as the number of red corpuscles and their content of hemoglobin is concerned.

#### THE BODY TISSUES IN INDICANEMIA

The occurrence of indicanuria and its relation to putrefactive changes in the alimentary tract are well known. At one time there was considerable speculation in scientific circles regarding the origin of indican, some investigators being inclined to ascribe a part of the excreted product to abnormal changes in the tissues. The preponderance of evidence, however, points to indol, formed by bacterial decomposition of protein in the intestine, as the chief, if not the exclusive, precursor of urinary indican. The output of the latter appears to depend quite as much on the quantity and chemical character of the protein components of the diet as on the opportunities for bacterial changes in the alimentary tract.

One of the significant features of insufficiency of kidney function is the accumulation of catabolites in the blood. For example, the content of urea, uric acid and creatinin may be markedly augmented in the circulating medium of the body when the production of urine is interfered with through some damage to the renal tissues. Under such conditions, indican likewise may accumulate in the blood, instead of being excreted promptly. Indicanemia thus becomes one of the symptoms of uremia, although there is no conclusive indication that it represents a toxic factor.<sup>1</sup> From the standpoint of harmful dosage, the toxicity of the quantities of indican and its precursors that are formed and circulated is apparently too slight to account for any untoward manifestations. The consensus of evidence leads one to doubt the production of noticeable intoxication from either indol or indican under ordinary conditions.<sup>2</sup>

In the case of various excretory products and notably urea, it is now well known that they accumulate in the tissues proper in a concentration quite comparable to that which they reach in the blood whenever the renal functions are inadequate to remove them in normal measure from the body. Whether this bathing of the cells with solutions unduly rich in catabolites is a cause of irritation or damage cannot be definitely stated. Experiments by Becher<sup>3</sup> in the medical clinic at Giessen have shown that indican is an exception in contrast with the compounds familiarly classed under the nonprotein nitrogenous components of the blood. Even under conditions exhibiting severe indicanemia,

1. Blessing: *Zeitschr. f. Naturf. u. Med.*, 1877, p. 251. Schoenenberger, *Die Ernährungstherapie und Assimilationsorganismen* (nach T. v. d. Osten): *Der Vortag*, 1912, p. 105. *Das Blut* bei Lachtrich, Lass, Traugott, Berlin, 1912.

2. Grober and Semjoff: *Die Blutzusammensetzung bei jahrelanger Unterbrechung des Sonnenlichts*, *Deutsch. Arch. f. klin. Med.*, 129: 305 (July) 1919.

1. Dörner: *Deutsch. Arch. f. klin. Med.*, 133: 342, 1914. Rosenberg: *Arch. f. exper. Path. u. Pharmacol.*, 79: 260, 1916. Tschierkoff: *Deutsch. med. Wchnschr.*, 40: 1713, 1914.

2. Wells, H. G.: *Chemical Pathology*, 1918, p. 574, gives further evidence.

3. Becher, E.: *Ueber Indikanretention in den Geweben*, *Deutsch. Arch. f. klin. Med.*, 129: 8 (April) 1919.

indican is recoverable in very small quantities, if any, from the tissues. Indican is not found in the spinal fluid even during intense indicanemia.<sup>4</sup> Whatever the significance of indican may be in the genesis of harmful conditions in the body, it cannot be regarded as a direct cause of local detriment in the body tissues.

### Current Comment

#### THE MENACE OF THE PLAGUE

We are reminded by two recent events in widely separated parts of the United States what a serious menace is held over us by the smoldering of the plague in various places. October 29, while the American Public Health Association was meeting in New Orleans, a death from plague occurred in that city, and more cases have been reported since. This was the first human case reported in that city for several years, and plague-infected rats have not been found for some time. A still more ominous occurrence is the recent epidemic of plague in Oakland, Calif. The first case appeared, August 18, in a squirrel hunter, and was followed by thirteen cases of the pneumonic type, twelve of them fatal. Three of the patients, including the original squirrel hunter, were treated at home throughout their illness, with no precautions. The others in whom the identity of the infection was recognized were either hospitalized or completely isolated. The last death in this epidemic occurred on September 11, since which time no further cases have developed. It is inevitable that a certain sense of insecurity will be caused by these events, and that redoubled effort will be made to minimize the danger of squirrel plague infection. The Oakland epidemic suggests the unpleasant possibility of a more widespread outbreak of pneumonic plague where climatic conditions are favorable. It does not seem to be outside the range of possibilities that sooner or later the plague may win a foothold among the rats in the slums of some of our large Northern cities. If this happens, human pneumonic plague must evidently be looked on as a possible sequel.

#### THE ALLEGED FOOD VALUE OF SACCHARIN

Not long ago attention was directed in THE JOURNAL<sup>5</sup> to the subject of physiologic oxidation and its alleged relation to certain catalytic properties of the tissues. The latter, and particularly the blood, are capable of liberating oxygen from hydrogen peroxid by an enzyme-like reaction which has been ascribed to "catalase." It has been assumed by a few investigators, notably Burge, that a measure of this catalytic power of the tissues is an index of their metabolic activity. We need not reiterate here the criticisms of this view<sup>7</sup> which have already been advanced, notably by Becht.<sup>8</sup> He remarks that since the catalytic power of the blood

varies between enormously wide limits under the same conditions, it is unlikely that the catalases are important and that the measurement of them can explain "the mysteries of the processes of oxidation." One of the factors particularly advanced by Burge in support of his theory was the asserted increase in catalase noted as the accompaniment of features known to promote metabolism. Stehle<sup>7</sup> has repeated the studies at the University of Pennsylvania School of Medicine without finding the parallelism on which the catalase theory of metabolism is based. He observed that the fluctuations in the catalase content of the blood are due to variations in the number of red cells. Consequently, Stehle notes, it is simpler to regard the catalase content as dependent on the number of erythrocytes than to assume any direct relation between catalase and biologic oxidations. Among other compounds, Burge has ascribed to saccharin the property of increasing the catalase content of the blood.<sup>9</sup> Correlating this with an increase in metabolism, he concluded that saccharin exhibits advantages characteristic of foods that are known to augment metabolism. Despite the fact that the doses used by Burge in his experiments amounted to 5 gm. per kilogram of body weight and thus far exceeded any dietetically significant quantities, his seeming approval of the effect of these enormous doses of saccharin was promptly made use of by certain advertisers to promote the use of this chemical substance in the diet. Stehle<sup>7</sup> has disposed of the assumed basis for this undesirable propaganda by what amounts essentially to a denial of the claims made. The advocacy of saccharin as a food can no longer pose in the garb of scientific proof.

#### EXPERIMENTAL PARATYPHOID AND TYPHOID FEVERS

In view of the fact that paratyphoid and typhoid fevers have not been produced in animals experimentally by feeding, except in the chimpanzee, certain recent work by Besredka<sup>9</sup> is of considerable interest. He has found that when paratyphoid bacilli are introduced by mouth in the rabbit, they may be recovered in greater or less numbers in the pyloric part of the stomach, but the gastro-intestinal mucosa offers a definite barrier to their localization and dissemination in the organism. Massive doses of bacilli may be given by mouth with very little effect on the animal. In an attempt to overcome this resistance, ox bile was given by mouth, and then feeding of bacilli produced intestinal lesions corresponding exactly to those produced by feeding in the chimpanzee. The bile thus administered has not only a direct effect on the mucosa but also stimulates the secretion of bile, which causes an intense desquamation of intestinal epithelium, and this in turn opens an entrance for paratyphoid bacilli when introduced a little later. An animal treated in this manner develops recognizable symptoms of disease in from one to four days; diarrhea comes on and becomes

4. Rosenberg: Berl. klin. Wochschr., 52: 1314, 1916.

5. Oxidation in the Body, editorial, J. A. M. A. 72: 1679 (June 7) 1919.

6. Becht, F. C.: Observations on the Catalytic Power of Blood and Solid Tissue, Am. J. Physiol., 48: 171 (March) 1919.

7. Stehle, R. L.: Some Data Concerning the Alleged Relation of Catalase for Animal Oxidations, J. Biol. Chem., 33: 163 (Sept.) 1919.

8. Burge, W. E.: Saccharin for Sugar, Science, New York, 48: 543, 1918.

9. Besredka: Ann. de l'Inst. Pasteur 33: 57, 1919.

progressively worse; there is rapid loss of weight; the temperature falls, and the animal usually dies within two or three days. After death, the changes in the intestine and gallbladder are found to be quite typical of paratyphoid infection. When the disease is not of long duration, pure cultures of the bacilli are obtained from the blood and bile. The stomach contents are sterile, but there is an abundance of bacilli in the intestinal contents. When paratyphoid bacilli are introduced intravenously in a rabbit, a generalized infection occurs, and the animal may die very quickly of septicemia or it may live for some time. In the latter case only a few colonies may develop in cultures of the blood, but bacilli may be present in large numbers in the bile and intestinal contents, and macroscopically the lesions are typical of paratyphoid infection. Besredka obtained corresponding results from feeding when typhoid bacilli were used in the experiments. In view of the ease with which bile renders the rabbit susceptible to typhoid and paratyphoid infections, the natural immunity of this animal to these infections seems to be largely of intestinal origin. Experimentally it seems possible to cause both paratyphoid and typhoid infection either by introducing the bacilli by the mouth in rabbits to which bile has been previously given or in some cases by intravenous injection of bacilli in rabbits without any preliminary treatment.

#### POLITICS PLAYS WITH PUBLIC HEALTH

The dictum of Disraeli that the care of the public health is of primary importance to the state seems frequently to have been taken by the politician to mean that positions in the public health department are primarily for his disposal. Newspapers coming from Hawaii indicate that the game has been played in that territory with all the old angles. About a year ago a new governor was appointed. At the time of his appointment the executive head of the public health department was a man who had been in public health work in Hawaii for some twenty-five years. During the time of his incumbency an organization was established that prominent public health authorities regarded as probably equal to any health department in the United States and better than the majority. The new governor removed the incumbent and appointed as head a business man—to be specific, a salesman of automobiles. According to the newspapers, the qualifications of the new health official soon were taxed to the utmost and he found himself somewhat in the position of a driver who holds the wheel of a car after the steering knuckle has broken. In an attempt to get out from under he involved himself with a local health officer, and according to the Honolulu papers the governor is now looking for a new head for the health department. One of the requirements is that he shall not be a business man—a knowledge of automobiles will not be considered necessary.

**Human Credulity.**—There is something in humanity that always leaps up and believes again at the bidding of spells and charms and incantations; and this is a true instinct, for the incantation is an attempt to sing in tune with the vaster rhythms and the tidal moods of the creating universe.—D. Marquis.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Hospital Buys Land.**—The Alabama-Bryce Hospital, Tuscaloosa, has purchased 87 acres of land on the Huntsville Road, 3 miles from the city, for \$212 an acre. The land was needed as a location for the new institution for the feeble-minded of Alabama, for which the legislature has authorized the expenditure of \$250,000.

**Personal.**—Dr. Frank W. McCorkle, Uniontown, has been appointed assistant health officer of Huntsville and Madison counties.—Dr. Percy O. Claudron, Dothan, has been discharged as lieutenant-colonel, M. C., U. S. Army, and will resume practice.—Dr. Henry B. Wilkinsen, health officer of Montgomery and Montgomery County, has resigned and will resume practice in Montgomery.

### CALIFORNIA

**Personal.**—As the result of a competitive examination, Dr. Neal Naramore Wood, Lieut.-Col., M. C., U. S. Army, has been made first assistant superintendent of charities and medical director for the department of charities of the Los Angeles County Hospital, succeeding Dr. J. Mark Lacy, Los Angeles, who has resigned to enter private practice.

**Sanatorium at San Diego.**—Plans for the establishment of a large sanatorium at Alpine are well under way. The sanatorium will, it is announced, be the largest in southern California, and will include the Los Robles Hotel and 280 acres of ground facing the state highway. The institution will be under the medical direction of Dr. Hyman Lischner, San Diego, at present head of the Lischner Sanitarium for Children.

### COLORADO

**Graduate Teaching Arranged by State Association.**—The Colorado State Medical Society has announced that a course of graduate teaching is being arranged for county societies which desire it. About fifty members of the state association will probably be apportioned into groups of four. Each team will lecture to different county societies each two weeks for six consecutive months. These talks will be made by practitioners of medicine to physicians in active practice, and it is promised that the lectures will be made intensely useful in daily work.

### DISTRICT OF COLUMBIA

**Monument to General Sternberg Unveiled.**—A monument erected in memory of Surg.-Gen. George Miller Sternberg, at the National Cemetery, was unveiled, November 5, and remarks were made by Surg.-Gen. Merritte W. Ireland, U. S. Army, Brig.-Gen. Walter D. McCaw, Col. Edward L. Munson, and Col. Frederick F. Russell, Army Medical Corps, and Dr. George M. Kober, Washington, D. C.

### ILLINOIS

**Canton Physicians Organize.**—At the meeting of the physicians of Canton, October 9, the Canton Physicians' Club was reorganized, with Dr. Harvey H. Rogers, president, Dr. Charles N. Allison, vice president, and Dr. Everett P. Coleman, secretary.

**Health Report.**—During the week ended October 20, there were reported to the state department of health 306 cases of diphtheria of which Chicago had 188; 79 cases of influenza of which 16 were in Hannah City; 213 of scarlet fever, of which 30 were in Chicago; 35 cases of smallpox, of which 11 were in Roodhouse, and 12 in Crook Township, Hamilton County, and 33 cases of typhoid fever, and 7 cases of poliomyelitis.—An outbreak of typhoid fever is reported in Wood River Township, near East Alton, and Dr. Samuel S. Wimmer, Chicago, has been sent to take charge of the situation.

### Chicago

**Hahnemann Home-Coming Day.**—November 4 was celebrated as home-coming day for the Hahnemann Medical College and Hospital of Chicago. In the evening an informal

reception and dinner was given in honor of the newly elected president of the Hahnemann institution, Prof. Daniel Russell Hodgdon, and of Mrs. Hodgdon.

**English Surgeons in Chicago.**—Major-Gen. Sir Anthony Bowlby and Major-Gen. Sir Robert Jones, R. A. M. C., were in Chicago, November 1 and 2, and addressed a joint meeting of the Chicago Surgical Society and Chicago Orthopedic Society and were entertained by the members of these societies at dinner at the University Club.

**Personal.**—Dr. Anthony Bivankini was tendered a farewell dinner by the Czechoslovak citizens of Chicago, October 28. He left for Europe the following day.—Dr. Peter C. Clemensen has resigned as a member of the board of education.—Dr. George G. Davis has been appointed chief surgeon of the Illinois Steel Company, succeeding Dr. James Barry, deceased.

**Gynecologists Elect Officers.**—At the annual meeting of the Chicago Gynecological Society, held October 17, the following officers were elected: president, Dr. Arthur H. Curtis; vice presidents, Drs. Henry F. Lewis and Philip S. Doane; secretary, Dr. Joseph L. Baer; treasurer, Dr. Charles B. Reed; editor, W. C. Danforth, and pathologist, Dr. Carey Culbertson. The attention of the members of the profession was called to the fact that there is an annual prize of \$100 offered to the best inaugural thesis of the year, the subject matter representing original research or investigation. The active membership of the society is limited to fifty and there are at present twelve vacancies.

**Hospital Items.**—In the drive for \$250,000 to erect a new building for the Evangelical Deaconess Hospital, \$72,000 was received.—It is proposed to erect a new building for the Ravenswood Hospital at a cost of \$900,000, utilizing the old building for a training school and nurses' home. The new building will be on the southeast corner of Wilson and Winchester Avenues, 207 by 41 feet and seven stories and basement in height.—Announcement is made that the Lutherans of Chicago plan to build a hospital in the neighborhood of Humboldt Park, at a cost of \$350,000.—Members of the Gold Star Mothers' Association have subscribed several hundred dollars toward a bed in the new Paris-Chicago Hospital.

## INDIANA

**Personal.**—Dr. Edmund M. Van Buskirk, Fort Wayne, has been appointed assistant collaterater epidemiologist, and will cooperate with the United States Public Health Service and the state in fighting epidemics.—Dr. George F. Beasley, Lafayette, is reported to be seriously ill with pneumonia.

**Hoosier Health Herald.**—The first issue of this magazine, edited by E. Q. Laudeman, and published in Rochester, appeared, September 22. All of the articles pertain to tuberculosis and its prevention. The leading article is contributed by Dr. John N. Hurty, Indianapolis, secretary of the state board of health.

**Nurses' Home.**—The Methodist Hospital, Indianapolis, is to have a new home for nurses to cost \$300,000. The building will be in brick and stone, similar in design to the main building, will be five stories in height, and will have a frontage of 176 feet in Capital Avenue and a depth of 158 feet. The home will be completed next year.

**Resignation Accepted.**—At a dinner given by the Tippecanoe County Medical Society at Lafayette, September 23, the resignation from membership of Dr. Charles J. Brockway was unanimously accepted. It was also stated that Dr. Brockway's resignation from the staff of the Home Hospital and St. Elizabeth's Hospital, has been accepted by unanimous consent.

**New District Officers.**—At the annual meeting of the Eighth District Medical Society, held in Muncie, October 16, under the presidency of Dr. Leonard F. Schmauss, Alexandria, the following officers were elected: president, Dr. Milton T. Jay, Portland; vice president, Dr. Charles L. Botkin, Farmland, and secretary-treasurer, Dr. Clay A. Ball, Muncie.—At the annual meeting of the Eleventh Councilor District Medical Association, held in Wabash, October 16, Dr. Maurice H. Krebs, Huntington, was reelected president, and Dr. John H. Reed, Logansport, was reelected secretary and treasurer. The next meeting will be held in Peru.—The Union District Medical Association held its 104th semiannual meeting in Richmond, October 23. Connersville was selected as the place for the April meeting. Dr. Joseph N. Study, Cambridge City, was elected president, and Dr. James E. King, Richmond, secretary-treasurer.

## IOWA

**Smallpox in Lost Nation.**—It is reported that all schools and churches have been closed and all public gatherings prohibited at Lost Nation, where ten families have been quarantined.

**Southeastern Physicians Meet.**—The Southeastern Iowa Medical Society held its annual meeting at Washington, October 16. Dr. Edward T. Edgerly, Ottumwa, was elected president; Dr. Henry C. Hull, Washington, vice president, and Dr. E. Francis La Force, Burlington, secretary-treasurer.

**Personal.**—Drs. William H. Heller, Remsen, and James M. Fettes, Lemars, have been added to the staff of the Lemars Clinic.—Dr. Harley L. Saylor, Des Moines, reappointed as health commissioner, resumed his duties, October 1.—The meeting of the Jackson County Medical Society, September 19, was devoted to an appreciation of Dr. Asa B. Bowen, Maquoketa, who has practiced medicine in Jackson County for half a century.

## KENTUCKY

**Vital Statistics Registrar Moves.**—Dr. W. Edward Grant, registrar of vital statistics, has moved his office from the City Hall, Louisville, to the headquarters of the state board of health at Sixth and Main streets.

**Personal.**—Ellis Duncan, Lieut.-Col., M. C. U. S. Army, one of the first Louisville surgeons to enter war service, was discharged at Camp Zachary Taylor, September 30.—Dr. Tilden H. Singleton, Bowling Green, was operated on for appendicitis, October 14, at St. Thomas Hospital, Nashville, Tenn.

**Negro Antituberculosis Sanatorium.**—Articles of incorporation were filed, October 10, at Louisville, by the National Anti-Tubercular Sanatorium for Colored People, the object being to establish a sanatorium for treatment of negroes where climatic conditions are best suited. The corporation has no capital stock and is authorized to incur liabilities not to exceed \$20,000. The promoters are: Dr. William H. Perry, A. E. Meyezek, G. M. McClellan and W. H. Wright.

**Clinic Holding Company Incorporates.**—The Clinic Holding Company, composed of physicians associated with Dr. David Barrow, Lexington, filed articles of incorporation with the Fayette County clerk, recently. The corporation is capitalized at \$100,000 and is empowered to own real estate and personal property for the purpose of holding clinics and to carry on general practice.

**Praise Physicians for War Service.**—October 5, 180 physicians who served in the war were the guests of honor at a banquet given by the medical profession of Louisville at the Pendennis Club. Dr. Isadore N. Bloom, Louisville, officiated as toastmaster and responses were made by Major-Gen. Charles P. Summerall, commanding the First Division, Hon. Alexander P. Humphrey, E. R. Mullins and Hon. Albert Peter. A smoker was given, September 15, by the Jefferson County Medical Society at Louisville for 200 of its members who had been either with the American Expeditionary Forces in France or had in other ways given their services to the country during the world war. The address of welcome was made by Dr. Lewis S. McMurry.

## LOUISIANA

**Bubonic Plague.**—Up to November 3, four cases of bubonic plague were said to have been reported in New Orleans, with two deaths.

**Extension of Drug Addict Work.**—Extension of the clinic of the state board of health for the cure of drug addicts over the whole state is being considered by Dr. Merrick W. Swords, New Orleans, secretary of the board.

**Physician Pardoned.**—E. D. Roberts, Baton Rouge, convicted of attempted assault four years ago, has been pardoned by the governor, on recommendation of the board of pardons. During the influenza epidemic Dr. Roberts did excellent work among the convicts.

**Personal.**—Dr. Benjamin A. Ledbetter, New Orleans, fell into an open elevator shaft at the Charity Hospital, October 13, fracturing three ribs and sustaining other severe injuries.—Dr. Isadore Dyer, dean of the School of Medicine of Tulane University, New Orleans, has been appointed colonel on the staff of the Surgeon-General.—Dr. Edmund Moss, chief medical inspector of the public schools of New Orleans, has returned after serving in the Army.—Dr. James A. Henderson, chief surgeon of the Louisiana Naval Militia,

New Orleans, at the outbreak of the war, has been promoted to commander, M. C. U. S. Navy.

**Smallpox in Louisiana.**—The Louisiana records of deaths for the first six months of 1919 show 147 deaths from smallpox. Eighty-one of these deaths occurred in three of the southwestern parishes, two of which border on Texas. The fourth parish, in which there occurred twenty-five deaths, is among the south central parishes. One hundred and six of the 147, therefore, occurred in four parishes. The records of the bureau of epidemiology show 988 cases reported. One hundred and fifty-three physicians reported from forty-seven parishes. It is reported that smallpox was introduced into Calcasieu and Lake out simultaneously in December, 1918, in two places in Lake Charles, one the jail, and at West Lake, practically a suburb of Lake Charles. It is stated by the health officer of Calcasieu that all three cases came from Braumont, Texas. Unofficially it was reported to the board that the smallpox was spread to southwestern Louisiana from a child brought by a negro woman in her arms from a point in Texas to a Louisiana town. The type of smallpox is that which is characterized as "Mexican." It was diagnosed as a mild and hemorrhagic. During the outbreak in Calcasieu, in January, 1919, vaccine was very hard to obtain.

### MAINE

**Hospital Incorporated.**—The hospital founded by the late Harrison B. Webster, Major, M. C. U. S. Army, at Castine, has been incorporated and will be known as the Castine General Hospital. The institution will be supported by an appropriation from the state and from private funds as well as from its own earnings. Dr. Harold S. Babcock is director of the institution.

**Anti-tuberculosis Association Elects Officers.**—At the annual meeting of the Maine Anti-Tuberculosis Association, held in Portland, September 25, Dr. Elmer D. Merrill, Foxcroft, was elected president; Dr. Sylvester J. Beach, Augusta, vice president, and Drs. Frederick C. Thayer, Waterville; Nelson E. Nichols, Portland; Theodore E. Hardy, Waterville, and Edwin W. Gehring, Portland, directors.

### MISSOURI

**Veneral Clinic at St. Joseph.**—At a meeting of the city council of St. Joseph, October 13, \$5,000 was appropriated for the establishment of a venereal disease clinic. Other persons interested will guarantee the remaining \$5,000 which will be required to conduct the clinic until the end of the fiscal year.

**Clinic to Be Opened Twelve Hours.**—The free clinic for the treatment of venereal disease which opened in Kansas City, October 16, will be open from 9 in the morning until 9 at night. The extension of these hours has been arranged so that people who work during the day may obtain the benefit of the treatment. Dr. Edward H. Clark is in charge of the clinic.

**Former Service Men to Meet.**—The temporary association of former medical service men of southwest Missouri will meet in Joplin, November 11, when a permanent organization will be effected. The territory includes twenty-eight counties of southwestern Missouri and in this territory there are about 75 physicians who served during the world war. Dr. William A. Delzell, Springfield, is temporary president of the organization.

**Chiropractors Licensed.**—The bill passed at the last session of the legislature to license chiropractors went into effect, October 1. All chiropractors will be required to obtain a license from the state board of health. Those who have practiced more than one year may obtain the license on payment of the fee of \$25, while those who have practiced less than a year will be required to pass an examination. The law defines chiropraxy as follows: "The treatment by force or reward of abnormal nails, superficial excrescences of the skin not involving the subdermal tissues occurring in the feet, including corns, warts, callosities and bunions, but not including the treatment of injuries to or congenital or acquired deformities of the feet or conditions requiring the use of anesthetics or incisions involving the structure below the level of the true skin."

### NEW YORK

**Personal.**—Dr. William G. Bissell, Buffalo, director of laboratories in the Buffalo Health Department, has been reappointed president of the state board of medical examiners, and Dr. Aaron E. Miller, Syracuse, vice president. —Harold W. Lyall, Ph.D., formerly with the New York

State Research and Antitoxin Laboratory, Otisville, has been appointed bacteriologist in the division of laboratories and research of the New York Department of Health, Albany.

**Typhoid at Tonawanda.**—About 200 cases of typhoid fever have occurred at Tonawanda, coincidental with the lowering of the intake of the public water supply system. Extended investigation made by the division of communicable diseases and the engineering division in an effort to aid the city authorities in the suppression of the epidemic and the improvement of water supply conditions, disclosed that a break had occurred in the intake pipe, allowing contaminated Niagara river water to enter the mains.

**District Society Meeting.**—At the recent meeting of the Seventh District Branch of the Medical Society of the State of New York, held in Rochester, October 2, Dr. Owen E. Jones, Rochester, was elected president; Dr. I. Harris Levy, Syracuse, vice president; Dr. George K. Collier, Sonyea, secretary, and Dr. Alfred W. Armstrong, Canandaigua, treasurer.—At the annual meeting of Fifth District Branch of the Medical Society of the State of New York, held in Rome, October 3, Dr. William D. Aveyer, Syracuse, was elected president; Dr. Charles Berntsen, Rome, vice president, and Dr. George W. Miles, Oneida, secretary-treasurer.

### New York City

**Habit-Forming Drugs Found.** A package wrapped in newspaper found accidentally near Fort Lee, contained \$35,000 worth of habit-forming drugs, including heroin and codain.

**Academy Anniversary.**—The anniversary discourse was delivered at the New York Academy of Medicine, November 6, by Rev. Charles Oubrey Eaton, D.D., on "New Men for a New Age."

**Harvey Society Lectures.**—The third lecture of the Harvey Society series by Dr. Alonzo F. Taylor of the University of Pennsylvania, on "The Food Supply of Europe During the Coming Year," will be delivered, November 15, at 8:30.

**Acquitted of Furnishing Drugs to Addicts.**—Dr. Louis A. Falk and Julius Nelson, a druggist, have been acquitted in the Federal District Court of charges of violating the Harrison Narcotic Law by furnishing opium and other drugs to addicts.

**Red Cross Opens Health Flat.**—The New York branch of the American Red Cross has opened a "health flat" at 418 West Twenty-Ninth Street, where women of the Chelsea district, chiefly wives of dockmen and factory operatives, will receive instruction in home nursing and a general course in cooking. The school is a part of the peace program of the organization.

**New Society for Relief of Soldiers and Sailors of the Allies** has been incorporated in this state. The objects of the organization, as set forth in the petition, are: to raise and receive moneys, funds, securities and other properties by voluntary contribution and disburse the same for the relief of soldiers and sailors of the United States and of the nations associated with it in the war, who have been blinded in the war or as a result thereof. Sir Arthur Pearson is one of the patrons of the newly incorporated society.

**Health Department Assists in Diagnosis of Meningitis.**—A recent *Weekly Bulletin* of the New York City Health Department calls the attention of the physicians of New York City to the fact that the meningitis division of the health department is prepared to send one of its members to consult with them on cases of suspected meningitis or other meningeal involvement. Cases are not seen without the physician in charge being in attendance. Lumbar puncture will be performed if it is advisable, and serum will be administered if it is indicated. Physicians are urged to take advantage of this aid.

### PENNSYLVANIA

**Personal.**—Dr. Thompson McD. Baird, Tunkhannock, has been commissioned lieutenant-colonel, M. R. C., U. S. Army. —Dr. T. Lyle Hazlett, Pittsburgh, has been appointed medical director at the Mont Alto Sanatorium, succeeding Dr. Frederick C. Johnson, who has been granted leave of absence.

### Philadelphia

**Convict Osteopath.**—Prosecuted by the state board of medical education and licensure, Phillip Sheridan Daily, an osteopath, is said to have been convicted before Judge Martin in Quarter Sessions Court No. 2, October 30, on a charge of prescribing medicine without a license.

**Weir Mitchell Oration.**—The Weir Mitchell oration will be delivered by Dr. Charles W. Burr at the College of Physicians of Philadelphia, November 19, at 8:30 p. m. The subject of the oration will be "Dr. S. Weir Mitchell as a Physician, a Man of Science, a Man of Affairs, and a Man of Letters."

**Meeting of College of Physicians.**—At the stated meeting of the College of Physicians in Philadelphia, November 5, Dr. Francis X. Dercum read a memoir on the late Dr. Henry, and presented the college with a portrait of Dr. Frederick P. Henry in behalf of his family. The scientific papers of the meeting were by Major D. H. Gillies, R. A. M. C., surgeon in chief of the Queens Hospital for Facial Reconstruction at Sidcup, England, on "Plastic Operations on the Nose and Eyelid," and by James B. Wennell, civilian medical officer in charge of the massage department, Military Orthopedic Hospital, Shepherd's Bush, London, on "The After-Treatment of Fractures by Massage."

**Uniform Administration of Laws on Mental Diseases.**—Plans for a wider and more uniform administration of the law relating to mental hygiene were formulated at the first fall meeting of the mental hygiene committee of the Public Charities Association, October 29. The aim is to combat scientifically the future spread of mental diseases in Pennsylvania. The program contemplates the management of institutions for the treatment of the insane and epileptics, together with other classes of mental deficiencies under the control of a single board. The strict enforcement of the Lanus bill, passed at the recent session of the legislature, for regulating conditions relating to mental hygiene, is urged. Establishment of psychopathic hospitals and the broadening of their scope of usefulness through the employment of the vast knowledge on the subject gained as a result of the treatment of mental diseases during the war, also is planned. Dr. Owen Kopp of the Pennsylvania Hospital for the Insane was chosen chairman of the mental hygiene committee. Addresses were made by Dr. E. Stanley Abbott who has accepted the post of medical adviser of the committee, Dr. Theodore Diller, Pittsburgh, and Dr. Thomas W. Salmon, New York City.

#### TENNESSEE

**Sanatorium Burns.**—Fire originated in the negro male ward in the Memphis Tuberculosis Sanatorium, October 17, consuming the white and negro male wards and damaging other portions of the building. All inmates were removed from the structure without casualty.

**Personal.**—Dr. Eugene A. Gilbert, St. Elmo, has been appointed associate director of health for the city of Chattanooga, and Dr. Edward B. Wise, city physician and director of the municipal clinic.—Dr. William W. Core, superintendent of the Davidson County Hospital, Nashville, underwent an operation at St. Thomas Hospital, recently, and is reported to be doing well.

**Hospital Items.**—A hospital drive was initiated at Memphis, October 13, to obtain \$350,000 for the Tri-State Non-Sectarian Jewish Hospital. Only Jewish residents of Tennessee, Arkansas, and Mississippi are being solicited, but voluntary subscriptions will be welcome.—A hospital properly equipped for the employment of first aid and the performance of minor operations has been installed at the plant of the Harvey Steel Products Company, Jackson, under the charge of Dr. Stanford M. Herron, who has a trained nurse to assist him.—The U. S. Public Health Service announced, October 7, that pending improvements to enlarge the facilities of the hospital and to install additional beds, the Marine Hospital at Memphis will be closed.

#### TEXAS

**Surgeons Elect Officers.**—At the semiannual convention of the Texas Surgical Association, held in Temple, October 13 and 14, San Antonio was selected as the next place of meeting. Dr. Frank Paschal, San Antonio, was elected president, and Dr. Frank L. Barnes, Houston, was elected secretary.

**Rural Health Drive Organized.**—The counties of Tarrant, Wichita, Bell, Williamson and Jackson have organized for a health drive to begin January 1. The state and international health boards will give \$5,000 to each of the counties, and each will be expected to furnish a similar amount. The work will be under the charge of a whole-time county health officer with the necessary assistants.

**District Society Meeting.**—At the forty-sixth annual meeting of the South Texas District Medical Association held

in Galveston, October 9 and 10, the following officers were elected: president, Dr. William B. Thorning, Houston; vice president, Dr. Moses Thompson, Beaumont, and secretary, Dr. Jared E. Clarke, Jr., Houston. The next meeting of the association will be held in April, 1920, at Beaumont.

**Personal.**—Dr. Clute E. Rayburn, Waco, who served overseas during the World War, has been commissioned Major, M. R. C., U. S. Army.—Dr. Ira C. Garst has been appointed a member of the staff of the bureau of rural sanitation of the state board of health. Dr. H. L. Capps has been appointed county director in the same bureau and has been assigned to duty at Beaumont where he will have charge of the rural sanitation of Jefferson County.—Dr. Alexander P. Harrison, Austin, has been appointed director of the bureau of rural sanitation of the state board of health, succeeding Dr. Platt W. Covington, Austin, who has been transferred to Kentucky.—Miss Elizabeth Murford has been appointed assistant city pathologist of Houston, succeeding Dr. L. R. Hilliar, resigned.—Dr. L. E. Parker, Laredo, has been appointed state registrar of vital statistics with headquarters at Austin.

#### VERMONT

**State Association Meeting.**—At the annual meeting of the Vermont State Medical Society, held in Burlington, October 9 and 10, the following officers were elected: president, Dr. Michael F. McGuire, Montpelier; vice president, Dr. Alan Davidson, St. Albans; secretary, Dr. William G. Ricker, St. Johnsbury; treasurer, Dr. David Marvin, Essex Junction; councilors, first district, Dr. James N. Jenné, Burlington, second district, Dr. Schuyler W. Hammond, Rutland, third district, Dr. Frank E. Farmer, St. Johnsbury, fourth district, Dr. Alanson C. Bailey, Randolph; anniversary chairman, Dr. Charles A. Cramton, St. Johnsbury, and delegate to the American Medical Association, Dr. Frederick T. Kidder, Woodstock.

**Program of Tuberculosis Association.**—The Vermont Tuberculosis Association has announced an ambitious program for 1920. It is proposed to place a public health nurse in each of the ten health districts of the state, to open and equip a number of health stations, and to secure part time of a tuberculosis expert to consult with the physicians on diagnosis. The association also approves the open window schoolroom and will supply a cook, dishes, food, clothing, etc., to schools that will furnish a room where the children will go to school with open windows. The children will be warmly clothed, and will receive two warm lunches and a dinner at the school. The homes of these children will be visited to secure the cooperation of the parents so that they will receive practically the preventorium care at home. The association desires three of these rooms, each accommodating fifteen patients. To do the work outlined, \$40,000 will be required.

#### WASHINGTON

**Medical Building in Seattle.**—A medical building company plans to construct a ten-story office building in Seattle for the exclusive use of physicians and dentists.

**Traveling Tuberculosis Clinic.**—The Washington Tuberculosis Association is visiting different cities with a clinic and moving picture outfit for the exhibition of tuberculous conditions. Local physicians supplement the visits of the traveling clinic with health talks.

**Hospital Notes.**—Drs. James T. Mason, John M. Blackford and Maurice F. Dwyer, Seattle, have purchased a lot on which they will construct a modern hospital. It will be a concrete building, five stories high, and will cost \$150,000.—Construction has been begun on the new St. Joseph's Hospital, Aberdeen. The building will contain fifty rooms for patients, besides wards and three operating rooms.—As the present site of St. Peter's Hospital is desired for an addition to the new capital site, the Sisters of Providence of Olympia have purchased land on which it is proposed to build a new hospital.

#### CANADA

**Personal.**—Col. Wallace A. Scott, C. M. G., Officer Commanding, Moore Barracks Hospital, Folkestone, England, has arrived in Toronto from overseas.—Dr. John Harris McPhedran has returned to Toronto from overseas and has resumed practice.—Dr. Oswald J. C. Withrow, Toronto, will lecture in the United States on sex hygiene. He was recently elected secretary of the Ontario Association for the Care of the Feeble-minded.

**University News.**—Dean James C. Connell of the medical department of Queen's University, Kingston, Ont., denies the statement that the clinical work of Queen's Medical College will eventually be transferred to Ottawa. The hospitals of Kingston serve a large district of eastern Ontario, and plans are far advanced for the rebuilding and enlargement of the General Hospital, \$100,000 being in hand for the purpose. For some time past there has been more clinical material than is being used.

### GENERAL

**Röntgenologists to Meet.**—The twentieth annual meeting of the Western Röntgen Society will be held in Chicago, December 10 and 12, with headquarters at the Hotel Sherman.

**Ohio Valley Physicians to Meet.**—The annual meeting of the Ohio Valley Medical Association will be held in Evansville, N. November 11 and 12, under the presidency of Dr. J. K. Wills—Farrington, Chicago.

**County Health Conference.**—The second National County Health Conference meets at the LaSalle Hotel, Chicago, November 8 to 11. The object of this conference is to arouse the interests of all rural institutions and agencies and their responsibility for better health in the country.

**Physicians Victimized.**—A physician of Jersey City notifies THE JOURNAL that a man has been victimizing members of the profession by taking orders for the Cameron light diagnostic outfit, and requiring a deposit in the name of the Dental and Surgical Company, 1807 Franklin Avenue, Philadelphia. A letter sent to the company has been returned with the notation "Not known." The man is about 5 feet 6 inches tall, fair, smooth face and smooth tongue.

**Red Cross Activities in Public Health Service Hospitals.**—Red Cross Hospital material valued at \$700,000 has been transferred to U. S. Public Health Service Hospital warehouses, and will be issued on order from the officials of the hospitals and of the Red Cross hospital personnel for the comfort of ex-service men under treatment in these hospitals. The supplies include gauze, pajamas, comfort kits, towels, laundry bags, fracture socks, bedroom slippers, underwear and bathrobes.

**New York and New England Surgeons Elect Officers.**—At the twenty-ninth annual meeting of the New York and New England Railway Surgeons' Association, held in New York City, October 20, under the presidency of Dr. James S. Hill, Bellows Falls, Vt., the following officers were elected: president, Dr. William B. Coley, New York City; vice-presidents, Drs. John F. J. Black, White Plains, N. Y., and Donald Guthrie, Sayre, Pa.; treasurer, Dr. James M. Hamilton, Rutland, Vt.; corresponding secretary, Dr. George H. Chaffee, Birmingham, N. Y., and recording secretary, Dr. John H. Reid, Troy, N. Y.

**Public Health Scholarships Granted.**—The American Red Cross has granted scholarships to 247 American nurses, 109 of whom have been released recently from military service in this country and overseas, to enable them to take training in public health service. Of these scholarships, 123 have been for \$50 each, permitting each recipient a four months' course of training, while the remainder have been for six, eight and nine months' courses, each nurse choosing the length of course she desires to receive her instruction.

**Appeal for Louvain University Library.**—The librarian of Louvain University, Belgium, October 25, setting forth the request made by the authorities of the University of Louvain for the re-impatriation of their library. The publications of the learned societies of the United States are especially sought for. The Smithsonian Institution has undertaken to provide the material contributed through the International Committee on Scientific Cooperation, which should be strongly urged or, if need be, plainly marked "The Smithsonian Institution, Washington, D. C., for the University of Louvain." The annual list of contributions should be sent directly to the Smithsonian Institution.

**Public Health Officers Meet.**—At the annual meeting of the American Public Health Association, held in New Orleans, October 27 to 30, under the presidency of Dr. Lee K. Frankel, H. D., New York, the following officers were elected: president, Dr. Watson S. Rankin, Raleigh, N. C.; vice-presidents, John Armyott, Ottawa, Ont., and Dr. William H. Kellum, New Orleans, and Guilford H. Sumner, Des Moines, Iowa; secretary, W. H. Hedrick, Boston; treasurer, Lee K. Frankel, Ph.D., New York, and lecturers, Drs. John Dill Robertson, Chicago, Henry F. Vaughan, Detroit, Mazyck F. Ravenel, Columbia, Mo., James Emerson, New York, John A. Kappelman, Canton,

Ohio, and Eugene R. Kelley, Boston. San Francisco was chosen as the place of meeting for 1920.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Women's Hospital, New York City, \$1,578,172; Presbyterian Hospital, State Charities Aid Association, and Infirmary for Women and Children, each \$76,586. Charity Organization Society of New York \$1,573,173; Mt. Sinai Hospital, \$100,000; New York Institute for the Deaf and Dumb, and Servants for the Relief of Incurable Cancer, each \$20,000, by the will of Mrs. Margaret Olivia Sage.

Kenosha, Wis., Hospital, Kenosha Service League and St. Catherine's Hospital, Kenosha, each one third of \$2,500 taken from four bandits who held up and robbed a gambling house in Kenosha recently.

Hartford, Conn., Hospital, a donation of \$50,000 from J. Pierpont Morgan, New York City.

Rockefeller Institute, New York City, an addition of \$100,000 to the endowment for additional research in biology, chemistry, physics, and medicine and general enlargement of the scope of activity of the institution.

St. Anthony's Hospital, Rock Island, Ill., a donation of \$1,000 from the Rock Island Plow Company.

Abington, Pa., Memorial Hospital, and Hahnemann Hospital, Philadelphia, each \$500,000, by the will of George W. Elkins.

Jewish Hospital, \$7,500 for a free room, and \$2,500 to be used by the hospital in any way it sees fit, \$2,500 for the Jewish Foster Home and Orphan Asylum, and \$1,000 for the Eaglesville, Pa., home for consumptives, by the will of Jacob MEYER.

### FOREIGN

**Dundalk Physicians Strike.**—In a recent cablegram it is stated that the physicians of Dundalk, Ireland, have gone on strike to enforce demands for a minimum weekly salary of \$35 for all public services. They claim that their present salaries average \$1,375 a year.

**Control of Venereal Disease in Spain.**—The King of Spain has issued a decree establishing a permanent board for the control of venereal disease, which is to make a study of the proposed measures and report back to the government the recommendations necessary to put the measures into effect.

**Field Hospital Finally Stationed.**—An American field hospital which traveled from Hoboken to France, from Bordeaux to Germany, from Trier to Constantinople, and from Constantinople to Ekaterinburg, Russia, has finally been placed with the southern division of General Kolchak's army. The hospital has 500 beds and two operating rooms, and includes all equipment needed for immediate operation.

**Sanitary Measures on Spain-Portugal Frontier.**—A French exchange states that an agreement has been signed between Spain and Portugal which provides for the compulsory declaration in the frontier zones of plague, cholera and yellow fever. Also, temporarily, for smallpox, typhus, typhoid, cerebrospinal meningitis and diphtheria whenever these diseases are assuming an epidemic character. Sanitary stations are to be organized along the frontier.

**Interallied Typhus Commission in Poland.**—The medical commission sent by the Interallied League of Red Cross Societies to study the typhus situation in Poland has begun its investigation in Warsaw. The commission is composed of Col. Hugh S. Cumming, Washington, D. C., Assistant Surgeon-General, U. S. P. H. Service, chairman; Lieut.-Col. Aldo Castellani, Royal Italian Navy Medical Service; Lieut.-Col. George S. Buchanan, Medical Officer of Health, Ministry of Health of Great Britain; and Lieut.-Col. Visbeck, French Army Medical Service.

**Typhus Exterminated from Serbia.**—The five-year campaign which American Red Cross physicians and nurses have been waging against typhus fever in Serbia has ended victoriously. The recent report of the Serbian Commission states that there are now only about sixty-five cases in the country, two thirds of these being in Belgrade. During 1915, 150,000 persons died from the disease out of a population of 3,000,000 and 150 physicians died, so that there was only one physician to 75,000 persons. The commission has now turned its efforts toward instilling the principles of hygiene, sanitation and nutrition into the minds of the people.

**Institute of Social Physiology.**—This is the title to be given to a new institute soon to be organized at Milan in connection with the other institutes for graduate work. The scope of this *istituto di fisiologia sociale* is to conduct research on problems relating to food, to industrial efficiency, to growth and the school, the manufacture of foods, professional and industrial safeguards for the health, applying functional methods of examination and psychic tests, etc.—aiming in short to control and assist the elementary, professional and industrial schools from the standpoints both of physiology and

pathology. Dr. L. Veratti is said to be the sponsor for this new institution.

**Some Missing Foreign Weeklies.**—After an absence of weeks or months three weeklies, the *Bulletin de l'Académie de Médecine*, the *Bulletin de la Société des Hôpitaux de Paris* and the *Policlinico* of Rome are again appearing. The latter has been suspended on account of a printers' strike, the issue for July 20 not appearing until September 10, and the publishers are unable to guarantee its regular appearance even now. The *Bulletin de l'Académie de Médecine* was not issued during the several weeks of the vacation of the Académie. This is the first time the Académie has taken a recess since the war began. The *Bulletin des Hôpitaux* was also suspended for the same reason. The Société des Hôpitaux opened its new year with a gala meeting to which were invited all the physicians, surgeons, accoucheurs and specialists of all the hospitals.

LATIN AMERICA

**Plague in Argentina.**—According to a cablegram from Argentina, bubonic plague has assumed a serious character in the territory of Formosa, in the northeastern part of Argentina.

**Influenza in Bolivia.**—It is reported from Chile that the influenza epidemic is spreading throughout Bolivia and the government is taking active measures to combat it. It is stated that several thousands of cases have occurred at Santa Cruz and its vicinity.

**Retirement of Prof. Decoud.**—Dr. Diogenes Decoud, professor of surgery at the University of Buenos Aires, having reached the age limit, has retired from his chair. Prof. A. F. Celsia has been given charge of the work until a new incumbent can be appointed.

**Smallpox in Havana.**—It is reported from Havana that smallpox cases are decreasing in number rapidly through the effectual work of the sanitary authorities. So far, the committee on infectious diseases has considered positive only one case which shows the low infectivity of the disease. The authorities expect, however, that new cases may occur in from eight to ten days.

**Milk Stations Conference in Chile.**—There was recently held in Chile the Congreso Nacional de Gota de Leche. A number of papers were presented by several physicians. The conclusions adopted included the extension of the Gouttes de Lait; visits to the children in their homes; medical assistance; improvement of milk supply; treatment of parents with infectious diseases, etc.

**New Methods for Teaching Hygiene in Buenos Aires.**—The National Council of Education has authorized the trial in three schools of Buenos Aires of a system of teaching hygiene suggested by Dr. José F. Montellano. This system contemplates teaching in concrete form only those fundamental principles of practical usefulness the truth of which has been demonstrated, and to furnish this in as objective a form as practicable. The purpose is to give the children some practical knowledge that may be necessary for the preservation of their health, and in such a form that they will understand it thoroughly and it will be impressed on them for life. Dr. Montellano has already furnished the first chart he is going to use which shows the progress of phagocytosis, including the composition of the blood, the red and white corpuscles, the introduction of microbes, their destruction, etc. Similar charts will be employed to show the progress of the different diseases and approved prophylactic methods.

**Deaths in the Profession.**—Dr. Juan B. Fuentes, formerly physician in chief of the Clínica de Partos at Havana, and since then connected with the public health service.—Dr. I. Rezende, formerly professor at the Rio de Janeiro medical faculty, but for many years practicing medicine at S. Paulo, aged 59.—Dr. C. M. de Novaes, a well-known surgeon and urologist at S. Paulo. Also from S. Paulo is reported the death of Dr. G. Ellis, physician to two of the hospitals and president of the Sociedade de Medicina e Cirurgia de S. Paulo, aged 72, and of Dr. J. Valeriano de Souza, surgeon to the Beneficência Portuguesa and professor in the pharmacy school.—Dr. Alfredo Porto, professor of skin and venereal diseases at the University of Rio de Janeiro since 1907 and a frequent writer on subjects connected with this specialty. He succumbed in the midst of robust health to the effects of scratch infection from a patient with cruris.—Mr. L. Cianci, an official radiologist for the Buenos Aires medical faculty, recently died at the age of 40 from injuries received during the performance of his duties.

Government Services

Personnel of the Medical Corps

Up to Oct. 31, 1919, there had been 1,564 men discharged from the Medical Corps 28,093 officers, which taken from a maximum of 30,591 leaves 2,498 in the service. The Reserve Corps contains 3,697 officers, including, 1 brigadier-general; 63 colonels; 208 lieutenant-colonels; 900 majors; 1,551 captains and 654 lieutenants.

British Medical Officers Decorated

In recognition of their services during the late war, the President has conferred the Distinguished Service Medal on Major-Gen. Sir Anthony Bowlby and Major-Gen. Sir Robert Jones, R. A. M. C. The Secretary of War designated Major-Gen. Merritte W. Ireland to represent the President in conferring these decorations, which were presented in New York City.

Major General Bowlby, while serving with the British Expeditionary Force in France, placed his knowledge and experience at the disposal of the American Expeditionary Forces.

Major General Jones, who is an eminent orthopedic surgeon and chief of the division of orthopedic surgery in the British Army, gave most valuable advice and personal assistance in standardizing methods of the sick and wounded of the American Expeditionary Forces and also in the instruction of American Army surgeons in the branch of surgery for which he is noted.

Distinguished Service Medal

The Distinguished Service Medal has been awarded to the following medical officers:

Charles Lynch, Colonel, M. C. U. S. Army. "As port surgeon, Port of Embarkation, Newport News, Va., his services at governing and controlling agencies for caring for sick and wounded soldiers, protecting them against disease, and safeguarding them prior to and during transport overseas, were conspicuous."

James M. Kennedy, Colonel, Medical Corps, U. S. Army. "As port surgeon, Port of Embarkation, Hoboken, N. J., organized, provided and administered with conspicuous efficiency all hospitals required for accommodation of transports going overseas for that port, as well as for the large number of sick and wounded soldiers returning home."

Other Awards

Gray G. Holladay, Lieut., U. S. Navy, R. F., Portsmouth Va., surgeon of the U. S. S. *George Washington*, was honored by receiving a decoration from King Albert of Belgium.

Dr. Mary Hughes Elliott, Blue Mountain, Miss., who went to the Balkans last winter as a member of the American Commission to Serbia, has been awarded the Serbian Decoration of the Order of the Sava.

Alfred E. Lemon, Major, U. S. Army, Douglas, Ariz., has been awarded the Croix de Guerre, with citation by the Tenth French Army Corps, order No. 143821.

Captain Alfred E. Lemon, Medical Corps, 1,2th American Infantry. The 29th of August, 1918, near the farm of Vamoz, north of Seissons, being all day with the wind cut at the trenches and frequent aerial attacks, although under constant fire his behavior in danger and his "sang froid" served as an example to other doctors and men under his orders, causing the saving of the lives of many wounded. Signet Petain (by Caillemant).

Educational Service Report

Educational service reports for August submitted by seventeen army hospitals show that ninety of the 3,494 who received certificates of disability for the month were designated as unfit for their old occupation, the balance being able to resume their old occupation, and are not in need of assistance. The enrollment of war handicapped decreased from 14,010 in July to 10,719 in August. Most of these patients were engaged in making and weaving textiles, reed, cane and fiber work, wood working and occupations in which leather, cardboard and binding materials are used. During August, 15,944, or 53 per cent. of the total number of patients in hospitals, were enrolled at the educational stage, as compared with 55 per cent. in July, 47 per cent. in June, 48 per cent. in May, and 43 per cent. in April.

Reception to Surgeon-General

A reception was given, October 9 by the members of the Officers' Club, District Circle, Washington, D. C., in honor of

Major-Gen. Merritte W. Ireland, Surgeon-General, U. S. Army, and Mrs. Ireland, and officers and ladies of the Surgeon-General's Department stationed in Washington and vicinity.

#### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CONNECTICUT	MASSACHUSETTS
New Haven—Dennehy, W. J.	Boston—Sise, L. F.
DISTRICT OF COLUMBIA	MICHIGAN
Washington—Stanley, A. C.	Ewen—Alden, S. J.
IOVA	PENNSYLVANIA
Lemars—Gehlen, J. N.	Philadelphia—Edgar, J. M.
	Spout—F. M.

### Foreign Correspondence

#### BUENOS AIRES LETTER

BUENOS AIRES, Sept. 21, 1919.

##### Public Assistance Difficulties

The progressive increase in the prices of drugs and foods has aggravated the constant economic difficulties with which the public assistance department of this capital is always struggling. This is in part due to the fact that we have constantly with us an enormous number of patients from all over the country, half of whom do not properly belong here. The surgical and medical equipment is deficient and the surgical service is maintained only through the public spirit of the physicians in charge. These difficulties have caused the authorities to make attempts to increase the hospital funds. Those in charge of the public assistance have requested the cooperation of the people, in order to provide clothing, shoes, orthopedic apparatus, transportation, etc., for the indigent patients. The commission appointed to this effect has obtained quite a large number of contributions, but on account of its expenses and the little success that attended some of the public sales, the funds obtained have not been by far as large as expected.

##### Influenza Epidemic

The epidemic of influenza has spread all over the country and has even reached the neighboring city of Montevideo. In this city the increase of cases of influenza as well as pneumonia has continued, although so far it has not assumed an epidemic character. The investigations carried out by the national department of public health showed the presence of the pneumococcus, streptococcus and the Pfeiffer bacillus. Dr. Méndez has stated, although without presenting any experimental data, that the only etiologic agent of the influenza affections is the pneumococcus, and holds that the streptococcus and Pfeiffer bacillus are only varieties of this micro-organism. On this theory he has prepared a special pneumococcal vaccine which has been employed as a preventive and curative agent on a very large scale throughout the country and which is very popular among the masses. It has also been used subsequently for the equine meningo-encephalitis, foot and mouth disease, puppy diseases, etc. There has also been an increase of the mortality caused by pulmonary tuberculosis. The national department of public health has been compelled to mobilize its forces on different occasions. Several commissions have been sent to different provinces, and some are now visiting Santiago del Estero and Tucumán. The secretary, Dr. Teófilo Lecour, has visited several places and made a tour of inspection of all the coast towns, to supervise the permanent sanitary organizations as well as those organized temporarily to combat influenza.

##### Creation of Public Health Stations

The national government has under consideration the creation of permanent public health offices at Jujuy, La Rioja and Salta.

##### Rat Eradication

The national congress has under consideration a bill for the compulsory destruction of rats, in order to prevent the possible spread of bubonic plague, isolated cases of which occur occasionally in different regions of this country.

##### University Exchange

The Spanish Culture Association of Buenos Aires gives annually at its expense a university course which is given by some prominent Spanish professor. This year the man

in charge is Dr. Augusto Pi y Suñer, the professor of physiology of the Medical School of Barcelona. The first lecture, given July 26, was a marked success. The complete course will consist of from eighteen to twenty-five lessons, in this city, and in addition some lectures in Rosario, Cordoba, Montevideo and other cities. In the first lecture he emphasized the existence of a tropic sensitiveness through which the nervous elements maintain their balance. This sensitiveness acts through the nerves and humoral chemical agents. Montevideo professors, including Drs. Pou Orfila, Pratt and Morelli, have also given some lectures in the School of Medicine of Buenos Aires. Dr. Pedro Chuto, who recently arrived from the United States, has also given a series on the surgical lessons learned during the war.

##### Malaria

As a result of the floods of the River Paraguay there have been observed a number of malaria foci in the district of Formosa, and a sanitary campaign has been arranged to control the spread of the disease.

##### Second Tuberculosis Conference

The second national tuberculosis conference was held at the city of Rosario, September 6. There was in connection with it a public exposition devoted to illustrate the prophylaxis of tuberculosis. The secretary of foreign affairs and public assistance delivered an address expressing the interest of the government in having tuberculosis prophylaxis and treatment placed on a sound basis, for which purpose a bill has already been introduced in congress. The discussions were somewhat heated, some of the participants having shown too much feeling in their remarks. While no papers of any special importance were presented, a certain uniformity was observed in the plans submitted. It was decided to advise the creation of dispensaries which will act as centers for assistance, selection of hospital cases and preventive education, this being supplemented by visits to the homes and assistance whenever required. The establishment of a sanatorium for each hundred thousand inhabitants was also advocated, as well as the creation of special tuberculosis hospitals and seaside or mountain sanatoriums when needed. The strict application of measures of sanitary supervision on foodstuffs, servants, public offices and public places was also recommended. In addition, the recommendations included the construction on a larger scale than heretofore of low-priced houses, the improvement of the measures for infant welfare, extension of the anti-tuberculosis and antialcoholic propaganda, especially in the schools, and the enforcement of a system of compulsory reporting of the disease and assistance to indigent families. In order to carry out these purposes, there was advocated the creation of a special independent commission with its own appropriations which would appoint special commissions under its jurisdiction. The pending governmental bill was indorsed, although it was considered necessary to have some system of compulsory health insurance.

##### New Tuberculosis Dispensary

The Argentina association for the prevention of tuberculosis has opened a new dispensary called Eduardo Wilde in one of the most populous sections of the city. The dispensary is provided with modern equipment, the funds for this purpose having been obtained through popular contributions.

##### Narcotic Legislation

The campaign against the use of habit-forming drugs has recently been given new impulse, and the existing laws are being enforced rigidly.

#### MEXICO LETTER

Mexico, Oct. 26, 1919.

##### The Opium Case

The large quantity of opium which was found by the police in a private house, and which was believed to be intended to be smuggled into the United States, has been confiscated by the authorities, who have placed it at the disposal of the board of public health. The value of the confiscated opium is estimated as about \$22,000.

##### The Mexican Medical Association

The Mexican Medical Association has decided to address a petition to the House of Representatives, explaining the advantages that will accrue to the people in general, and the professional classes in particular, from the adoption of a law that will restrict the practice of medicine and allied professions to duly licensed persons. This law would put an end

to the serious harm that the quacks are doing at present in this country.—The association has decided to grant annually two prizes of 250 pesos (\$125) each, which will be granted to medical students who have completed the third year and are poor, honest and studious. The prizes will be granted by a jury consisting of two of the professors (the dean and one of the third-year professors), two of the officers of the Mexican Medical Association, and one third-year medical student who will not be eligible to the prize on account of his pecuniary position.—It has been decided to adopt an emblem for the members, which will consist of an enamel button on which will appear engraved the traditional staff and serpent of Esculapius.

#### The Field Nurses

The war department has ordered that hereafter the nurses belonging to the sanitary corps of the army will serve only in the hospitals, and that on no account will they be assigned to the troops on the field as done heretofore. This is due to the fact that some of them have complained of abuses. The services previously rendered by female nurses will hereafter be rendered by male nurses.

#### New Bacteriologic Department

There has been begun the construction of a pavilion for the National Bacteriologic Institute, which will be devoted to the study and growth of the most dangerous germs, such as the Yersin plague bacillus and the cholera vibrio. Some of the cultures of these bacteria, which the laboratory had previously, have been lost, and new ones have been imported from American laboratories. It is expected that the new building will give the necessary protection to prevent the so-called laboratory epidemics, and will permit at the same time the preparation of large quantities of anticholera serum and antiplague vaccine for use as required.

#### Sanitary Conditions

The federal sanitary authorities, as well as those of the state of Colima, have denied the occurrence of yellow fever cases in that state; but the newspaper correspondents continue to assert that cases of that disease have occurred there.

Malaria has presented itself in epidemic form in Iguala in the state of Guerrero, a great number of deaths having been reported. The same thing is happening in Tuxpan and its vicinity, in the oil region of the state of Veracruz, where there have occurred a number of cases of hemoglobinuric fever and several deaths.

The port of Tampico has established a quarantine against ships from Havana on account of the smallpox epidemic reported from that city.

Yellow fever continues to be present in Yucatan.

### LONDON LETTER

LONDON, Oct. 8, 1919.

#### Rabies in England

Sir Stewart Stockman, chief veterinary officer of the board of agriculture and fisheries, has reviewed the position of rabies in this country in recent years in his annual report. The disease was eradicated in 1902 by the muzzling of dogs, and stringent measures were taken against its introduction by a period of quarantine covering the usual latent period of the disease. For sixteen years these measures have been effective, but conditions arising out of the war have allowed the disease to be introduced from the continent. It first appeared in Devonshire in September, 1918. A veterinary inspector was sent down to report on the mysterious deaths of dogs: laboratory investigation showed that they were due to rabies. An order was issued prohibiting movement of dogs out of Cornwall and Devon and enforcing muzzling in an area round Plymouth, which was afterward extended to certain districts in the counties mentioned. Up to the end of the year, 112 cases were observed. Immediate muzzling was effectively applied, and a decrease began in the number of cases that appeared monthly in the congested district of Plymouth. Fortunately, most of the cases were of the paralytic form, which curtailed the wanderings of the animals and their ability to bite. Another favorable factor was that for some unexplained reason the majority of the dogs took a westerly course and came up against the barrier of the sea. Arrangements were made for seeking out and treating human beings who were bitten. So far there has been no death from hydrophobia among twenty-one persons treated. Some of the distances covered by rabid dogs during their run are given. In one case it was 20 miles; but because it had bitten a man, the dog was shot, while still going strong. In another

case the distance was 30 miles, when the animal was shot while still going strong.

#### The Mortality of the Tuberculous After Sanatorium Treatment

The Medical Research Committee has issued a report on the after-histories of patients discharged from the King Edward VII Sanatorium, which is important because of the large proportion of patients it was possible to trace. Of those discharged from the sanatorium since its foundation in 1914, only 3.5 per cent. were not traced. The present study is based on a record of seven years, covering 1,053 men and 1,064 women. Patients admitted in the incipient stage showed a mortality five or six times as great as that of the general population; moderately advanced cases between fifteen and twenty times as great; advanced cases nearly forty times as great. The smallest excess mortality was among patients discharged when the disease appeared to be arrested. The conclusion is drawn that residence in a sanatorium should be prolonged as long as possible. In the treatment, tuberculin proved disappointing. The method of administration was that advocated by Handelier and Roepke, which approximates the "reactionless" method of Sahli and Trudeau. No appreciable effect, good or bad, could be traced.

#### The Ministry of Health: Consultative Councils

When the ministry of health bill was before Parliament, it was made clear that the ministry when established would seek advice on a variety of subjects within its province from advisory bodies chosen so as to include men and women with full practical knowledge of the questions on which they would be asked to advise. In the act, these bodies are called consultative councils. In the case of England they will consist of the consultative council on medical and allied services, the consultative council on local health administration, and the consultative council on general health questions. The councils will consist of twenty members each, including a chairman and vice chairman, but they may for special purposes appoint committees in order that they may have the cooperation of other persons so that particular problems will be considered with the help of those who have made them a special study. The membership of the consultative council on general health questions, which will also be twenty in number, is not yet completely settled, but at least half of its members will be women.

To the consultative council on medical and allied services will be referred such problems as the national development and extension of medical, nursing and midwifery work, and it is proposed that for some purposes it should, in accordance with the arrangement outlined above, act through committees more specialized than the council itself. Its members have been chosen from the fields of specialist medicine and surgery, general practice, both private and insurance, the public health services, the work of women in medicine (particularly the care of mothers and infants), hospital administration, and the application of other branches of science to medicine. It is intended that when questions are under consideration that specially affect the nursing and midwifery services of the country, the council should be assisted by the appointment of a committee consisting partly of its own members but also including practicing nurses and midwives and other persons, not members of the council, who have devoted themselves specially to the study of nursing and midwifery questions.

The consultative council on national health insurance will, as its name indicates, consider problems of the work of approved societies arising in the administration of the cash benefits (sickness, disablement and maternity) by approved societies under the insurance acts. Its membership includes persons familiar with the work of all the principal types of approved societies.

The consultative council on local health administration will consider the administrative problems arising out of proposals for the development and extension of health services, and its membership includes persons familiar with the work of local authorities of various types, insurance committees and poor law guardians.

#### A New Journal

The first number of a journal entitled *Medical Science, Abstracts and Reviews* has appeared. It is produced by the Medical Research Committee and may, therefore, be regarded as a government publication. It is the successor of the *Medical Supplement to the Daily Review of the Foreign Press* issued by the general staff of the war office, which made its appearance privately during the war in 1918 with the object

of informing our army medical staff of the inventions and discoveries of the enemy, though it soon became something wider, a review of foreign literature in general. After the war it ceased with the review. The present periodical will be published monthly, and its annual subscription price is \$5. The first number, which appeared during the present month, contains 130 pages in good-sized type. Two thirds is occupied with reviews, and the remainder with abstracts. There are five departments which have been allotted to editors: surgery, Mr. W. G. Spencer; medicine, Dr. J. D. Rolleston; pathology, and bacteriology, Dr. W. Bulloch; neurology, Dr. F. M. K. Walshe; radiology, Dr. W. S. Lazarus-Barlow and Dr. Sydney Russ. The subjects of the reviews are: "Spina Bifida"; "Habitual or Recurrent Dislocation of the Shoulder"; "Repair of Tissues Destroyed by Injury and Disease"; "Cecostomy—Appendicostomy"; "Typhoid and Paratyphoid Fevers"; "Typhus"; "Influenza"; "Malaria"; "Dysentery"; "Cardiovascular Diseases"; "Alimentary Diseases"; and "Lethargic Encephalitis." The reviews are all written by the editors and take the usual form of critical summaries of the recent literature of a subject. In some cases the writer has gone farther and brought old classical papers into the review, which thus tends to become an essay. The abstracts are in most cases also written by the editors. As the names would indicate, the work has been well done, but by no means covers the field of medical literature, most of the specialties being excluded. The periodical should prove most useful to those engaged in research or interested in particular subjects, but, like most publications of the kind, very little of it is palatable for the general reader.

#### PARIS LETTER

PARIS, Oct. 16, 1919.

##### Provisions Made for War Orphans

The general federation of departmental associations of public school children has gained widespread recognition lately in view of the great work it is doing for the war orphans. The federation is composed of eighty-seven associations, which contribute to the support of 200,000 war orphans. During the year 1918 it has distributed to these orphans the total sum of 15 million francs.

The federation has also taken the initiative in founding the first sanatorium for heliotherapy *en altitude*, in France. This sanatorium will be for the treatment of patients suffering from surgical tuberculosis. Mme. L. Stern has already promised a million francs toward the project, but a much larger sum is needed before the plan can be realized. It is proposed to locate the sanatorium in the department of Pyrene-Orientales (Southern France), in the vicinity of Font-Romeu.

##### The University of Strasbourg

Alsace having again become French, university circles are busily engaged in working out plans in order to make sure that the old University of Strasbourg shall not fall behind the standard to which it is entitled. The University of Strasbourg is, in fact, three hundred years old. While its official foundation dates from 1621, its earliest beginnings really extend back into the sixteenth century. Moreover, the authorities had not waited for the end of the war before considering this subject. As early as two months after the entrance of the French (Nov. 22, 1918), a course conducted in French was inaugurated. The other courses were soon organized, the Alsatian professors remaining at their posts, while certain professors were sent in temporarily; officers who were university instructors in civil life were also placed by the military authorities at the disposal of the faculties. In spite of difficulties, all the courses were soon conducted in French. From the beginning of hostilities, French had been absolutely prohibited by the German authorities and violation of this edict were subject to severe penalties. It required, therefore, a real effort on the part of all the instructors, even of young men who formerly had had a sufficient knowledge of French, in order to adapt themselves to instruction in this language.

If, however, that is not the most delicate question. The most difficult point to solve is, how the University of Strasbourg is to be assured the prosperous condition of affairs that it merits. Before the war it had more than 2,000 students, half of whom were from Alsace-Lorraine. Half the students were German; these it will, of course, lose. It will also lose, through the natural course of events and by force of natural attraction, the students from Lorraine who heretofore attended the University of Strasbourg, for these will doubtless be drawn toward Nancy. The result has been that

this year Strasbourg has matriculated only 800 students, which seems to be the maximum that the local field is able to furnish. This number is too small to constitute a great university. We have in France half a dozen universities that have a larger attendance than this. The necessity therefore arises of providing the university with as many good courses and as many attractive features as possible, in order to induce a large contingent of students from outside of Alsace to take up their studies here.

Whatever may be done in the future, one may gain some idea of the present status of the medical faculty of this institution from the following:

There are twenty professorial chairs. The theoretical and practical instruction is given, then, by twenty full professors and twenty-four assistants (*chargés de cours*). This instruction is open to students who have completed their premedical studies, including physics, chemistry and the natural sciences, and to those who are preparing, according to the German system, for their state examination (*Staats-examen*).

A special course of instruction will be established for students who are too far advanced in their medical studies according to the mode of instruction of the German faculties to continue according to the French plan without considerable loss of time. These students will be attached, in the capacity of licentiates (*stagiaires*), to some service of general medicine or to a service of general surgery. Furthermore, special courses in clinical medicine (Professors Bard and Blum), in clinical surgery (Professors Sencert and Stolz), in pathologic anatomy and in general pathology have been provided for these advanced students.

##### Medical Fees in Industrial Accidents

The schedule of medical fees provided by the law pertaining to industrial accidents dates back to 1905. Living conditions having completely changed, especially since the war, this schedule was no longer in harmony with the high cost of living. In view of this fact, the insurance companies, acting in accord with the delegates of the *Syndicats médicaux de France*, requested that Senator Bienvenu-Martin should serve as arbitrator in establishing a new schedule of medical fees in industrial accidents. The arbitrator so chosen has decided that the schedule in force at the present time shall be provisionally increased 100 per cent.

##### Exchange of Professors Between France and Italy

The plan for the exchange of professors between France and Italy has been definitely worked out. This project, which has been under advisement for several years, is based on the desirability of each of the two countries possessing an exact knowledge of the other, and on the thought that in this manner a sort of common intellectual atmosphere might be created between the two nations. Such a plan of exchange will give the French and Italian professors of all ranks definite missions outside of their native country, which will afford an opportunity for an extended sojourn during which a friendly nation can be studied at first hand. It is also thought that scientific research will be facilitated by this innovation.

##### French Society of Medical History

The Société française d'histoire et de médecine has resumed its custom of holding monthly meetings. At a recent meeting, the president, Dr. Jeanehne, professor of cutaneous and syphilitic diseases at the Faculté de médecine de Paris, presented a very interesting communication, illustrated by photographs, on the medical manuscripts preserved in the National Library. Professor Roger, dean of the Faculté de médecine de Paris, announced a plan for the creation of a historical medical museum, designed to serve as a depository of gifts received from the members of the society.

##### Wounds Received by Physicians at the Hands of Insane Patients

Among the risks connected with the medical profession there is one to which alienists are particularly exposed. Within the space of a few days, two physicians of Paris have had to suffer on this account. Dr. Rogues de Fursac, physician-in-chief of the asylum of Ville-Evrard, was seriously wounded by an insane patient who struck him in the region of the heart with a saw-file. The attendant who accompanied the physician on his rounds was able partially to parry the weapon, which inflicted, however, a deep lung wound, causing copious hemoptysis. A few days previously, Dr. Ducosté, physician-in-chief of the sanatorium of Ville-Evrard, had been severely wounded in the head by an insane patient who had leaped at him with the intention of cutting

his face with a broken bottle. In spite of the severity of their wounds, these two alienists do not appear to have suffered a mortal injury.

#### Meeting of Gynecologists and Obstetricians

The first meeting of the Association des gynécologues et obstétriciens de langue française was held recently. Among the six subjects discussed at the meeting (*THE JOURNAL*, Aug. 23, 1919, p. 622), three are of especial interest: (1) the serodiagnosis of pregnancy; (2) rising early from childbed, and (3) operative treatment of cancer of the cervix of the uterus.

#### The Serodiagnosis of Pregnancy

Dr. Bar, professor of clinical obstetrics at the Faculté de médecine de Paris, and Dr. Ecalle presented a report on the subject of serodiagnosis of pregnancy, in which they discussed the advantages derivable at the present time from recent discoveries in regard to biologic reactions produced when substances of fetal origin are allowed to penetrate the maternal organism. The complement fixation method possesses very slight practical value, they find. The dialytic method (the Alderhalden test) is deserving of greater attention. The blood serum of pregnant women when brought in contact with placenta always doubles the amount of placental albumin; the reaction is always positive. The reaction seems to be little influenced by the stage of the pregnancy. It appears first during the second month of gestation and disappears generally during the three weeks following accouchement. In extra-uterine pregnancies the reaction is always positive if the embryo is living; it may become negative if the fetus is dead. The intensity of the reaction is generally diminished if some form of intoxication is present. Besides, it is important to note that the blood serum of nonpregnant women gives a positive reaction in 33 per cent. of the cases. The diagnostic value of this method is therefore subject to important restrictions.

Furthermore, the attempt has been made to base the diagnosis of pregnancy on the increase of antitryptic power, but Bar and Ecalle do not think that this increase would be of any aid in the diagnosis of doubtful pregnancy, especially in view of the fact that the increase is definite and constant during the last months of pregnancy. The clinical advantages of these biologic reactions, difficult and delicate of control, as they are, seem rather slight and are not at all commensurate with the labor that they necessitate. All the obstetricians who took part in the discussion were virtually of the same opinion. All emphasized the fact that the researches in question, and particularly the Alderhalden test, were of an extremely delicate nature and subject to numerous sources of error.

#### Rising Early from Childbed

In his report on the subject of rising early from childbed, Dr. Bourcart of Geneva called attention to the disadvantages connected with patients keeping their beds too long after accouchement; they grow anemic, their abdominal muscles atrophy, the lochial discharge is hampered, the chances of infection are increased, uterine involution is retarded, intestinal function is arrested, and, finally, the secretion of milk is diminished. Early rising from childbed makes it possible to avoid all these disadvantages, since muscle action is better and the blood circulation is more active. It is understood that it is necessary that normal abdominal conditions be re-established before a patient is authorized to get up. It is a very good practice to institute massage of the abdominal muscles before allowing the patient to leave the bed, as this promotes the return of normal intra-abdominal conditions.

## Marriages

CAREY F. McCafferty, Columbus, Ohio, to Miss Hazel Jacquelin Holcome of Portsmouth, Ohio, at Dayton, Ohio, October 17.

MARK ALEXANDER GRIFFIN, Morganton, N. C., to Miss Neppie Clary Brothers, at Raleigh, N. C., October 8.

HORACE PALMER BECK to Miss Dorothy Bateman, both of Newport, R. I., at New York City, October 15.

HOMER P. MACNAMARA, Springfield, Ill., to Miss Mabel Palmer Cowdin of Chapin, Ill., October 27.

ARTHUR HALE PARCHER, Ellsworth, Me., to Miss Winifred Ethel Hassall, October 8.

## Deaths

Robert Taylor Wilson \* Baltimore; University of Maryland, Baltimore, 1881; aged 59; gynecologist to the Union Protestant Infirmary, Baltimore; consulting physician and director of the Hospital for Consumptives; surgeon to the Hospital for Women of Maryland; president of the Hospital Relief Association of Maryland; formerly assistant recording secretary to the Medical and Chirurgical Faculty of Maryland; died at his home, October 6, from heart disease.

Horace Perkins Mackechnie, Somerville, Mass.; Bellevue Hospital Medical College, 1879; aged 78; a member of the Massachusetts Medical Society; formerly principal of the Green Mountain Institute, and later of the Lincoln School, Somerville; once president of the Somerville Medical Society and a member of the staff of the Somerville Hospital since its organization; died at his home, October 17, from heart disease.

John Müller, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 78, for four years professor of languages at the University of Upsala, Sweden; interpreter at the Oriental Congress in Stockholm; lecturer at the Università Popolari, Milan, Italy; once lecturer and demonstrator of anatomy at St. Louis Medical College; died in Alexian Brothers Hospital, Chicago, October 24.

Junius Merwin Hall \* Chicago; College of Physicians and Surgeons in the City of New York, 1874; aged 68; for fourteen years a medical inspector under the health commissioner of Chicago, and on duty during the smallpox epidemic of 1880 and 1881; for many years a member of the attending staff of the Passavant Memorial Hospital; died at his home, October 30, from cirrhosis of the liver.

Albert C. H. Barge \* Astoria, N. Y.; Long Island College Hospital, Brooklyn, 1911; aged 32; assistant gynecologist to the German Dispensary, New York City, and attending gynecologist to Lenox Hill Dispensary; died at his home, October 23, from diphtheria.

Orlando T. Maynard \* Elyria, Ohio; Eclectic Medical Institute, Cincinnati, 1875; Western Reserve University, Cleveland, 1884; aged 69; a member of the staff of the Elyria Memorial Hospital; died at his home, October 24, from heart disease.

Wellington Clark Ellis, Swiss, W. Va.; Barnes Medical College, St. Louis, 1910; aged 36; who was injured in an automobile wreck near Charleston, S. C., October 5, in which his wife was instantly killed, died from his injuries, October 9.

Edward Tracy Robinson, Chicago; Bennett Medical College, Chicago, 1906; aged 40; while motoring from Casper to Sheridan, Wyo., was instantly killed, July 25, when the car ran off a bridge, crushing Dr. Robinson beneath it.

Isidor Perlstein, Streeter, N. D.; Harvard University Medical School, 1912; aged 37; assistant physician to the Colonial Sanitarium, Rochester, Minn.; died at the Mayo Clinic, Rochester, September 23, from brain tumor.

Charles Edward Berkeley Duncombe, St. Thomas, Ont.; Trinity Medical College, Toronto, Ont., I.R.C.P. (Edin.), 1883; aged 55; was killed instantly in a collision between automobiles at Brantford, Ont., September 14.

Franklin Levi Hope, Tunica, Miss.; Vanderbilt University, Nashville, Tenn., 1882; aged 62; for one term sheriff and chancery court clerk of Tunica County; died at his home, August 28, from acute dilatation of the heart.

Albert Christian Amundson, Cambridge, Wis.; New York University, New York City, 1882; aged 64; author of many articles in Norwegian on quackery; died at his home, October 20, from carcinoma of the liver.

John F. Mulholland, Jordan, Minn.; Northwestern University Medical School, Chicago, 1879; aged 70; a member of the Minnesota State Medical Association; died at his home, August 24, from pernicious anemia.

Christian Kachelmacher \* Fargo, N. D.; University of Christiania, Norway, 1897; aged 48, shot himself in his room at a hotel in Chicago, October 29, and died a few hours later in the Alexian Brothers Hospital.

Thomas F. Leech, Downers Grove, Ill.; Jefferson Medical College, 1860; aged 78, a veteran of the Civil War in which he served as surgeon, U. S. Navy; died at his home, October 30.

Francis Brennan Fletcher \* Capt., M. R. C., U. S. Army, Springfield, Ill.; Rush Medical College, 1902; aged 39; died in Liverpool, England, July 30, five days after an operation for perforating gastric ulcer.

Joseph Dozier Bancroft, Birmingham, Ala.; Vanderbilt University, Nashville, Tenn., 1894; aged 47; a member of the Medical Association of the State of Alabama; died, October 10.

Fletcher J. Farwell \* Friend, Neb.; Ensworth-Central Medical College, St. Joseph, Mo., 1909; aged 49; a member of the local school board; died at his home, October 10, from erysipelas.

Arthur M. Smith, Los Angeles, Calif.; University of Southern California, Los Angeles, 1888, aged 44; died in the Receiving Hospital, Los Angeles, August 19, from cerebral hemorrhage.

Elmer Barwis, Trenton, N. J.; University of Pennsylvania, Philadelphia, 1873; aged 69; a member of the Medical Society of New Jersey; died at his home, September 9, from angina pectoris.

Luther Holt, Iuka, Ill.; Washington University, St. Louis, 1887; aged 57; a member of the Illinois State Medical Society; died at his home, August 23, from valvular heart disease.

Angus MacDonald, St. Paul; McGill University, Montreal, 1863; aged 76; once president of the Ramsey County Medical Society; died at his home, October 11, from cerebral hemorrhage.

Roy Clyde Pynn, Delaware, Wis.; University of Illinois, Chicago, 1907; aged 35; died in St. Joseph's Hospital, Milwaukee, October 14, from valvular heart disease.

William W. Sanders, DeKalb, Texas; University of Tennessee, Nashville, 1868; aged 80; president of a bank in DeKalb; dropped dead in his bank, October 2.

J. F. Ullman, Simpson, Kan. (license, Kansas, 1901); aged 66; a practitioner for forty-four years; died in the Beloit (Kan.) Hospital, October 7, from nephritis.

Emmett H. Robertson, Dalles, Ga.; Memphis (Tenn.) Hospital Medical College, 1895; aged 49; died at his home, October 11, from an accidental poisoning.

Robert Green Holloway, Port Royal, Va.; University of Pennsylvania, Philadelphia, 1856; aged 86; a Confederate veteran; died at his home, October 14.

Willett Wells Brown \* Montclair, N. J.; New York Homeopathic Medical College, 1910; aged 36; died at his home, October 18, from pneumonia.

Harry F. Walsh, Crawfordsville, Ind.; Northwestern University Medical School, Chicago, 1898; aged 46; died at his home, September 14, from paresis.

J. D. Sasser \* Middleton, Tenn.; University of Louisville, Ky., 1877; aged 72; died in the Baptist Hospital, Memphis, Tenn., August 17, from nephritis.

Charles E. Paul, Litchfield, Neb.; St. Louis College of Physicians and Surgeons, 1902; aged 49; died at his home, October 8, from heart disease.

Martin Franklin VanBuren, Tacoma, Wash.; University of Medicine, Ann Arbor, 1871; aged 65; died at his home, October 11, from heart disease.

Carl Addison Allen \* Holyoke, Mass.; Long Island College Hospital, Brooklyn, 1874; aged 72; died at his home, September 11, from tuberculosis.

Simon M. Dubin, Philadelphia; University of Berne, Switzerland, 1896; aged 52; died at his home, October 15, from valvular heart disease.

August J. Beyer, Carmine, Texas; Memphis (Tenn.) Hospital Medical College, 1906; aged 37; died in a hospital in Austin, Texas, October 7.

William S. Mundhenk, Brookville, Ohio; Medical College of Ohio, Cincinnati, 1876; aged 68; died at his home, October 8, from heart disease.

Riley B. Womack, Prendergast, Tenn. (license, Tennessee, 1889); aged 75; was shot and killed in an affray near Patten, Tenn., September 26.

Louis Joseph Roy, Indian Orchard, Mass.; University of Victoria College, Celanorg, Ont., 1880; aged 61; died at his home, September 30.

Adolph Ludwig Barcus \* Philadelphia; Jefferson Medical College, 1891; aged 55; died at his home, October 12.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### SOME MORE MISBRANDED NOSTRUMS

**Tubbs' Bilious Man's Friend.**—The Tubbs Medicine Company, River Falls, Wis., shipped a quantity of "Tubbs' Bilious Man's Friend" in August, 1916. In March, 1918, an information was filed against the concern charging that the product was misbranded. The Bureau of Chemistry reported that analysis showed the preparation to be a water-alcohol solution of sugar and plant extractives (rhubarb) with a very small amount of aromatics. The preparation was falsely and fraudulently advertised as a remedy for liver and kidney troubles, rheumatism, backache, indigestion, scurvy, worms, piles, malaria, and as a preventive of appendicitis and rheumatism. It was further misbranded in that the label declared the presence of 20 per cent. alcohol when, as a matter of fact, the product contained only 13.2 per cent. of alcohol. In July, 1918, the company pleaded guilty and was fined \$100. [*Notice of Judgment No. 6461; issued Oct 18, 1919.*]

**Fruitatives.**—In June, September and October, 1918, some 266 large packages and 388 small packages of "Fruitatives" were shipped from Fruitatives, Ltd., Ogdensburg, N. Y., into the state of Maine. The federal authorities declared the product misbranded, first, because the claims and pictorial devices on the label were false and misleading in that they conveyed the impression that the laxative properties of the product were due to the fruit or fruit extracts, "when in fact they were not"; second, that the nostrum was labeled as "antiseptic" which it was not; third, the "patent medicine"



bore the inscription "harmless" which "was false and misleading in that it was not harmless but contained an active poison nux vomica (strychnin)." The stuff was further declared misbranded because of the false and misleading claims of curative effect, such as:

"Strengthens the stomach and liver."  
 "Stimulates the kidneys."  
 "Tends to purify the blood; tones up the nervous system."  
 "Relieves . . . Recurring Headaches, Dizziness, Backache."

The government's cases came on for hearing in December, 1918, and February, 1919. The products were condemned and the court ordered that they should be destroyed by the United States marshal. [*Notices of Judgment No. 6459 and 6477; issued Oct. 18, 1919.*]

**Deerfield Water.**—In August, 1916, the Deerfield Mineral Springs Company, Deerfield, Ohio, shipped a quantity of "Triple Bi-Carbonate, Deerfield Water" which was adulterated and misbranded. In March, 1918, an information was filed against the concern. The water was declared adul-

terated "for the reason that it consisted in part of a filthy, decomposed and putrid animal and vegetable substance." It was declared misbranded because the labels "falsely and fraudulently represented it as a cure for stomach trouble, kidney disease, uric acid poisoning and liver troubles when in truth and in fact it was not." It was further alleged to be misbranded because the quantity of the contents was not plainly and conspicuously marked on the package. In February, 1919, the company pleaded guilty and was fined \$50 and costs.—[*Notice of Judgment No. 6482; issued Oct. 18, 1919.*]

**Robinson Spring Water.**—This product has been the subject of previous seizures on the part of the federal authorities because of false claims made for it. In December, 1917, C. L. Bradley of Pocahontas, Miss., shipped twenty-five crates each containing one 5-gallon bottle of Robinson Spring



Water from Mississippi to Louisiana. In January, 1918, a libel for the seizure of this water was filed on the ground that it was misbranded. It was charged that the claims that this water was effective in Bright's disease, diabetes, gout, rheumatism, indigestion, etc., were false and fraudulent. In February, 1918, the court entered a judgment of condemnation and forfeiture and ordered that the product should be released on the payment of the cost of the proceedings and the execution of a bond.—[*Notice of Judgment No. 6467; issued Oct. 18, 1919.*]

**Mederine.**—In May, 1917, the Northern Drug Company of Duluth, Minn., shipped in interstate commerce a quantity of "Mederine" which was misbranded. In July, 1918, an information was filed against the company. The Bureau of Chemistry analyzed the product and reported it to be essentially a water-alcohol solution containing sugar, potassium iodid, methyl salicylate, salicylic acid, glycerin and laxative plant extractives. It was declared misbranded because it was falsely and fraudulently represented to be a cure for chronic constipation, indigestion, liver complaint, "catarrh," rheumatism, eczema, all blood and skin diseases, kidney trouble, scrofula, pimples, gout, "blood taint," etc., "whereas in truth and in fact it was not." In July, 1918, the company pleaded guilty and was fined \$5.—[*Notice of Judgment No. 6483; issued Oct. 18, 1919.*]

## Correspondence

### "THE INFLUENCE OF DESICCATION ON HUMAN NORMAL ISOHEMAGGLUTININS"

To the Editor.—In THE JOURNAL, October 18, Karsner and Koeckert described the deterioration of normal human isoagglutinins within from two to three weeks and loss of group specificity within from three to five weeks, after drying of serums. Owing to the practical importance of this subject in view of the wide adoption of Sanford's method of using serum dried on cover glasses (THE JOURNAL, April 27, 1918, p. 1221), I believe that the results of additional investigations in this subject may be of some interest.

For several years, I have been under the impression not only that drying rabbit antihuman serum in filter paper after

the method of Noguehi results in affording a good method for preserving and handling antihuman hemolysin, but also that the use of these papers yields less agglutination of the corpuscles in the conduct of complement fixation tests than serums preserved in the fluid state. During the past year, two of my students, Sands and West (Experiments on the Removal of Hemagglutinins from Rabbit Antihuman Sera, *J. Immunol.*, to be published), have found that drying these immune serums at room temperature usually results in some deterioration of the hemagglutinins, affording an explanation of the better results sometimes observed in the conduct of complement fixation tests with dried antihuman serum, owing to a reduction or removal of the very bothersome hemagglutinins.

Studies were then made on the influence on hemagglutinins and hemolysins in normal human serums for the corpuscles of persons and certain of the lower animals, of drying the serums at room temperatures on cover glasses as described by Sanford and in filter paper, as described by Hartman (THE JOURNAL, Nov. 16, 1918, p. 1658). The general results of this investigation (Kolmer, J. A.: The Influence of Desiccation on Natural Hemolysins and Hemagglutinins in Human Sera, *J. Immunol.*, to be published), were to show that both hemagglutinins and hemolysins in normal human serums frequently undergo considerable deterioration within the first to the fourth day after drying. However, when human serums containing large amounts of these hemagglutinins were chosen for drying on cover glasses and properly preserved in a refrigerator as described by Sanford, satisfactory agglutination tests were observed over a period of two to three weeks at least. Unfortunately, I did not test the specificity of the agglutinins in dried serums, as have Karsner and Koeckert, and their observations along this line are unique and of considerable interest and worthy of further study. I am quite sure that it is unwise to rely on the results of negative hemagglutination reactions with dried serums in the typing of bloods unless preliminary tests have shown that specific agglutinins remain in the serum for at least a week after drying. The natural hemolysins in human serums for the corpuscles of persons and certain of the lower animals were found even slightly more susceptible to deterioration by desiccation.

While immune hemagglutinin, as that for human corpuscles, produced in rabbits as a result of immunization with human blood also undergo deterioration when the serums are dried, yet the amount present in the serum of a well immunized rabbit is so large that after the serum has been dried on cover glasses and the latter have been kept in a refrigerator, sufficient agglutinin escapes destruction to yield strong and very satisfactory results. The problem at hand is the production of these immune agglutinins specific for the four types of human corpuscles. I hope to be able to report my experiments in this field in the near future, but may state at present that multiple injections of any one type of corpuscles in rabbits results in the production of most agglutinin for these cells, and that the group agglutinins for the other types of corpuscles also produced may be removed by methods of absorption. These experiments offer considerable hope that it may be possible to produce specific agglutinating serums for all types of human corpuscles and thereby greatly facilitate the typing of bloods.

I may also state in this connection that the practice of relying on agglutination tests alone for the matching of bloods prior to transfusion is open to criticism. In the course of an investigation on hemolysins and agglutinins in normal human serums for the corpuscles of persons and the lower animals, conducted by M. E. Trist, A. M. Flicke and myself (A Study of the Natural Thermolabile and Thermostable Hemolysins and Hemagglutinins in Human Sera in Relation to the Wassermann Reaction, *Am. J. Syphilis*, to be published), it was found that hemolysins may be present in serums free of agglutinin for the same corpuscles, and it is possible that these isohemolysins may be responsible for some of the reactions following the transfusion of bloods free of agglutinins. For this reason I believe that tests preliminary to blood transfusion should include an examination for hemolysins as well as agglutinins, and dried serums are not suitable in tests for the latter. For these reasons, I agree



## Medical Education, Registration and Hospital Service

## Book Notices

### COMING EXAMINATIONS

- ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. S. Orr, Brickley, Sec. Elective Board, Dr. Claude E. Laws, 803 1/2 Garrison Ave., Fort Smith.
- CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Elective Board, Dr. James E. Hair, 730 State St., Bridgeport.
- DELAWARE: Dover, Dec. 9-11. Sec. Regular Board, Dr. P. S. Downs, Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 824 Washington St., Wilmington. Pres. Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.
- FLORIDA: Tampa, Dec. 1-2. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.
- ILLINOIS: Chicago, Dec. 1-3. Mr. F. C. Dodds, Supt. of Registration, Springfield.
- IOWA: Des Moines, Dec. 16-18. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.
- KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.
- LOUISIANA: New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.
- MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
- MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
- MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
- NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.
- OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, State House, Columbus.
- SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozar, 1806 Hampton St., Columbia.
- TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.
- VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McHain Bldg., Roanoke.

### Virginia June Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 17-20, 1919. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 49 candidates examined, 44 passed and 5 failed. Twenty-three candidates were licensed through reciprocity. Eleven candidates were licensed on Army and Navy credentials. One candidate was granted an osteopathic reciprocity license. The following colleges were represented:

College	PASSED	Year	Per Cent.
Bennett Medical College	.....	(1914)	79.9
Johns Hopkins University	.....	(1916) 89, (1918) 81, (1919) 83, 87, 88, 91	
University of Maryland	.....	(1919)	78
Missouri Medical College	.....	(1891)	76
Columbia University	.....	(1919)	86
North Carolina Medical College	.....	(1917) 83, (1918) 75, (1919) 79	
Ohio State University College of Medicine	.....	(1918)	82
Jefferson Medical College	.....	(1915) 89, (1919) 82, 87	
University of Pennsylvania	.....	(1918)	87
Woman's Medical College of Pennsylvania	.....	(1895)	87
Medical College of Virginia	.....	(1917) 89, (1918) 85, 87, (1919) 75, 81, 85, 85, 87, 87, 89, 89, 90, 92	
University of Virginia	.....	(1914) 92, (1917) 89, (1919) 81, 85, 86, 88, 90, 90, 91, 93	
University of Catania	.....	(1912)	77

### FAILED

Medical College of Virginia (1901 57, (1917) 67, (1918) 60, 63, 64

College	LICENSED THROUGH RECIPROcity	Year	Reciprocity Grad with
Georgetown University	.....	(1913)	Dist. Colum.
George Washington University	.....	(1905)	Dist. Colum.
Howard University	.....	(1913)	Ohio
Atlanta College of Physicians and Surgeons	.....	(113)	Georgia
Atlanta Medical College	.....	(1895)	Texas, (1916)
University of Maryland	.....	(1915)	Louisiana, (1915)
Baltimore Medical College	.....	(1894)	Massachusetts, (1915)
College of Phys. and Surgs. Baltimore	.....	(1903), (1907)	Alabama
Johns Hopkins University	.....	(1913)	New York
University of Maryland	.....	(1913), (1915), (1916)	New York
Columbia University	.....	(1917)	New York
University and Bellevue Hosp. Med. Coll.	.....	(1914)	New York
University of Pennsylvania	.....	(1911)	New York, (1915)
University of Tennessee	.....	(1911)	North Carolina
University College of Medicine, Richmond	.....	(1911)	North Carolina

### LICENSED BY ENDORSEMENT OF CREDENTIALS

College	Year	Certificate from	
George Washington University	.....	(1907)	U. S. Army
University of Louisville	.....	(1907)	U. S. Army
Johns Hopkins University	.....	(1917)	U. S. Navy
University of Maryland	.....	(1913), (1916)	U. S. Navy
Jefferson Medical College	.....	(1909), (1917)	U. S. Army, (1914)
Medical College of Virginia	.....	(1913), (1918, 2)	U. S. Navy
University of Virginia	.....	(1917)	U. S. Navy

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Geography, Etc., with the Pronunciation, Derivation, and Definition, including much Collateral Information of an Encyclopedic Character; Together with New and Elaborate Tables of Arteries, Muscles, Nerves, Veins, Etc.; of Bacilli, Bacteria, Diplococci, Micrococci, Streptococci, Plasmoids and Leukomains, Weights and Measures, Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, Etc. By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Tenth Edition. Leather. Price, \$5.50. Pp. 1201. Philadelphia: W. B. Saunders Company, 1919.

This new edition contains several hundred new words. Aside from this important fact, the dictionary remains much as usual—a complete and valuable work containing many convenient tables and charts, and a complete historical reference, for which the editor of the dictionary is indebted to Dr. Fielding H. Garrison. Unfortunately, a dictionary cannot discriminate but must define. At the very beginning of the book we learn that capital "A" is a symbol for *argon*; also abbreviation for *accommodation, acetum, anode and anterior*; and that little "a" is (1) an abbreviation for *accommodation, ampere, anode, anterior, aqua, water, and arteria*; (2) symbol for *total acidity*. This unfortunate condition deserves some remedy but, unfortunately, the dictionary can only point out the evil, not remedy it. In the same way other linguistic novelties may be noted until the final "Z. Z. Z." which concludes the book. However, this review might well conclude with a statement especially true concerning the book under discussion, but not always so true in many book reviews in which it frequently appears, namely, "This is an exceedingly instructive and interesting reference work."

CHRONIC TRAUMATIC OSTEOMYELITIS: ITS PATHOLOGY AND TREATMENT. By J. Renfew White, M.B., F.R.C.S. Cloth. Price, \$3. Pp. 144, with 37 illustrations. New York: Paul B. Hoeber, 1919.

This deals with the many difficult problems involved in the management of chronic traumatic osteomyelitis. The keynote of the book is thoroughness: a complete preoperative diagnosis, a thoroughgoing operation, and painstaking after-treatment. Every phase of the disease, from beginning to end, is carefully considered, and the logic of each step in treatment is made clear by exposition of the pathologic condition it is intended to correct. We might desire a more critical discussion of the subject of bone regeneration, and much of value has been left unsaid concerning the classification, pathogenesis and roentgenologic diagnosis of bone sequestrums. As an example, it may be pointed out that a bone sequestrum, being dead, is avascular and does not undergo absorption; the surrounding living bone becomes atrophic from disuse and as a result of the inflammatory reaction; in addition, the sequestrum either lies in a lake of pus or is embedded in granulations; therefore, sequestrums tend to cast denser shadows in roentgenograms than adjacent living bone, and are surrounded by a zone which casts a light shadow in contrast to living bone and sequestrum. These very important characteristics are illustrated in the frontispiece, but apparently have escaped the author's attention. The book is, nevertheless, an excellent work and a practical contribution to medical literature.

APPLIED ANATOMY AND KINESIOLOGY. The Mechanism of Muscular Movement. By Wilbur Parson Bowen, M.S., Professor of Physical Education, Michigan State Normal College. Second Edition. Cloth. Price, \$3.50. Pp. 334 with 197 illustrations. Philadelphia: Lea & Febiger, 1919.

This book discusses the mechanism of bodily movement, and describes the principal types of muscular exercise, stating how they are performed, how they react on the body, and how they may be utilized in the prevention and cure of certain defects and deformities. It is a description of the mechanics of the most intricate and perfect machine ever devised—the human body. The book forms an excellent basis for work on physical training, especially for those interested in the orthopedic cure of physical defects.



of the end against the skin was plainly visible. Thereafter the plaintiff's injured limbs were exhibited to the jury that the latter might see the exact appearance of the ends of amputated limbs. The court has no hesitancy in saying that the exhibition of the injured limbs to the jury did not constitute error. The general rule is that evidence of this kind is admissible, when material to the issue, subject, however, to the right of the trial court in the exercise of a sound discretion to prevent unnecessary abuses in the offering of such evidence.

**Charges Filed in Time for Revocation of License**

*(Lewis v. State Board of Medical Examiners (Ga.), 99 S. E. R. 147)*

The Court of Appeals of Georgia, Division 1, in this case wherein defendant Lewis appealed to the superior court from an order of the state board of medical examiners that his license to practice medicine be revoked, holds that the evidence in the case demanded the verdict directed by the court against the defendant, and affirms the judgment of the superior court ordering that the license of defendant Lewis, authorizing him to practice medicine in Georgia, be revoked and his name removed from the record of all and any clerk of the superior court of the state. The court of appeals says that the defendant had been convicted of a misdemeanor, larceny after trust, in that when he had been intrusted with \$5 by a woman to purchase a railway ticket for her, which cost \$1.30, he failed and refused to return the balance. This was the only charge that the board relied on in the superior court, and it was on this charge that the verdict against the defendant was directed.

Acting under the Act of 1913, the state board of medical examiners, June 12, 1916, after hearing evidence on certain charges against the defendant, one of them being that he had been convicted of a crime involving moral turpitude, found the charges to be true, and ordered that his license be revoked and his name removed from the records of the clerk of the superior court. The defendant, on the same day, entered his appeal, which was duly certified by the secretary of the board and filed in the office of the clerk of the superior court, June 16, 1916. So far as the record showed, there was nothing to indicate that the case was ever called until it "came on regularly for trial at the October term, 1918," of the superior court, at which time the board presented certain written charges against the defendant, which bore an entry of filing by the clerk of the court, dated April 8, 1918. The defendant contended that this did not meet the requirements of the law; but the court of appeals holds that there was no error in refusing to dismiss the written charges preferred by the board against the defendant, on the ground that they were not filed at the proper time. No time is fixed by the statute when the board shall prefer written charges after an appeal has been entered by the defendant. It was argued that the same rule should apply here as in cases of an award by arbitrators; but there would appear to be a clear distinction between the effect of such an award and the decision of the state board of medical examiners. The award by arbitrators is binding on no one, and is of no legal effect whatever, until properly returned and entered on the minutes of the proper court, while the decision by the state board of medical examiners is a judgment within itself, and is final unless set aside on appeal.

Nor did the court err, there being no insistence that the judgment in the criminal case was void, in refusing to permit the defendant to introduce evidence for the purpose of showing that he was not in point of fact guilty of an offense involving moral turpitude, of which he had been convicted, since the judgment of a court of competent jurisdiction cannot be impeached collaterally, but is to be taken and held as a valid judgment until it is reversed or set aside by the court rendering it.

The writ of error in this case was originally filed in the supreme court, and that court having by formal order transferred it to this court, the transfer of the case was equivalent to a holding by the supreme court that the constitutional questions which the defendant attempted to raise by the writ were not properly made.

**Society Proceedings**

**COMING MEETINGS**

American Child Hygiene Association, Asheville, N. C., Nov. 11-13.  
Southern Medical Association, Asheville, N. C., Nov. 12-13.  
Southern Minnesota Medical Assn., Mankato, Dec. 1-2.  
Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Dec. 5-6.

**MINNESOTA STATE MEDICAL ASSOCIATION**

*Fifty-First Annual Meeting, held in Minneapolis, Oct. 1-3, 1919*

The President, DR. GEORGE DOUGLAS HEAD, Minneapolis, in the Chair

**Protein Sensitization in Asthma and Hay-Fever**

DR. A. H. SANFORD, Rochester: A group of protein sensitized persons consisted, first, of those who were sensitive to animal emanations, in which group there were twenty-eight persons, the largest number of reactions being to horse dander; and secondly, of a small group sensitive to chicken feathers. Three of these were likewise sensitive to egg white, egg yolk and whole egg, and also to the meat of chicken. The food asthmatics, numbering 100 persons, were subdivided on the type of reaction, although many persons had little in their history to indicate that the particular reaction had much to do with their asthmatic condition. The most important group, comprising exactly one fourth of the members of the food group, were those who reacted to grain. Ten of these twenty-five were placed in a doubtful group, three because of their age, as asthma coming on after 40 is not usually due to protein sensitization, and the other seven because of repeated evidence of bronchitis which made it seem that infection was the chief factor, although food cannot be excluded entirely. Fifteen of the twenty-five were definitely sensitized to the cereals named. Wheat protease is the most common offender of this group, although rye occasionally gives reactions. The attempt to use "war bread" was mentioned as bringing to light the fact that there were many food asthmatics. While quite a number of patients were sensitive to vegetables, there were really very few foods of this sort that seemed to have much influence on the asthma. Potato is probably one of the worst offenders among the vegetable group, and some patients are relieved of their symptoms by omitting this vegetable from the diet. Fruits have very little to do with asthma, although banana occasionally gives marked reactions, and one case was undoubtedly due to this fruit. One of the most important groups contains the persons who develop asthma after hay-fever. These persons are classed among the seasonal asthmatics, as the pollens of certain weeds, notably ragweed, and occasionally timothy, are responsible for their hay-fever. Food asthmatics are best handled by eliminating particular foods from the diet. Those sensitive to animal emanations may be desensitized with doses of the offending proteins, and the hay-fever patients are treated with a series of injections of extracts of the particular pollen, starting twelve weeks before the onset of their hay-fever. Asthma should not be treated without first considering the patient's history and whether he may be sensitive to some particular protein.

**Treatment of Dermatologic and Syphilitic Cases in the University of Minnesota Dispensary**

DRS. S. E. SWETZER, JOHN BUTLER and H. G. IRVINE, Minneapolis: The scheme of treatment of syphilitics admitted to the University of Minnesota dispensary is determined by the stage or duration of the disease. We recognize (1) early primary syphilis with the chancre as the only symptom and a negative Wassermann reaction; (2) early syphilis with a chancre and glandular adenopathy and a positive Wassermann reaction; (3) evidence of secondary or tertiary stage of syphilis; (4) congenital syphilis; (5) early or late nerve involvement; (6) tabes and paresis, and (7) visceral syphilis. In cases of established secondary syphilis or the tertiary stage of the disease, three years' treatment followed by from one to two years' observation is recommended. During the

last year, from twelve to eighteen doses of arsphenamin are given in courses of from four to six injections given at intervals of from three days to a week. Between the courses of arsphenamin are given three courses of injections of mercuric salicylate. These injections are given twice weekly. In cases of hereditary syphilis, the arsphenamin and mercury treatment is used as in the acquired cases, but the arsenic dosage is necessarily smaller, from 0.2 to 0.4 gm. being used. The mercuric salicylate intramuscular injections or internal medication is not considered practicable in these cases. Mercurial injections are used almost exclusively. Cases of early or late nerve involvement, syphilis of the special sense organs, tares, paresis and visceral syphilis are treated individually. Most of these patients require intensive treatment over a long period of time. The diagnosis and energetic treatment of the early case of syphilis should be emphasized, the proper interpretation of the Wassermann test should not be forgotten, and the need of a lot of both arsphenamin and mercury for the established case is imperative.

#### Treatment of Tuberculosis of the Spine

Dr. H. W. MEYERDING, Rochester: Of 100 patients operated by a bone graft operation, 48 per cent. had had symptoms from one to four years; 22 per cent. gave a history of trauma; 27 per cent. had tuberculosis in other organs, the lungs, joints, testicles, peritoneum, etc., before symptoms were manifest in the spine. Following operation, patients are kept in bed on an average of six weeks on a Bradford frame or a plaster-of-Paris cast, followed by a Taylor brace to be worn for from six months to one year. However, no definite rule can be laid down as to the period of recumbency. This must be left to the judgment of the attending surgeon. General hygienic care and the Rollier sunshine treatment are advisable. Children under 5 years of age, and adults with complications such as pulmonary lesions, sinuses, etc., are poor surgical risks. Eighty-six per cent. of the patients were relieved of clinical symptoms; 8 per cent. died; 3 per cent. have not been heard from, and 3 per cent. are unimproved.

#### Surgery of the Kidney

Dr. E. S. JENN, Rochester: Of nineteen cases of pelvic kidney, nine patients required operations because of a pathologic condition of the kidney. In the other ten cases, the kidney was apparently functioning normally. The position of the kidney is usually not an indication for operative treatment. In a few cases in which intermittent hydronephrosis is suspected, surgical treatment may offer some aid, but the results may be none of the best. In cases of injury to the kidney in the presence of severe hematuria, early exploration is advisable, as infection may result if prostration is allowed. Repair of torn tissues or nephrectomy may be the operation of choice. In considering hydronephrosis, the complete ligation of the ureter causes ultimate atrophy of the kidney, and in no case has a hydronephrosis followed this method in my experience. Kidney tissue will recover and function normally after release of a ureter that has been ligated for fourteen days. The usual cause of hydronephrosis is a bladder that flows of urine over a long period. This may be due to the altered position of the kidney or to the pressure of an aortal vessel. Surgery should be advised with reserve in these cases; if there is mechanical deformity of the ureter, however, a plastic operation may be indicated, although the results are not always satisfactory. The hematuria is relieved if the kidney usually demand surgical treatment. Pyelitis and pyelonephritis are usually bilateral. Drainage or prosectomy may be indicated. Pyonephrosis may result from infection of a hydronephrosis or in association with stone; it also occurs bilaterally in prostatic enlargement and bladder stone. If it is unilateral, nephrectomy is indicated; if it is bilateral, drainage and removal of the stone from one kidney at a time appears to offer the best results. In tuberculosis of the kidney, if the disease is confined to one kidney, nephrectomy should be done. In bilateral cases, if one kidney is only slightly involved, the more diseased kidney should be removed. If active tuberculosis exists in the kidney, a healed or fairly active lesion

in the lung is not a contraindication to removal. Benign tumors are rare. Polycystic disease is more frequent, but is not essentially surgical. Experience with the Rovsing operation has not been satisfactory. Early removal of hypernephroma offers a fair prognosis. In advanced cases, radium should be employed. The carcinomas and sarcomas in children will generally recur if removed. Nephrectomy was performed on 239 patients, with a mortality of 2.9 per cent. Three of the deaths were in cases of tuberculosis, one of chronic nephritis and bilateral pleuritis, two of pyonephrosis, and one each of hemorrhage, thrombophlebitis, infection and metastasis and acute nephritis.

#### Hypertension in Its Clinical Aspects

Dr. F. J. HIRSCHBOECK, Duluth: The diagnosis between essential hypertension and renal hypertension is often very difficult, particularly in the ambulant cases usually encountered in private practice. The factors of special importance in designating a case as renal are the higher values in the pressure readings, the degree of anemia, the frequent occurrence of gastric and respiratory symptoms, and lastly, the positive evidence of one or more of the renal functional tests, or the test for nitrogen retention products and more typical objective signs, such as albuminuric retinitis and albuminuria hyposthenia. Moderate hypertension usually occurs in hyperthyroidism and in pituitary disease. It is characterized also by increase in the pulse pressure. It is difficult to say whether cases at the menopause are due to disorders of the glands of internal secretion or whether the time of occurrence is merely coincidental, and that it may be due to other causes. We are certain, however, that there is nothing uniform about the elevation of blood pressure in women at the menopause. In mitral and aortic insufficiency there is usually an increase in the blood pressure, and the increase in the pulse pressure of aortic insufficiency is strikingly demonstrated when these cases are studied. Asthma, in our experience, has not shown any cases of hypertension. Diabetes per se is probably not a cause of hypertension. In lead poisoning we find a uniform elevation in our readings. In the decreescent type of arteriosclerosis there is an elevation of blood pressure in a small percentage of cases, but renal complications are the rule. In syphilis, although there are certain features, such as intracranial disease, aortic insufficiency and nephritis, which make for high pressures; yet there is a certain percentage of cases in which there is an elevation of blood pressure, moderate in degree, and not ascribable to one of these lesions. We cannot say dogmatically to what this is due; nevertheless, certain cases of syphilis show a hypertension aside from the causes mentioned.

#### Tuberculosis of the Thyroid

DRS. W. A. PLUMMER and A. C. BRODERS, Rochester: In seven cases of tuberculosis of the thyroid, the diagnoses were made following thyroidectomy. Three of the patients had symptoms, physical findings, thyroid signs, and basal metabolic rates typical of high grade exophthalmic goiter. Microscopic sections showed much parenchymatous hypertrophy, as is usual in exophthalmic goiter. Two patients had mild but definite hyperthyroidism, one probably had hyperthyroidism, and one had no symptoms or findings indicative of exophthalmic goiter. The latter four patients had small, hard, nodular glands suggesting carcinoma of the thyroid. Microscopic examination of three of these disclosed a great deal of gland destruction with a slight amount of parenchymatous hypertrophy. The last patient had no symptoms of hyperthyroidism owing to the very extensive destruction of the parenchyma of the gland. The striking point in these cases is that in six of them signs of hyperthyroidism were definite. The greater the tuberculous involvement, the less severe the toxic symptoms. There was nothing decisive to indicate that tuberculosis preceded the hyperthyroidism. No other foci were found on examination. One patient had myxedema following operation.

#### Treatment of Empyema by a Closed Method

Dr. FRANK M. MANSON, Worthington: A 7 mm. trocar with cannula is introduced into the pleural cavity. The

trocar is withdrawn, leaving the cannula in place until a 24 F. catheter, with one terminal and two lateral openings, has been introduced. The pus is withdrawn with a 30 c.c. Luer syringe. Then, from 20 to 50 c.c. of surgical solution of chlorinated soda are injected into the cavity and sucked in and out to dissolve the fibrous masses. The cavity is then nearly filled with this solution, which remains for from ten to thirty-one minutes. The treatment is repeated from four to six times in the twenty-four hours, the frequency depending on the condition of the patient and the rapidity with which the pus accumulates. The tube remains clamped except when aspirating or injecting. All cases are controlled by laboratory count. When the discharge becomes sterile to culture and the cavity has diminished to a capacity of 15 or 20 c.c., the tube is withdrawn and the opening allowed to heal. Of forty-three patients treated by this method, all were cured; none had to have secondary operations.

**Palliative Treatment Versus the Radical Treatment of Trifacial Neuralgia**

DR. A. W. ANSON, Rochester: The average duration of the trouble in 310 patients was seven years. There were fifty-two ophthalmic division involvements; 237 supramaxillary division involvements, and 228 mandibular division involvements; 805 alcohol injections were administered, and seventy-one extractions of teeth, ninety-three avulsions or resections of peripheral branches, eleven nasal operations, and eleven mandible operations were done. Ninety-five patients submitted to radical operations; nine of these were ganglionectomies; four were removals of gasserian tumors; forty-nine were avulsions or resections of the posterior root, and thirty-three were incisions of the posterior root. Five of the radical operations were secondary, being due to incomplete division of the posterior root at the primary operation. Of the four deaths, two were due to hemorrhage, one to meningitis and one to senility. In making a summary of the results, it is found that in this group of 318 patients there was a total of 1,008 palliative surgical treatments, including 805 alcohol injections and 203 other palliative procedures. Since only ninety patients have had the radical operation with a consequent relief from pain, the remaining 228 are still seeking relief by temporary methods. I am convinced, after dividing the posterior root in seventy-four cases, that, after one or two alcohol injections, the radical operation is indicated in all operable cases in preference to the continuation of palliative procedures.

(To be continued)

**DELAWARE STATE MEDICAL SOCIETY**

Annual Meeting, held in Dover, Oct. 13 and 14, 1919

The President, DR. L. S. CONWELL, Camden, in the Chair

**Diseases of the Bile Ducts and Gallbladder**

DR. L. J. MACCOLLUM, Wyoming: Micro-organisms are not found in normal bile; and when bile contains bacteria, a state of disease exists. This diseased state may not give rise to active symptoms and lead to immediate deleterious influences, but is a constant source of danger should there develop an intercurrent disease or should the person's vitality become lowered by overwork, nervous or mental exhaustion, or some gastro-intestinal disturbance. All inflammatory processes of the gallbladder predispose to gallstones. Bacteria, bile salts that have been thrown out of solution and crystallized, a mass of desiccated epithelial cells, a plug of mucus and inflammatory debris may serve as a foundation on which gallstones are formed. A gallstone may lie dormant in the gallbladder for years and never give rise to any perceptible symptoms unless there is an associated inflammation; or unless the duct becomes occluded and stagnation occurs; or unless, for various reasons, a stone enters or starts to enter a duct. The diagnosis of cholelithiasis is not difficult in some cases; but in those cases in which the symptoms are vague and ill defined, the physician is taxed to the limit. The treatment consists of a well regulated diet with

absence of rich and fat foods, outdoor exercise, vegetables, large quantities of water, cold baths, and alkalis internally. The bowels should be kept regular, and systematic habits encouraged. Operation should be performed for repeated attacks of colic even if there is no jaundice present.

DISCUSSION

DR. JAMES A. DRAPER, Wilmington: In the majority of cases of gallbladder diseases, a careful examination will give evidence of previous inflammation of the appendix. Frequently it follows typhoid. In all cases of hydrops, the gallbladder should be removed. These cases are practically always caused by a stone impacted in the cystic duct. Drainage, as a rule, is unsatisfactory. The stone remains impacted, and chronic signs follow the drainage operation. The only satisfactory treatment in these cases is cholecystectomy and complete removal of the gallbladder.

**Tuberculosis**

DR. ALBERT ROBIN, Wilmington: Patients with tuberculosis may be classified into two groups: those having tuberculous infection without symptoms, and those who have tuberculous disease with certain definite manifestations. In other words, undoubtedly many persons are infected with tuberculosis whose immunity is sufficient to keep the pathologic process in abeyance. Such individuals are not aware of their infection, which is at times discovered in the course of an examination for some other disease. The group that interests us is that in which the patient presents a symptom with or without physical signs. It is in this group that a careful study of the symptoms will greatly minimize error. Of the symptoms that are most suggestive are: functional atonic dyspepsia; hyperchlorhydria; nausea with or without vomiting, or intestinal indigestion with diarrhea; persistent tachycardia; loss of weight and, generally, a slight elevation of temperature. In my experience, the majority of patients with early tuberculosis present these symptoms long before the development of cough, night sweats and localized physical signs. Tuberculosis is essentially a toxemia. Almost at any stage, the physical signs denoting the underlying pathologic lesions may be present and should be looked for. Frequent examinations of the sputum should be made, the discovery of tubercle bacilli being conclusive evidence of the existence of tuberculosis. Failure to find tubercle bacilli, however, does not exclude tuberculosis, and one should not rest content on negative findings. In the vast majority of cases the roentgen ray will furnish definite evidence. The diagnosis of tuberculosis in children offers few difficulties. When a child is suffering from malnutrition, has a slight fever and is otherwise below par, the chances are 6 to 4 that the case is one of tuberculosis. There is no specific treatment of this disease, and any physician who employs a supposed specific treatment with a promise of cure is obtaining money under false pretenses. What is new and of paramount value in the treatment of tuberculosis is the growing conviction that absolute rest is the only "specific" treatment. As one author puts it, "Rest in proportion to the severity and duration of the symptoms." Rest, either absolute or relative, depending on the degree of activity, should be carried out for weeks or months.

DISCUSSION

DR. JOSEPH W. BASTIAN, Wilmington: A few simple things in the early diagnosis of tuberculosis are the slight rise of temperature in the evening, the increased pulse rate and the stomach disturbances. Many people will go along for months complaining of being in a "run down" condition, but practically not manifesting a detectable lesion. In regard to the roentgen ray, there are many other conditions that will make shadows that will look so much like a tuberculous area that, even with an expert reading the picture, we can take that only as a link in our chain of evidence.

DR. J. C. COOPER, Dover: The army reports show that out of nearly 3,000,000 men subjected to examination, 69,000 were pronounced tuberculous. Men who are physicians in the real sense of the word, and not politicians, should be put on the boards, and then Delaware will know something regarding what tuberculosis really demands. The North American

Jews may practically be blotted out by tuberculosis. The white man will share the same fate if he sits down, as he is now sitting, and lets a lot of ignorant politicians run him and run him.

**Dr. ALGER KOEN, Wilmington:** If one puts the patient with fever and rapid pulse to bed for six weeks and if at the end of six weeks the temperature does not become normal and the pulse does become normal he will never improve. That is a practical point in prognosis.

**Dr. L. S. CONWELL, Camden:** It is as impossible for the state board of health to look after the sanitary conditions in every part of this state as it would be for one lamp to light in a twelve room house. If the physicians of the various towns will put into effect co-operation with their local boards of health, they can do a great deal more toward correcting sanitary conditions and curbing the streams of infection than they can by mixing it up as having anything to do with politics.

#### Roentgen-Ray Treatment of Hyperthyroidism

**Dr. GEORGE C. McFETRICK, Wilmington:** Of all the measures employed in the treatment of goiter, none have been so successful as carefully applied doses of the roentgen ray. I give large doses but am careful not to get a dermatitis. The advantages of the treatment are: There are no fatalities. There is no scar as after operation. It does not interfere with the patient's occupation. It is painless and causes very little inconvenience to the patient. If unsuccessful, an operation may still be performed with less risk because of the favorable action of the roentgen rays on the thymus glands.

#### Autointoxication

**Dr. CECIL DE J. HARBORDT, Dover:** A vast majority of the diseases found in childhood, outside of the eruptive fevers, are caused wholly by the retention of toxic material in the stomach or bowels. Chronic liver troubles are more often than not due to autotoxins, as are many of the more serious renal affections. The numerous forms of dyspepsia and indigestion are all caused more or less by autotoxemia. Even in cases of so-called nervous indigestion, were it not for the absorption of toxins the nerves would not be affected sufficiently to produce the nervous phenomena causing all of the distressing symptoms of this troublesome condition. Treatment in all intestinal and stomach diseases is to clean out the entire tract thoroughly and to place the patient on a proper diet in order to avoid a recurrence of the trouble. It is something to clean out the alimentary canal and quite another to keep it clean and free from putrefactive material. Many manufacturers claim to have a "cure all" for digestive and fermentative troubles, but the fact remains that there is no single drug or combination of drugs that is suitable for every case, for each case is a law unto itself, and calls for some special drug. It is often a most difficult matter to find the cause, the exact poisons that are producing the autointoxication. It may take a long study of the case and symptoms to determine the seat of the trouble is found; but until one finds it and removes it one cannot expect to effect a cure.

#### Dermoid Cyst in a Child

**Dr. SAMUEL C. BROWN, Wilmington:** M. D., a girl, aged six years, frail looking but always well, except for the distressing diseases of childhood, came under my observation through the complaint that at times during the past three months she had suffered from cramps and vague pains in the lower abdomen. These increased in frequency and severity. Physical examination in her mother's lap revealed a mass in the abdomen. On palpation I found an irregular shaped tumor the size of an orange above the symphysis and to the left, freely movable, with areas of fluctuation and hardness, and only slightly tender. Vaginal examination was impossible, and by the rectum no information of value was obtainable. At operation I found the tumor to be a dermoid cyst of the left ovary shaped like a potato and measuring  $2\frac{1}{2}$  by 3 inches at its greatest diameters. It was freely movable and without adhesions, but the pedicle showed one-twist to the left. In the growth of this cyst and its gradual rise out of the pelvis into the abdomen, it had pulled on the left broad ligament

until the uterus was only a thin band of muscle, while the cervix was the size of a lead pencil and 2 inches long. The right broad ligament was only slightly stretched, and that tube and ovary normal. After ligating the pedicle, I removed a long appendix. The child made an uninterrupted recovery. Inside this cyst we found the usual oily liquid, and growing into it one of the so-called "dermoid fluids," containing a lump of matted hair and a small fragment of bone.

### MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

*Six N'inth Annual Meeting, held in Harrisburg, Sept. 22-25, 1919*

*(Continued from page 1389)*

#### Impressions Resulting from Experience in the Pennsylvania Legislative Session of 1919

**Dr. FREDERICK L. VAN SICKLE, Olyphant:** Every legally qualified practitioner of medicine must become interested in organized medicine. There is needed a united and strong organization of the medical profession which shall have an influence on constructive legislation. It would seem desirable that the pulse of the medical profession be noted prior to the passage of certain acts relative to the department of health and of education, that their application with less friction be possible. Of the important subject of publicity regarding legislative opinion, such publicity should come from our own ranks; we should maintain a bureau to furnish the press with properly prepared items. It seems not unreasonable that the attitude of organized medicine toward the legislative problem should be a preparedness to defend its rights and to advise on measures affecting the welfare and health of the public.

#### SYMPOSIUM ON GOITER

##### Thyroid Disease

**Dr. HENRY S. PLUMMER, Rochester, Minn.:** The exophthalmic goiter is seldom missed by relatively good men. Adenomas and hyperthyroid are constantly missed by the best men because many circulatory troubles attributed to myocardial degeneration do not suggest hyperthyroidism. When we are dealing with goiter we are dealing with a person who is burning food too fast or too slow. That people who have had exophthalmic goiter operations are not well is due to the fact that they still have exophthalmic goiter.

##### Epinephrin Hypersensitiveness Test in the Diagnosis of Hyperthyroidism

**Dr. EMIL GOETSCH, Baltimore:** In clinical states of hyperthyroidism there is an increased constitutional sensitiveness to epinephrin (adrenalin), and in states of hypothyroidism there is an increased tolerance for epinephrin hypodermically administered. I myself have carried out or supervised the carrying out of the test in 300 cases of thyroid disease and in approximately 100 conditions simulating in many respects hyperthyroidism. In a so-called positive reaction there is usually an early rise in systolic blood pressure and a fall in diastolic blood pressures. In a very mild reaction the fall in diastolic pressure may occur alone. There is a rise in pulse rate of at least 10 and sometimes as much as 50 or more millimeters of mercury. In the course of thirty or thirty five minutes there is a moderate fall of the pulse and blood pressure, then a characteristic secondary rise, and then a second fall to the normal in about one and a half hours. Together with these changes one sees an exaggeration of the clinical picture, especially the nervous manifestations.

##### Principles Underlying the Treatment of Toxic Goiter

**Dr. CHARLES H. FRAZIER, Philadelphia:** Patients with toxic goiter from the standpoint of treatment fall into one of five groups: 1. The mildly toxic goiter of the adolescent group. The enlargement of the gland is compensatory in nature, the toxic symptoms are not constant, and when present are of mild degree. Proper supervision of the girl's

life, as to hours of work and sleep, and restriction of studies for the schoolgirl, with a trial of iodine internally, will tide the patient over a period of thyroid disturbance from which, on entering womanhood, she may be entirely free. 2. The mildly toxic of the adenoma group. If under proper supervision there is no tendency to progression, the determination for or against operation will depend in large measure on how much the patient is handicapped either in work or in recreation. Operation is a choice and not a necessity. As a subdivision of this group may be entered the patient of definite neurasthenic type with a small adenoma. These are puzzling cases, and I know of no criterion, when the basal metabolism is not above normal, by which the surgeon is to determine whether or not the neurasthenia is dependent on the thyroid disorder. 3. The grave toxicosis of the adenomas, not the true exophthalmic type, always, but its equivalent so far as the gravity of the prognosis is concerned. If the condition is not already inoperable, as it sometimes is, no time should be lost in inaugurating a course of treatment leading up to an eventual resection. 4. The initial hyperplastic goiter, without the precedence of an adenoma, appearing most often in the early years of the third decade. The prognosis without operation is grave. The operative risks in the early stages are trivial, the period of convalescence is short and the end-results satisfactory. The possibility of a complete recovery in the late stage is appreciably reduced. 5. The degenerative or atrophic or the terminal stage of a more or less prolonged hyperplasia. There comes a time in certain cases when, should the patient survive the hyperplastic stage, definite signs of hypoplasia are apparent. Manifestly here, then, is no justification for the removal of gland tissue.

## DISCUSSION

DR. HAROLD L. FOSS, Danville: Goetsch's test is going to find its greatest value in the hands of the general practitioner. Every patient with goiter who comes to the surgeon has been treated with every sort of drug and chemical one can conceive of until, in the vast majority of these cases, particularly in the exophthalmic forms, the degenerative changes in the heart and nervous system and kidneys are so advanced that these patients are a profound risk. It is due to the fact that the general practitioner has not had at his command a means by which an accurate diagnosis can be made. He will now be able to submit his patients to this test and make positive diagnosis, and a larger number will be referred in time so that the surgeon can bring about a cure. If there is anything pernicious in medicine it is the haphazard treatment of these patients. Unquestionably, surgery is the treatment of goiter in all cases, except the diffuse goiters of young girls and the adenomatous goiters with advanced degenerative changes in the heart.

DR. GEORGE P. MÜLLER, Philadelphia: Toxic adenoma can be cured by operation. In cases of diffuse hypertrophy, one must be cautious as to the prognosis because of the large percentage of recurrence and a certain percentage of failures and mortality. Mortality practically never occurs in an adenomatous case, and does occur in the other type.

DR. ALBERT F. HART, Williamsport: The indiscriminate use of various glandular preparations, and especially the use of electricity, should be condemned. Patients that had been treated by electricity claim their thyroid had been reduced in size. We all know that the size of the thyroid has nothing to do with its toxicity. The small thyroids, scarcely palpable, may be intensely toxic.

DR. ADELAIDE ELLSWORTH, Warren: I wish to attest to the value of the epinephrin (adrenalin) test. I have used it as a routine for months in differentiating the nervous and circulatory disturbances that arise in cases of neurasthenia, hysteria and the psychoneuroses from subacute hyperthyroidism. Many women are called neurasthenics when they are in reality suffering from hyperthyroidism.

DR. EMIL GOETSCH, Baltimore: I have never yet seen a patient who had a had postoperative course if it had had a mild reaction before operation. In those cases in which there was a sharp reaction before operation there was generally a stormy postoperative course. So forewarned, you

get operation through in a hurry, whereas otherwise you are likely to delay a little, and it may be those fifteen minutes that will give you a bad result. If you make the test in this early stage and find it positive, you have a great deal of evidence on your side that you can help the patient by operation. I know that my best results have come from this class of cases. I have not seen a test yet that is infallible; but if it is 95 per cent. good, it is valuable. In regard to cases in which syphilis is present, I do not want to discourage the point of view that there might be a connection between intoxication of syphilis and hyperthyroidism. I think there must be an association between definite syphilis and an expression of hyperthyroidism.

SYMPOSIUM ON DISEASES OF THE  
GASTRO-INTESTINAL TRACT

## Value of the High Rectal Enema

DR. HENRY D. JUMP, Philadelphia: We made persistent efforts with men and women patients in various postures to run the tube into the sigmoid flexure. While this may be done under certain conditions, it is difficult, uncertain and in most instances impossible.

## DISCUSSION

DR. ROBERT A. KELTY, Danville: We have tried on several occasions at a necropsy to pass a tube high, and have found that only under exceptional circumstances will the tube pass the sigmoid flexure at the brim of the pelvis.

DR. THOMAS McCRAE, Philadelphia: The idea is so firmly fixed that there is a difference between giving fluid low down and supposedly high up that it is going to take many years and a great many papers before that idea will get into the minds of more than a comparative few. It is important for nurses in training schools to know this. Much time is lost in teaching nurses how to give this and that sort of enema.

DR. J. J. GILBRIDE, Philadelphia: I do not know that we miss a great deal by being unable to pass a tube high up. Of course, this paper will serve a purpose in emphasizing to others the needlessness of trying to do something that cannot be done.

DR. DAVID J. HETRICK, Harrisburg: Some time ago I had a nurse discharged from a little patient because she persisted in using a catheter high up. She gave the child intense pain. She said it was her teaching.

DR. HENRY K. PANCOAST, Philadelphia: There is one danger in the attempt to give a high enema. When the tube is kinked, considerably more force has to be used to get the fluid into the rectum. It must be given slowly; if given too fast, there is sure to be spasm of the descending colon which will prevent the fluid going very far. The ileocecal valve serves its purpose well when taking care of fecal contents; but when it tries to stop enemas, it has no power to do this and it opens almost invariably. Our time to stop barium enemas is when we see the ileocecal valve give way. One case is on record in which a barium enema has been vomited. I believe that in one instance the tube has been introduced as far as the splenic flexure.

DR. ALFRED T. LIVINGSTON, Jamestown, N. Y.: The only thing that has not been mentioned is the most important of all, and that is the technic of the enema. There is a tendency to spasm if the fluid is introduced rapidly, which causes great pain and obstruction of the flow of fluid. I found that approaching a pint this spasm would occur. When approaching a pint I stop the flow, wait a few seconds, and then slowly begin again. If it passed a pint and a half, I was sure that the sigmoid had relaxed, and then I was sure there was a free passage. As a rule, I give from 4 to 6 pints or even as high as 9 pints.

DR. ALFRED C. WOOD, Philadelphia: It may be worth while to call attention to the danger of making an effort to pass the so-called high rectal tube; but in spite of that, as Dr. McCrae has said, certain individuals still insist on trying. I have known of instances in which not only was the rectum perforated, but the nurse went on with the administration of the enema, all of which was received into the peritoneal

cavity. Therefore, it seems to me that Dr. McCrae's hint should be taken to heart, and all of us who have anything to do with the teaching of nurses should impress on them that it is only in the rarest occasions to pass the tube more than 2 or at most 3 inches, but also if they have a rather rigid tube there is very positive danger in it. In regard to the quantity of fluid that may be administered, I have been at the operating table in a case of severe hemorrhage in which the efforts of the physicians present to sustain the patient until the operation might be concluded were so persistent and aggressive that the physiologic sodium chloride solution put into the patient's bowel finally ran out of the mouth while I was operating. In another case the emema came out of the mouth from the constant desire to overcome, as supposed, fecal impaction, which did not exist.

#### Present Status of Therapeutic Pneumothorax in Pulmonary Tuberculosis

DR. ALEXANDER ARMSTRONG, White Haven: I am convinced that therapeutic pneumothorax is the only new plan of treatment for pulmonary tuberculosis discovered in recent years which has positive value. Selection of the suitable case for the operation requires careful physical diagnosis and usually several weeks of close observation of the patient. Progressive softening is still the indication which most often calls for compression of the lung. Remembering that pleurisy is usually a forerunner of tuberculosis, this treatment should be employed early. I would urge that in every town of more than 10,000 inhabitants one physician familiarize himself with the plan of treatment. If it is used at the right time there will be fewer cases of the advanced type of pulmonary tuberculosis.

#### DISCUSSION

DR. ISADORE KAUFMAN, Philadelphia: We should be very cautious in recommending this procedure to the general practitioner. The suitable case must be selected with much care, and the procedure carried out under strictly aseptic technic. The man who uses the method must be a surgeon working under the direction of a man familiar with tuberculosis, or the injection can be carried out by a man thoroughly conversant with the disease, performing the operation himself.

DR. ALEXANDER ARMSTRONG, White Haven: Regarding the time of giving the treatment, to wait under the expectant treatment longer than six weeks is almost criminal negligence. Admitting that the treatment is on trial, I believe every patient should be given the chance it offers.

#### Medical Treatment of Diseases of the Gastro- Intestinal Tract

DR. JOHN A. LEHLY, Pittsburgh: The points of difference between medical and surgical treatment of diseases of the gastro-intestinal tract center usually about diseases of the duodenum, gallbladder, stomach, especially ulcerations, and pancreas. An acute appendicitis is plainly a surgical condition, a chronic appendicitis, which is always difficult to cure, is not receiving the same enthusiasm from the general side as it did formerly, and is receiving more serious attention from the medical man. With reference to peptic ulcer there are still those who feel that it is a surgical condition, and only that. Evidently, the difference of opinion has largely been due to the fact that the surgeon speaks of a chronic condition, a chronic, indurated, incurable, peptic ulcer, whereas the physician speaks of an acute ulcer which may heal spontaneously if left alone, or in which the healing may be hastened about more promptly by attention to diet and by the use of well known remedies and procedures. In diseases of the gallbladder, matters are reversed. The acute condition requires medical attention; the chronic condition is usually all cases the surgical condition. In diseases of the pancreas, conditions are very much as with the appendix. The acute condition demands prompt surgical procedure; the chronic condition demands most deliberate study and possibly largely medical and dietetic treatment.

#### Attitude of the General Practitioner

DR. WILLIAM EGBERT ROBERTSON, Philadelphia: The conviction is soon borne in on the general practicing physician

that it is to him that the ailing individual first comes for advice, and that it is his privilege and duty so to study the patient's condition that relief may follow on an exact diagnosis, or that the thorough preliminary study may result in the selection of other counsel most suited to the particular need of the case. It is necessary, not alone to permit the patient to narrate his complaints, but to take a history and make a complete physical examination in every instance. I fear that the tendency on the part of the busy family physician to accept a patient's diagnosis is somewhat frequent. It leads to errors of subsequent judgment, and in consequence, to errors in handling the patient, and it may lead to operation unnecessarily, and because of this fact may jeopardize or even sacrifice the life of an individual, or may postpone till too late an operation that might have promised cure. These are the reasons which make imperative the more careful study of any patient who presents apparent gastro-intestinal symptoms. How often is the physician the advance agent of some drug concern? Thoughtlessly handing out a sample, he may invite the development of a habit of self medication, or may aid in confirming a tendency already in existence. If notes are not kept, and no record of the progress of the patient's condition is made, he is not able to recall the details either of the patient's condition or the treatment, and hence he is forced to rely on the patient's statement for these, as he was for the diagnosis, and the patient is not slow to grasp the situation.

(To be continued)

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### Annals of Surgery, Philadelphia

(October, 1919, 70, No. 4)

- Most Important Factor in Treatment of War Wounds and Most Important Factor in Civilian Surgery.—The Good Surgeon. G. W. Crile, Cleveland.—p. 385.
- Problem of "Slightly Wounded" in Military and Civilian Practice. W. E. Lower, Cleveland.—p. 388.
- What Would Be the Benefit to the Civilian Surgeon in the Experience Gained by Our Military Surgeons in the Recent World War? E. A. Vander Veer, Albany.—p. 392.
- \*Roentgenography of Brain After Injection of Air into Spinal Canal. W. E. Dandy, Baltimore.—p. 397.
- \*Fracture of Skull; Its Neurologic Manifestations. A. O. Wilensky, New York.—p. 404.
- \*Gunshot Fractures of Humerus Treated by Suspension and Traction. M. K. Smith, New York.—p. 430.
- \*Fractures of Lower Third of Femur. J. Van de Velde, La Pann, Belgium.—p. 461.
- Contribution of War to Surgery of Knee Joint. B. J. Lee, New York.—p. 464.
- Pocketing Operations and Other Skin and Fat Transfers. J. E. Cannaday, Charleston, W. Va., and L. S. Brookhart, Cleveland.—p. 469.
- \*Barrel Stave Splint in Fracture of Clavicle. H. A. Royster, Raleigh, N. C.—p. 474.
- \*Phases of War Surgery: Bone Transplants from Tibia to Lower Jaw for Loss of Substance. C. A. Powers, Denver.—p. 476.
- \*Foreign Bodies Arrested in Duodenum. W. Fisher, Toledo.—p. 479.
- \*"Euremsis" of Adults: Hypertonic Bladder. L. Brahty, New York.—p. 482.
- Organization and Operation of an Evacuation Hospital. D. Lewis, Chicago, and F. J. Leary, Washington, D. C.—p. 489.
- Three Table Military Operating Room a Plan Applicable to Civil Hospitals. J. T. Gwathmey, New York.—p. 497.

**Roentgenography of Brain After Injection of Air into Spinal Canal.**—As has been shown by Dandy, one or more of the cerebral ventricles can be outlined sharply in a roentgenogram if the ventricular fluid be withdrawn and replaced by an equal quantity of air. In the course of this work he also noted that in many cases some of the air had passed out of the ventricular system and could be seen in filaments on the surface of the brain, that is, in the sulci. These observations, Dandy believes, point to new possibilities in intracranial diagnostic study. Many lesions of the brain affect part of the subarachnoid space directly or indirectly. These, and no doubt many other conditions, should be demonstrable by the

absence or by the presence of air over the cerebral hemispheres. This air is injected into the spinal canal. By this method the influence of the ventricular system is eliminated entirely; the air passes directly into the cisterna magna and thence into the ultimate ramifications of the subarachnoid space. Dandy cautions that this procedure is not devoid of danger. Medullary distress, even fatal results, might follow from increased intracranial pressure if the amount of air injected were even slightly in excess of the fluid withdrawn. He has injected air intrapneumously into four children and four adults without any bad effect. In this series of eight cases, the location of the lesion was determined accurately in three. In the remaining five, the subarachnoid space was normal. In the three patients in whom the lesion was located by means of intraspinal air, other methods had failed entirely. The findings in these cases are stated briefly.

**Fracture of Skull.**—Wilensky analyzes in detail seventy-two cases of fracture of the skull in which the mortality was 31 per cent. He points out that conservative and expectant methods of treatment, whenever they can be employed safely, yield the best results. He is unalterably opposed to operating indiscriminately in every case of fracture of the skull. Operation is imperative in every case showing the signs of an advancing intracranial pressure. Operation should be done in the early stages before there is evidence of medullary involvement. Irritative or paralytic focal symptoms pointing to pressure on or disorganization of definite cortical areas are the next most important indications of operative interference. Isolated or irregular disturbances of neurologic function can be discarded and in these cases conservative forms of treatment will yield superior results; seemingly these abnormalities have no important therapeutic bearing in the total clinical picture.

**Treatment of Gunshot Fracture of Humerus.**—Smith favors suspension and traction in the treatment of gunshot fractures of the humerus because it gives a favorable posture for treatment of the wound, favors the maintenance of reduction for any type of fracture, and promotes early recovery function.

**Fracture of Lower Third of Femur.**—Van de Velde divides open fractures by missiles into three different types—fractures with: (1) no comminution; (2) slight comminution, and (3) much comminution. For each of those types three different methods of treatment were used at La Panne. Those methods are: (1) wiring; (2) traction on the femoral condyles by ice tongs, Steinman pins, or Willems screws, and (3) Depage's vertical suspension of lower fragment combined with horizontal traction on the leg.

**Barrel Stave Splint in Fracture of Clavicle.**—Royster disclaims originality for this treatment which, it is said, was devised by Dr. Spohn of Corpus Christi, Texas. To apply this barrel stave splint to a fractured clavicle, the center of the stave is found, and this should be placed over the center of the patient's manubrium, at the suprasternal notch. The stave is then sawed off at each end to fit just inside the head of each humerus while the shoulders are drawn backward. One inch from each end a nail is driven into, but not through, the splint. The splint is then padded with cotton, retained by a bandage, and placed in the position as first measured, the concave surface being next to the chest. While the splint is held in place and the shoulders kept firmly back, bandages are tied to the nails, carried under each axilla, and crossed on the back in the figure-of-eight fashion; many turns are made and the stave is drawn as tightly as necessary. If there is a tendency of the splint to turn or to slip, adhesive plaster may be applied to reinforce the bandage, but it is rarely needed. If the patient is a heavy, muscular subject, the arm is put into a sling. The appealing quality of this dressing is its comfort. The patient may use his hands and forearms at will without disturbing the fragments, and he is relieved of the distress which the older dressings give.

**Foreign Bodies Arrested in Duodenum.**—Fisher reports three cases. In the first case a hair pin was fixed in the third portion of the duodenum, one end of the sharp point having become bent at an angle and penetrating the mucous

coat of the duodenum. In the second case, a basting thread remover was fixed in the third portion of the duodenum, the sharp point having penetrated its posterior wall. In the third case, a beauty pin was fixed along the inner edge of the vertical portion of the duodenum, the sharp point having penetrated the bowel. In each case the foreign body was removed successfully by means of a duodenotomy.

**Enuresis of Adults.**—Six cases are cited by Brahdly. He claims that there is a clinical syndrome characterized by occurrence in families, congenital onset, frequent voiding of small amounts of urine with marked urgency, easy fatigue and drowsiness, tenderness to percussion of lower lumbar and upper sacral vertebrae and trabeculated bladder. These cases illustrate a type of bladder disturbance probably due to a congenital hypertonicity of the bladder. The difference between the amount of urine usually voided and the amount of fluid which can be injected, the trabeculated bladder and the powerful urinary stream indicate increased tonus. The lumbar pain, the tenderness of the vertebral column, the frequency and urgency in the absence of any unusual stimulus, the occasional spasm of the abdominal and leg muscles on filling the bladder, indicate hypersensitive as well as hyperactive cord centers. The cases are characterized by an urgent desire to urinate when the bladder contains from 100 c.c. to 150 c.c. of urine. If this desire is not acted on involuntary urination takes place. The physical bladder capacity is only occasionally markedly diminished. The "physiologic capacity," that is, the amount the bladder will hold before the bladder contraction reflex takes place, is always less than half the normal. Remissions occur but are rare, of short duration and not complete. The treatment thus far given in these cases has been very unsatisfactory.

**Archives of Ophthalmology, New Rochelle, N. Y.**

September, 1919, 48, No. 5

- Ocular Phenomena in Psychoneuroses of Warfare. G. E. de Schweinitz, Philadelphia.—p. 417.
- Ocular Functions of Aviators. W. H. Wilmer, Washington, D. C.—p. 439.
- Case of Keratitis Profunda (or Disciformis?) with Microscopic Examination. F. H. Verhoeff, Boston.—p. 449.
- Judgment of Distance with Semaphores and a Screen at 100 Meters. H. J. Howard, Mineola.—p. 461.
- Columbia and So-Called Congenital Dislocation of Lens. C. F. Clark, Columbus.—p. 475.
- Case of Bilateral Glioma of Retina Apparently Arrested in Non-Enucleated Eye by Radium Treatment. M. J. Schoenberg, New York.—p. 485.
- Phantom Intraocular Tumor, Multilocular Cyst of Iris and Ciliary Body. R. L. Lloyd, Brooklyn.—p. 489.
- Study of Dark Adaptation. F. W. Collip, Mineola.—p. 492.
- Maddox Rod Screen Test. P. Dolman, Mineola.—p. 503.

**Arkansas Medical Society Journal, Little Rock**

October, 1919, 16, No. 5

- Prevention of Venereal Disease as a Public Economical Problem. J. T. Clegg, Silsbee Springs.—p. 97.
- Clinical Lessons from Influenza and Pneumonia. G. S. Brown, Conway.—p. 98.
- Personal Experience in Epidemic Influenza. H. N. Stree, Lonoke.—p. 100.
- Spanish Influenza. S. J. McGraw, El Dorado.—p. 102.
- Pathology of Influenzal Pneumonia. D. C. Lee, Little Rock.—p. 104.

**Boston Medical and Surgical Journal**

Oct. 23, 1919, 181, No. 17

- Army Tuberculosis Problem as Seen in Massachusetts. J. B. Hawes, Boston.
- Physiologic Basis of Common Gastrointestinal Syndromes Found in Pulmonary Tuberculosis. E. M. Pottinger, Monrovia, Calif.—p. 501.
- Loss of Sight from Retrobulbar Neuritis Due to Posterior Accessory Sinus Disease; Report of Seventeen Cases. L. E. White, Boston.—p. 505.
- Necrosis of Index Finger from Lysol. An Argument for the Thorough Mixing of Such Solutions. H. K. Sowles, Boston.—p. 511.

**Canadian Medical Association Journal, Toronto**

October, 1919, 9, No. 10

- Cardiac Disease with Extensive Venous and Cardiac Thrombosis. J. G. Finley, Montreal.—p. 877.
- Flying Sickness. Duggan. H. I. Murray, C. A. M. C.—p. 893.
- Care of Military Mental Cases. E. H. Young, C. A. M. C.—p. 896.

- Shakespeare as a Guide in the Art and Practice of Medicine. St. Clair Thomson, London, Eng.—p. 901.
- \*Treatment of Burns by Tincture of Iodine. O. F. Mercer, Montreal.—p. 915.
- Cranio-plasty. C. H. Gilmour, Toronto—p. 922.
- Backward Displacements of Uterus. A. C. Hendrick, Toronto—p. 927.

**Cardiac Disease with Extensive Venous and Cardiac Thrombosis.**—Finley reports a case of cardiac hypertrophy and dilatation accompanied by extensive venous and cardiac thrombi. The patient, a woman, 39 years of age, complained of pain in the chest, cough and paralysis of the right arm and leg. Then the left side became paralyzed. Fullness in the supraclavicular region was noticeable, with tenderness along the course of the axillary veins and of the veins at the bend of the elbow, with some enlargement of the veins of the forearm and front of the chest. The hand was slightly swollen and there was marked edema about the elbow. A rounded and tender cord was present in the supraclavicular region and along the line of the brachial vessels. This condition was regarded as a thrombosis of the brachial, subclavian and probably the innominate veins. Then she complained of considerable pain in the right side of the neck and forearm, followed next day by fullness in the supraclavicular region with tenderness extending down to the axilla. A cord was felt along the posterior border of the sternomastoid muscle and along the course of the brachial vessels, the veins of the forearm and front of the chest were slightly swollen and prominent. Swelling of the right arm was present for a few days. During her illness there was considerable dyspnea, often orthopnea, with a moderate grade of cyanosis. The heart almost constantly presented the presystolic gallop rhythm and there was heard only an occasional systolic murmur at the apex. A diastolic murmur heard on admission passed off soon after admission, being only heard on two occasions. The case was regarded during life as probably being one of infective endocarditis. In favor of this view was a heart with failing compensation, fever without other apparent cause, and the presence of hemiplegia. The necropsy findings revealed a hypertrophied and dilated heart, corresponding to the signs found during life. The only trace of endocarditis consisted of an ante-mortem grayish yellow clot in three chambers of the heart, the ventricles and the right auricle. The largest of these was situated near the apex of the left ventricle where the wall of the heart was thinned and fibrous and its center was broken down and fluid and contained a growth of *Staphylococcus aureus*. Several clots in the right ventricle also contained softened centers.

**Treatment of Burns by Tincture of Iodine.**—The use of a 10 per cent tincture of iodine is endorsed by Mercer as a treatment for burns of all kinds and degrees. The treatment is painful during its application and for a few minutes (four or five) following it, but as soon as the pain is caused is over, the pain that always accompanies the burn is completely suppressed and the patient feels a complete relief. No untoward effects have been noted. The tincture is applied with a piece of absorbent cotton, soaked heavily in the tincture of iodine. Only one application is made. Mercer's experience with this treatment has been very gratifying.

### Indiana State Medical Association Journal, Fort Wayne

Oct. 17, 1919, 12, No. 10

- Public Health. W. H. Indiana State Medical Association. W. H. Sisson, St. Louis, Mo.—p. 27.
- Internal Pressure and Nerve-fiber Structures. Physiology, Symptomatology and Pathology. A. D. Lespessere, Chicago—p. 260.
- \*Tetanus Tetraletia with Very High Temperature. G. C. Johnson, Evansville, Ind.—p. 266.

**High Temperature in Tuberculosis.**—Following an attack of measles and whooping cough, Johnson's patient, then 10 years of age, developed pulmonary tuberculosis. She was treated in a camp and was finally discharged with the disease arrested. Three years later her temperature ran an irregular course for which no explanation could be given. She had no cough or physical signs of activity in her chest.

The temperature began to reach 109 and 110 F., going up quickly though never remaining up for more than one or three hours. She did not complain much during these periods, except of headache. The sputum and urine were negative, also the blood, except for moderate leukocytosis. A roentgenogram of the chest showed considerable involvement of the right apex with a small cavity. A number of miliary tubercles were found on the left choroid (examination two years later failed to find any evidence of these). A diagnosis of acute miliary tuberculosis was made on the eye findings. At this time she was suffering with toothache, and an examination disclosed an abscess at the root of one of her teeth. The trouble was corrected, following which her temperature promptly dropped to normal.

### Journal of Biologic Chemistry, Baltimore

October, 1919, 39, No. 3

- \*Action of Radium Emanation on Vitamins of Yeast. K. Sugiyra and S. R. Benedict, New York—p. 421.
- Biochemical Changes in Muscle Tissue of King Salmon During the Fast of Spawning Migration. C. W. Greene, Columbia, Mo.—p. 435.
- \*Changes in Nitrogenous Extractives in Muscular Tissue of King Salmon During the Fast of Spawning Migration. C. H. Greene, New Haven, Conn.—p. 457.
- \*Direct Determination of Non-Amino Nitrogen in Products of Protein Hydrolysis. A. Hiller and D. D. Van Slyke, New York—p. 479.
- \*Colorimetric Determination of Hemoglobin. B. Cohen and A. H. Smith, New Haven—p. 489.
- Studies on Proteino-genous Amines. II. A Microchemical Colorimetric Method for Estimating Imidazole Derivatives. K. K. Koessler and M. T. Hanke, Chicago—p. 497.
- Studies on Proteino-genous Amines. III. A Quantitative Method for Separating Histamine from Histidine. K. K. Koessler and M. T. Hanke, Chicago—p. 521.
- Studies on Proteino-genous Amines. IV. The Production of Histamine from Histidine by *Bacillus Coli Communis*. K. K. Koessler and M. T. Hanke, Chicago—p. 539.
- Studies on Proteino-genous Amines. V. Preparation of *p*-Hydroxyphenylethylamine Hydrochloride (Tyramine Hydrochloride). K. K. Koessler and M. T. Hanke, Chicago—p. 585.

**Action of Radium on Yeast.**—Growth promoting factors in yeast may be inactivated partially by means of exposure to radium emanation. It is suggested by Sugiyra and Benedict that it is possible that the therapeutic effect of radium on neoplasms may be due in part, at least, to this destruction of growth promoting substance.

**Nitrogenous Extractives and Protein Metabolism.**—The presence in the body of a mechanism regulating the concentration of amino nitrogen in the fluid of the tissues is indicated by Green's work. The importance of this observation and its significance relative to the theories of protein metabolism are discussed.

**Nonamino Nitrogen in Proteins.**—Hiller and Van Slyke found that in the mono-acid fraction of the products of protein hydrolysis, as analyzed by the method of Van Slyke, the nonamino nitrogen, comprising the nitrogen of proline, exo-proline, and one-half that of the tryptophane, can be determined directly by a single Kjeldahl determination. The amino nitrogen is removed by warming with sodium nitrite and hydrochloric acid, the excess of nitrous acid is reduced with a zinc copper couple by Seales' method, and the non-amino nitrogen in the residue determined by Kjeldahl. The results by this method agreed closely, in analyses of casein and gelatin, with the results obtained indirectly by Van Slyke's original procedure, in which the nonamino nitrogen is calculated as the difference between total nitrogen and amino nitrogen.

**Colorimetric Determination of Hemoglobin.**—A method for the colorimetric determination of hemoglobin in blood is described by Cohen and Smith which combines the methods of Sahli and of Palmer. The hemoglobin of whole blood is changed to acid hematin with hydrochloric acid and compared with a standard in a colorimeter. When the Autenrieth-Hellige colorimeter is used, this method is admirably adapted for field use and yields accurate results.

### Journal of Cutaneous Diseases, Chicago

October, 1919, 37, No. 10

- \*Icthen Plasmus. E. G. Little, London, England—p. 639.
- \*Icthen Plasmus. C. J. White, Boston—p. 671.

\*Hitherto Undescribed Generalized Pigmentation of Skin Appearing in Infancy in Brother and Sister. G. W. Wende and H. H. Bancus, Buffalo.—p. 685.  
Recent Progress with Syphilis. H. G. Irvine, Minneapolis.—p. 702.

**Treatment of Lichen Planus.**—In the treatment of lichen planus, Little places most reliance on a combination of arsenic and mercury. It has been very successful in his hands in all stages of the disease, the acute and intensive cases as well as the chronic cases, especially in controlling itching, which usually yields within a week of treatment. In acute cases it is well to restrict the diet to bread and butter, rice and water for several days at the outset of treatment.

**Treatment of Lichen Planus.**—In White's opinion no internal remedy is worthy of the name in this disease. Menthol in ointment form will temporarily relieve the pruritus. Detergents will tend to reduce the hyperkeratosis. Stimulants will possibly decrease the infiltration. Roentgen rays, in White's experience, have proved a broken reed to lean on.

**Pigmentation of Skin.**—In the two cases cited by Wende and Bancus the pigmentation began when the children were less than 1 year of age, making its appearance first on the scalp and face and then on the trunk until the process involved the entire body. Finally, the skin, especially of the face and trunk, became almost black. No causative factor could be found, either in the parents or in the children. The process suggests abnormal physiologic function rather than pathologic disturbance. The histologic findings were limited to abnormal cells corresponding to chromatophores in the corium and epidermis. The pigment apparently was derived from nuclear material.

**Journal of Mental and Nervous Diseases,  
Lancaster, Pa.**

September, 1919, 50, No. 3

- Simulation (Malingering) not an Adequate Diagnosis. W. A. White, Washington, D. C.—p. 209.
- \*Bilateral Frontal Hemorrhage. F. J. Farnell, Providence, R. I.—p. 218.
- Menstrual Disturbances in the Feeble-minded. II. Swanberg, Lapeer, Mich., and H. A. Haynes, Detroit.—p. 224.  
October, 1919, 50, No. 4
- Constructive Policy for the Advance of Neurology. W. Timme, New York.—p. 313.
- \*Acute Prison Neurosis of Anxiety Type. N. S. Yawger, Philadelphia.—p. 319.
- \*Dementia Praecox in Twins. M. H. Frantz, New York.—p. 325.
- Nervous and Mental Diseases in the War. J. F. W. Meagher, Brooklyn.—p. 331.

**Bilateral Frontal Hemorrhage.**—Farnell reports the case of a woman, 49 years of age, whose make-up apparently was normal, with a clear history of no previous attacks or upsets. She develops a mental state not unlike the manic form of manic depressive insanity which settled after several months in a hypomaniacal condition. Physically, there was hypertension, blood pressure, 210; albumin in the urine. Approximately twelve months after the onset of this so-called functional psychosis, she had a cerebral hemorrhage with the clinical signs suggesting the intraventricular type. This was followed by a complete change in the mental picture; irregular functional psychosis with thought disorder, which settled into an organic psychosis with obstructive disorders or an intellectual loss. Her physical condition improved, but not her mental state. Within five or six weeks cerebral compression developed and ultimately contributed toward her death. At the necropsy the brain showed bilateral mid-frontal hemorrhage with organization, secondary necrosis and softening of the brain tissue itself. The vascular sclerosis was localized to the cerebral vessel system.

**Menstrual Disturbances in Feeble-minded.**—Seven hundred women, inmates of an institution for the feeble-minded, were examined by Swanberg and Haynes for the purpose of ascertaining those suffering from pathologic menstrual disturbances. Of this number, 425 were menstruating normally; 177 had a physiologic amenorrhea and 108 were suffering from pathologic menstrual disturbances. The most common disorders were irregularity, amenorrhea and dysmenorrhea. The percentage of menstrual disorders was in proportion to the degree of mental deficiency; the lower the mental state, the greater the number of pathologic cases. Amenorrhea and

possibly oligomenorrhea were far more frequent among the lower types—imbeciles and idiots, while the vast majority of cases of dysmenorrhea were among the higher class—the morons.

**Acute Prison Neurosis.**—Yawger describes a prison anxiety neurosis which develops in individuals of constitutional inferiority. The subjective evidence presents in the form of restlessness, decreased power of mental concentration, irritability, hypochondriacal and introspective manifestations, dreams of a disturbing nature often broken by a distressing insomnia, digestive and genito-urinary manifestations, cardiac irregularity or respiratory disturbances. Usually there is appreciable loss of weight and sometimes an increased use of tobacco. Objectively, a tremor may be encountered and generally an increased activity of the skin and tendon reflexes.

**Dementia Praecox in Twins.**—Frantz' patients were twin brothers, 20 years of age. Both had dementia praecox of the catatonic type. One was an inmate of an institution; the other was not in need of any restraint. The family history was fairly good although the father had been very nervous.

**Journal of Parasitology, Urbana, Ill.**

September, 1919, 6, No. 1

- \*Stomach Spirochete Occurring in Mammals. K. Kasai and R. Kobayashi, Tokio.—p. 1.
- Specific Identity of *Heronimus Chelivirae* MacCallum and *Aorobis Extensus* Barker and Parsons. H. W. Surkard, p. 11.
- Emerging Course of *Acanth* Larvae in Body of Host. S. Yoshida, Osaka.—p. 19.
- Life History of *Davainea Terrenna* (Molin), a Fowl Tapeworm. J. E. Aekert, Kansas.—p. 28.
- Life History of *Chickon Costode*, *Hymenolepis Carioea* (Malgabhaes). J. E. Guherlet, Oklahoma.—p. 35.
- \*Study of Human Lung Distome, *Paragonimus Westermani*. K. Nakagawa, Taiichu, Formosa.—p. 39.
- Distotrema* Synonymous with *Gyllauchen*. S. Goto, Tokio.—p. 44.

**Stomach Spirochete.**—Aside from the fact that this organism was found by Kobayashi and Kasai in the stomachs of a large number of dogs, cats, rats, monkeys and other animals, a point of interest is the belief held by the authors, that the cases of hemorrhagic gastro-enteritis described by Balfour and Luetet are in all probability due to the secondary pathogenicity of this spirochete.

**Human Lung Distome.**—The human lung distome was found by Nakagawa in the crab. He claims that its identity with the larvae of *Paragonimus westermani* is a matter beyond dispute.

**Maine Medical Association Journal, Portland**

October, 1919, 10, No. 3

- Medical World after World Cataclysm. C. E. Banks.—p. 55.

**Modern Hospital, Chicago**

October, 1919, 12, No. 1

- Future Tasks and Problems of American Hospital Association. A. R. Warner, Cleveland.—p. 355.
- How to Insure a Large Make Supply in the Hospital. J. B. Howland, Boston.—p. 258.
- Hospitals of the Old World and the New. M. J. Robinson, Chicago.—p. 260.
- Question of Fire Hazards in Hospitals. W. D. Crow, New York.—p. 265.
- Burdett Memorial Hospital. C. M. Hendrie, Grand Rapids, Mich.—p. 268.
- New York Nursery and Child's Hospital. M. E. McCormack, New York.—p. 275.
- Newlander Foundation; Convalescent and Recreation Home for Women and Children. York and Sawyer, S. S. Goldwater, New York.—p. 277.
- Patients' Mess, Base Hospital Camp Center, Mich. C. N. Frey, Camp Center.—p. 280.
- Can Hospital Equipment Be Standardized? E. F. Stevens, Boston.—p. 287.

**Nebraska State Medical Journal, Norfolk**

October, 1919, 4, No. 10

- Travel Nurse; Opportunities for Service. I. S. Cutter, Omaha.—p. 287.
- Ethical Relation of Nurse and Doctor. J. M. Aiken, Omaha.—p. 289.
- Treatment of Appendix Stump. A. J. Brown, Omaha.—p. 292.
- Arteriosclerosis. L. Stark, Harrington.—p. 295.

Enteric Cases; Differential Diagnosis and Treatment. W. R. Talbot, Newcastle.—p. 206.  
1. Food and Results of Roentgen Therapy. A. I. Tyler, Omaha.—p. 303.

### Philippine Journal of Science, Manila

March, 1919, 14, No. 3

\*Pelvic and Cephalic Measurements among Filipino Women and Newborn Babies. H. Acosta Sison and Fernando Calderon, Manila.—p. 253.  
1. The Old Industry of Pearl Shell Islands. R. H. Aguilar, Manila.

New Philippine C. M. H. Co. P. P. Trib. New York.—p. 287.  
Pages of Philippine Islands. O. Bianchi, Florence, Italy.—p. 295.

**Pelvimetry on Filipino Women.**—The data given by Acosta-Sison and Calderon are the result of an examination of 1,237 women. It is evident that the Filipino pelvis is of a type different from either the white American or the negro pelvis, and its average normal measurements are similar to those of the generally contracted pelvis of the white American. The index of the posterior pelvic plane in cases of contracted intertubular diameter is important in the determination of the probable outcome of labor. Contracted pelvis, except in cases of osteomalacia, is rarely an indication for cesarean section among Filipino women. There is practically no difference in the measurements of the pelvic diameters of multiparas and primiparas. The new-born babies of multiparas are longer and heavier than those of the primiparas. The babies of mothers who stayed in the hospital for one or more weeks before delivery are heavier than those whose mothers entered the hospital at the time of labor. The male babies are in greater number and are longer and heavier than the female babies. Labor is longer in primiparas than in multiparas.

### Virginia Medical Monthly, Richmond

October, 1919, 16, No. 7

Surgical Pancreatic Surgery of Brain. C. C. Coleman, Richmond.—p. 157.  
Obstetrical Aberrations; Report of Cases. C. J. Andrews, Norfolk.—p. 166.  
Dr. py in Child in Due to Fat Starvation. A. B. Grubb, Cripple Creek.—p. 169.  
Abdominal Hernia and "Rupture." (Standardization of Nomenclature). G. P. Larpus, Richmond.—p. 167.  
Treatment of Hysterical in Relation to Automatism. T. A. Williams, Williamsport, D. C.—p. 168.  
Sectional Meeting Medical Society of Virginia. Medical History of Richmond. J. N. Uphur, Richmond.—p. 170.

### FOREIGN

Those marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Archives of Radiology and Electrotherapy, London

September, 1919, 24, No. 4

\*Biocular Vision and Roentgenography. R. S. Burdon.—p. 101.  
Distortion of Stereoscopic Images. E. G. Hill.—p. 112.  
Distortion of Stereoscopic Images of Thumb. T. G. Evans.—p. 116.  
Distortion of Cardiac Shadows Produced by Varying Distances of Anticathode from Plate or Film. R. W. A. Salmon.—p. 117.  
Roentgen Ray Examination of Liver, Gallbladder, and Bile Ducts. R. Klein.—p. 119.

**Biocular Vision and Roentgenography.**—Burdon reports the results of an investigation undertaken to account for the various anomalies that occur in the use of roentgen rays stereoscopically, and to find a means of overcoming them.

**Distortion of Stereoscopic Images.**—While attempting to devise a method of calibration directly applicable to stereoscopic images, the authors of this paper were struck with peculiar discrepancies in the proportions of the image when projected under ordinary working conditions. They were thereby led to a mathematical investigation of the laws governing stereoscopic effects as applied to roentgenography. The investigation brought to light the remarkable fact that only under specially debated conditions is the stereoscopic to be relied on to portray an accurate representation of reality, and that if these conditions are not fulfilled, the resulting effects are distorted in a curious manner. A study of this question was made by the authors and their results show that, in order to obtain stereoscopic images giving a true representation of reality, the tube shift must always be made equal to the distance between the eyes, and also the plates

must, in every case, be viewed at a virtual distance equal to that at which the roentgenograms were taken.

**Distortion of Cardiac Shadows Produced by Varying Distances of Anticathode from Plate or Film.**—The experiments made by Salmon show that to avoid gross distortion of the size of the heart and its great vessels, if an orthodiagraph cannot be used, the distance between the anticathode and the plate should be at least 3 feet, and more if it can be arranged conveniently.

### British Medical Journal, London

Sept. 27, 1919, 2, No. 3065

Epidemiologic Point of View. Greenwood.—p. 405.  
\*Experimental Investigation of Certain Materials Used for Nerve Suture. P. Sargent and J. H. Greenfield.—p. 407.  
Combined Sclerosis with Heterotopia of Spinal Cord. G. E. Rennie, and O. Latham.—p. 410.  
Diaphragmatic Hernia of Entire Stomach and Great Omentum. J. G. Andrew.—p. 412.

**Materials Used for Nerve Suture.**—An investigation was undertaken by Sargent and Greenfield with a view to ascertaining which of the many materials in general use as nerve sutures was least likely to produce harmful reaction in the delicate tissue of a nerve. They found that while plain thread or silk sutures give rise to no irritation, they are relatively unabsorbable. "Plain sterilized" or "plain iodized gut" are of value by reason of their rapid absorbability, but their low degree of tensile strength and their slightly irritating nature counteract these advantages. "Japanese silk-worm gut" has great tensile strength and in rate of absorbability and the reaction which it causes holds a place midway between thread and silk sutures and catgut sutures. The authors advise that chemical antiseptics should be avoided in all suture materials.

Oct. 4, 1919, 2, No. 3066

Two Cases of Chronic Renal Disease: Contrast in Treatment and Prognosis. J. Galloway.—p. 431.  
Practical Considerations on Operation for Removal of Adenoids and Enucleation of Tonsils. M. H. Brown.—p. 433.  
Method of Enucleating Tonsils which Lessens Bleeding. P. MacDonald.—p. 437.  
\*Relation Between General Nervous System and Symptoms of "D. A. H." in Neurasthenic Patients. H. W. Davies and J. G. Priestley.—p. 430.  
\*Two Cases of Pneumococcus Meningitis of Bacteriologic Interest. H. A. Haig.—p. 431.

**Symptoms of D. A. H. in Neurasthenic Patients.**—Of 100 patients admitted to the hospital for "neurasthenia," thirteen showed well marked symptoms of D. A. H., and fifty-seven had the same condition in lesser degree. The evidence available does not show the same causal relation between previous infection or gassing and "neurasthenia" as holds in the case of D. A. H. No definite relation could be traced by Davies and Priestley between the abnormal Herring-Breuer reflex of D. A. H. patients and the altered tendon reflexes of neurasthenic patients. Attempts to control the Herring-Breuer mechanism by hypnotic suggestion were only partially successful. The respiration could be slowed for a short time while the patient was relaxed, but no permanent effect could be obtained.

**Pneumococcus Meningitis.**—The organism isolated by Haig from one case closely resembled *B. pestis*, and in the second case the clinical aspects were so closely allied to those seen in cerebrospinal meningitis that until the *B. pneumoniae* was isolated from the cerebrospinal fluid the case was considered to be one of meningococcal infection.

### Glasgow Medical Journal

October, 1919, 92, No. 10.

With the 1/1st Lowland Field Ambulance in Gallipoli. G. H. Edington.—p. 161.  
Phenomena of "Serum Disease": Relation between Its Various Forms and Proteins of Horse Serum. W. T. G. Davidson.—p. 182.

### Journal of Laryngology, Rhinology and Otology, London

October, 1919, 34, No. 10

Reports for 1918 from Ear and Throat Department of Royal Infirmary Edinburgh. 1. Chronic Middle-Ear Suppuration. J. S. Fraser and W. T. Garretson.—p. 373.

Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 338.  
Treatment of Enlarged or Diseased Tonsils in Cases Where Surgical Procedures are Contraindicated. I. More.—p. 337.

**Lancet, London**

Sept. 27, 1919, 2, No. 5013

- Differentiation of Mankind Into Racial Types. A. Keith.—p. 553.
- "Heteroserotherapy" in Pulmonary Tuberculosis. J. J. Perkins, R. A. Young and W. O. Sleek.—p. 556.
- Early Treatment of Mental Disorders. R. Eager.—p. 558.
- "Twilight Sleep" In General Practice. G. H. Winch.—p. 563.
- Hyperkeratosis of Hair Follicles in Scurvy. H. Wiltshire.—p. 564.
- Foreign Bodies in Esophagus and Respiratory Passages. I. Moore.—p. 566.
- Wheat Culture Medium. S. Otabe.—p. 576.

**Heteroserotherapy in Pulmonary Tuberculosis.**—Perkins and his associates employed the method of heteroserotherapy first suggested by Jousset in, 1912 in the treatment of eight cases of pulmonary tuberculosis. In three cases the administration of the pleural fluid was without any apparent effect on the symptoms or course of the disease. In two cases, where improvement coincided with treatment, it is admitted that these two patients had shown signs of improvement before it was commenced. Two were going steadily downhill in spite of other measures of treatment; in both the use of pleural fluid was followed by rapid and marked improvement, in both the cessation of the injections was followed by a tendency to relapse, and in both renewed improvement followed their resumption. Both these patients received injections of the same pleural fluid (from a case of "primary" tuberculous pleurisy) used within a few weeks of its preparation. In the remaining case, though the patient's general condition was good throughout, troublesome symptoms which had persisted for months disappeared within a few weeks of the administration of the pleural fluid. The authors are of opinion that the use of "heteroserotherapy" in this disease is worthy of further investigation.

**Hyperkeratosis of Hair Follicles in Scurvy.**—In dealing with about 3,000 cases of scurvy which occurred among Serbian troops, Wiltshire noticed that a condition of hyperkeratosis of the hair follicles was commonly present, in addition to those skin changes which are generally described as proper to this disease. The proportion of cases showing follicular hyperkeratosis amounted to no less than 87 per cent. The follicles which showed this change were usually limited to the lower extremities, the favorite sites being the front and inner aspects of the thighs and the upper parts of the legs. When they were numerous in these regions—and in some instances nearly every follicle was affected—those of the public hairs were often affected as well (20 per cent. of the cases), and sometimes those of the backs of the wrists and forearms (2.5 per cent.). Each affected follicle presented a hard conical swelling about the size of a pin's head, owing to a collection of horny epithelial debris which had accumulated at the follicle mouth. In some cases a thin atrophic hair, or a broken hair stump, projected from the summit of this cone; in others, the hair was wanting, having been shed or broken off flush with the surface. When dirt was present it tended to be incorporated with the material forming the cone, which then, on superficial examination, resembled an ordinary sebaceous comedo. By degrees the conical projection flattened down into a scale, under which, on examination with a lens, a new developing hair could be seen coiled up like a watch spring. At this stage, also, the appearance on casual examination resembled that of a comedo. Later the flattened scale was shed, the new hair erupted and was seen to be growing from a pink recovering follicle. These changes were not simultaneous in all the follicles. When a patient was admitted to hospital it was the rule to find some follicles in the stage of conical swelling with the hair still present, some in the stage of flattened scale covering a new developing hair, and others in intervening stages of broken or shed hairs. The whole process took place gradually and was spread over many weeks. Under treatment recovery was gradual.

**Wheat Culture Medium.**—Experimental results obtained by Otabe show that there is no more value in meat extract cul-

ture mediums than in wheat extract culture mediums. Otabe roasts the wheat (with or without husk) in an iron pan until it becomes brown. One pound of the roasted wheat without washing is placed into 1,600 c.c. of distilled water. This is boiled in Koch's boiler for half an hour, strained through a clean cloth, and made up to 1,600 c.c. with distilled water, if under this quantity. To this is added 0.5 gm. of taka-diastase or ordinary diastase and the flask well shaken. The temperature of the contents at this time should be maintained at from 30 to 40 C. for one-half hour. Then the contents are filtered. The resultant fluid ought to be quite transparent with yellowish color, almost the same as ordinary meat broth. The fluid has a sweet smell, the reaction being slightly alkaline. Five gm. of sodium chlorid and 10 gm. of peptone albumin are added, the mixture boiled and filtered. To make wheat agar, 15 gm. (in winter) or 20 gm. (in summer) of agar are added to the above quantity. For the rest the preparation is almost the same as that of meat agar as usually prepared. Many special culture mediums can be made of the wheat broth and agar medium.

Oct. 4, 1919, 2, No. 5014

- \* Cardiac Massage as a Means of Resuscitation. L. E. C. Norbury.—p. 601.
- \* Intravenous Injection of Antimony in Filariasis. L. Rogers.—p. 604.
- \* Conjugal Tuberculosis. E. Ward.—p. 606.
- \* Specific Agglutinin for Pfeiffer's Bacillus in the Blood Serum of Influenza Patients. W. J. Wilson.—p. 607.
- \* Bronchopneumotichetis in Egypt. N. Farah.—p. 608.
- \* Foreign Bodies in Esophagus and Respiratory Passages. I. Moore.—p. 609.
- Case of Phlegmon of Neck. W. Applebard.—p. 614.
- \* Retrograde Intussusception of Jejunum through Stoma of Gastrojejunostomy. R. Warren.—p. 615.

**Cardiac Massage and Resuscitation.**—Cardiac massage is regarded by Norbury as a very important adjunct to the methods of resuscitation, applicable in cases of heart failure during surgical operations, as also in certain other conditions mentioned. With stoppage of the heart during the performance of an abdominal operation no time should be lost before starting subdiaphragmatic massage, and valuable time should not be wasted in the administration of drugs. Artificial respiration and cardiac massage should be carried out simultaneously. In such circumstances a very few compressions will usually reestablish the heart beat. If heart massage be contemplated, it should be commenced certainly within five minutes of cardiac arrest. Norbury resorts to massage after giving other methods a trial of only two minutes. It may be necessary to continue rhythmical compression of the heart for several minutes before spontaneous contractions occur. In temporarily successful case, the heart was massaged for thirty minutes before it could be made to beat; previous to this ordinary measures had been tried ineffectively for forty-five minutes. Norbury is convinced that the subdiaphragmatic route is undoubtedly the most satisfactory of the various methods of access to the heart for purposes of massage. Artificial respiration should be commenced as soon as normal breathing has ceased, and should be persevered with until spontaneous breathing is reestablished. In obstinate cases, Norbury says, means should be adopted for raising the blood pressure, either by pressure on the abdominal aorta, bandaging the extremities, or the application of Crile's pneumatic suit, if this be at hand. Intravenous infusion of weak solutions of epinephrin in physiologic sodium chlorid solution is also very efficacious, and this is especially applicable in cases where intravenous infusion with physiologic sodium chlorid solution has already been started before the heart stopped, when epinephrin can be added to the solution quickly. In cases where an intravenous infusion is not being already carried out this may be done by using the internal saphenous vein, since the arms will be wanted for performing artificial respiration, or, as an alternative, the common carotid artery may be exposed in the neck, and a weak solution of epinephrin in physiologic sodium chlorid solution be injected forcibly toward the heart by means of a syringe with a fine needle attached. Injection of epinephrin solution into the heart cavities or wall is liable to set up fibrillary twitchings, and is of no use as a means of restoring normal cardiac contractions.

**Antimony in Filariasis.**—Rogers reports on the use of sodium antimonyl tartrate, 1:50 solution, in cases of filariasis. So far as his observations have gone all that can be said at present is that repeated intravenous injections of safe doses of sodium antimonyl tartrate appears to produce a definite diminution of the number of filarial embryos in the peripheral blood, which is probably due to a direct toxic effect on the embryos in view of the great decrease in the activity of their movements observed just prior to a rapid diminution in their numbers. Whether the treatment has any effect on the adult worms in the lymphatics or on the symptoms of the disease remains undecided, but the data so far obtained are sufficiently encouraging to make it advisable to continue the observations.

**Conjugal Tuberculosis.**—Out of 156 cases in which the mate of a tuberculous husband or wife was examined by Ward,<sup>99</sup> persons were found to be tuberculous, 16 suspect and 19 negative. Considering solely wives whose husbands were first notified, out of 120 cases 66 were tuberculous, 12 suspect and 42 negative. While among husbands of tuberculous wives, in 36 cases, 25 were tuberculous, 4 suspect and 7 negative. These figures have been collected over a period of five years. In 15 cases the tuberculous mate first notified has died, and in 7 cases both husband and wife have died of tuberculosis. After following up cases of conjugal tuberculosis for some years Ward takes the view that the great majority of the mates of tuberculous husbands or wives do sooner or later show signs or develop symptoms of tuberculosis; but that the great majority of those infected recover, and make a speedier recovery than most tuberculous patients. This may reasonably be attributed to an enhanced immunity conferred by the graduated doses of bacilli which they usually receive.

**Pfeiffer's Bacillus in Influenza.**—The investigation made by Wilson comprises the examination of forty-three separate specimens of blood. Ten of the specimens were from cases that were definitely not influenza, but included such conditions as vaccinia, mumps, bronchitis, etc. In all of these no agglutinins for the *B. Influenzae* were found. The remaining thirty-three cases were typical examples of influenza of a severe type and all of the patients were suffering from or were convalescing from bronchopneumonia at the date of the examination. Of the thirty-three the blood serum of eleven showed distinctly the presence of agglutinins for Pfeiffer's bacillus. The important point was that the positive cases still manifested elevation of temperature, while those that were negative had been afebrile for periods varying from six to thirty-two days. The study of three cases showed that the agglutinins very rapidly disappear from the blood when the patient becomes convalescent.

**Bronchopneumococci in Egypt.**—Of twenty-two persons who spat bloody expectoration, Farah found the condition in six due to bronchial pneumococci, in twelve to tubercle bacilli in two to *B. Pfeiffer*, and in two to bronchomonilliasis. The majority were more or less chronic coughers. In one case the disease was of four years' standing. Practically all the cases of bronchopneumococci were taken for phthisis. Examination of the sputum revealed total absence of tubercle bacilli but the specimens were swarming with bronchial pneumococci of varying shapes. In no one case was the tubercle bacillus found in association. Besides hygienic and other measures in the treatment of these patients, arsenic was used with satisfactory results.

**Foreign Bodies in Esophagus.**—Of thirty-seven cases of coins in the air passage, collected by Moore during a period of nearly a century (from 1819 to 1915), twenty-two were impacted in the larynx, three were in the trachea, nine in the right bronchus, one in the left bronchus, while the remaining two were stated to be in a bronchus (in which lung was not stated). Seventeen were coughed up (eight assisted by insertion), and two were coughed up into the mouth, swallowed, and later evacuated per anum. Death occurred in only four cases—from pulmonary tuberculosis, in three cases and apoplexy in one case. Thyrotomy was performed in one case, laryngotomy in two cases and laryngotracheotomy in three cases (in one of these cases the coin was coughed

up, swallowed, and later evacuated per anum). Laryngeal forceps were used in six cases, no attempts at removal were made in two cases; peroral endoscopy was employed with success in three cases. The longest sojourn of a coin in the larynx was six years and in the bronchi ten years. The remote effects of the sojourn of coins in the respiratory tract were rarely associated with death. Only four deaths in thirty-seven cases is a small number compared with the deaths reported as resulting from the impaction of coins in the food passages. The inaccessibility of the respiratory passages to the coincatcher, bougie and probang, and their consequent safety from the rough treatment generally meted out to the esophagus, in Moore's opinion, appear to be the chief reason of these happy results.

**Retrograde Intussusception of Jejunum Through Stoma of Gastrojejunostomy.**—For thirteen years after gastrojejunostomy Warren's patient remained well. One year ago he began to have abdominal pain after meals and vomiting, which relieved the pain. There were intervals of remission of these symptoms of as much as a month. Two days before Warren saw him he had a worse attack of pain, associated with hematemesis, which continued. An emergency laparotomy was done. A few adhesions of the transverse colon to the abdominal wall were separated, the stomach and pylorus appeared normal in front. Turning up the stomach to examine the stoma, the distal loop of the jejunum coming from the stoma was found to be turgid and purple for 8 inches, at which point the entrance of a retrograde intussusception was found. The intussusception passed up the turgid distal jejunal limb, its apex projecting about 3 inches into the stomach through the stoma. The intussusception was reduced without great difficulty, and had started apparently about a foot below the stoma. The reduced gut was very edematous and purple, but at no point could any thickening suggestive of ulceration be felt. The gut appeared to be viable. The abdomen was closed. The duration of the operation was twenty minutes. After a slight brown vomit the next day the patient improved till the seventh day, when respiration became rapid, and he began to bring up offensive sputum, and finally died on the tenth day. The lungs were in a condition of severe bronchopneumonia with many abscesses; the abdomen, except for slight plastic peritonitis about the site of intussusception and remains of bruising of the intestine, was normal. The gastro-enterostomy as seen at operation proved to be in excellent order, of good size, and well planned. The reason of the retrograde intussusception and its relation to the late dyspepsia and vomiting does not appear certain.

### Practitioner, London

October, 1919, 103, No. 4

Orthopedic Surgery: A Review. A. H. Tubby.—p. 241.

Medical Notes. T. Horder.—p. 248.

Alkalis in Anesthesia; their Use and Abuse. G. A. H. Barton.

—p. 253.

Nine Hundred Abdominal Sections. K. A. Lees.—p. 263.

Interpretation of Headache, with Special Reference to that of Nasal

Origin. W. Wilson.—p. 274.

Cure of Various Forms of Headache and "Faceache" by Electrical

Methods. F. Hermann-Johnson.—p. 277.

Skin Conditions seen in Egyptian Expeditionary Force. H. Davis.

—p. 306.

Case of Retinal Detachment of Doubtful Origin. I. Taylor.—p. 310.

Value of Syphonage Method in Treatment of Severe Injury of Bladder. H. C. Orrin.—p. 312.

### Archives des Maladies du Cœur, etc., Paris

July, 1919, 12, No. 7

\*Mechanism of Paroxysmal Tachycardia. G. Galli.—p. 289.

The Blood Pressure Warnings in Aviators. G. Ferry.—p. 304.

The Sphygmogram of the Pulmonary Artery. N. Betshov.—p. 313.

**Paroxysmal Tachycardia.**—Galli relates that in taking several hundred tracings of the heart action he has several times happened on the very instant when a paroxysm of tachycardia began and when it stopped. He analyzes the mechanism as he has thus caught it at work, and compares his findings with the various theories in vogue. They seem to confirm the assumption that the cause may be in some cases merely a functional nervous disturbance traceable to endocrine influences. The prognosis is naturally more favorable than in the cases of intracardiac origin.

**Archives de Médecine des Enfants, Paris**

October, 1919, 22, No. 10

- \*Plastic Peritonitis. L. Morquio.—p. 505.
- "Injectable Turpentine" (Colloïdase) in Treatment of Influenza in Children. Taillez.—p. 527.
- \*Serotherapy of Purulent Pleurisy in Infants. P. Nobécourt and J. Paraf.—p. 539.
- Case of Periodical Vomiting with Acetonemia. M. A. Vassiliou.—p. 543.
- Aplastic Anemia in Children. J. Comby.—p. 545.

**Plastic Peritonitis.**—Morquio has encountered at Montevideo four cases in which a child developed acute peritonitis, and a certain region in the abdomen swelled and became painful. Instead of the anticipated suppuration, however, the hard tumor and the pain subsided, and another patch developed at some other point. The disease progresses by waves in this way, but spontaneously subsides at last by the end of the third month, and the children seemed to be healthy when examined up to ten years later. The ages ranged from 3 to 13. In one case an operation was done for the assumed appendicitis but the appendix seemed to be normal. In another child, infection from the genitals seemed probable; in another the process started in the sigmoid region. But in all the peritoneal picture was the same. The complete and permanent recovery excludes tuberculosis.

**Serotherapy of Purulent Pleurisy in Infants.**—The three cases reported by Nobécourt and Paraf, in infants 2, 4 and 5 months old, testify to the excellent results from antipneumococcus serum in bronchopneumonia complicated with purulent pleurisy. The pneumococcus of type II was cultivated from the pleural effusion and from the nose and throat secretions. The treatment included also hot baths, cool moist packs of the thorax, injections of camphorated oil and inhalation of medicated oxygen. The antiserum was injected into the pleura after evacuation of the purulent fluid, and into the lung, in doses of 5 or 10 c.c. and 3 c.c. respectively. One of the children was injected with it also by the vein. The injections were kept up for three to five days, and a total of 30 c.c. in two and of 60 c.c. in the third case was thus used. Unmistakable improvement followed the serotherapy, and the infants all recovered from their pneumococcus infection.

**Archives Mens. d'Obstétrique et de Gynécologie, Paris**

June, 1919, 8, No. 6

- The Hemostatic Apparatus of the Human Uterus. Keiffer.—p. 305.
- \*Twin Tubal Pregnancy in One Tube. Hardouin.—p. 331.
- \*Painless Delivery. Metzger.—p. 342.
- \*The Puericulture School.—p. 359.

**Unitubal Twin Pregnancy.**—Hardouin adds another to the thirty-six cases he has found on record in which two fetuses were found in the ruptured tube. He gives summaries of the entire number, and remarks that as only two fatal operative cases have been reported the total is probably larger, other unfavorable cases not having been published.

**Painless Delivery.**—Metzger gives nearly four pages of bibliography, set solid, dealing with painless delivery, and states that every one of the technics described for the purpose still represent some risk for the mother and for the child. Whatever the procedure or the substance, all agree that the parturient should be under the constant surveillance of a specialist. This being so, he adds, it is not to be wondered at that the more recent publications still extol ether or chloroform which, under good supervision, are no more dangerous perhaps than the newer methods.

**The Puericulture School.**—This new institution is a French-American foundation connected with the Paris Medical Faculty, but it is independent and autonomous. Its statutes are reproduced here with other details of the work. It is designed to develop and coordinate the teaching of puericulture to physicians, students, midwives and nurses; to create a permanent movement for the propaganda of child welfare work of all kinds; and to make appropriations for every form of scientific research tending to improve the hygiene for mothers and for children. The foundation is managed by a council of from fifty to seventy members appointed by the general assembly of the Association. To be a member of the Association one's name must be pre-

sent by two members, and be accepted by the council, and an annual subscription of \$4 paid. The "benefactor" members pay \$20, and the charter members \$100, at least.

**Journal de Médecine de Bordeaux**

Sept. 25, 1919, 90, No. 18

- Delousing Stations. Mandoul.—p. 375.
- Clinical Diagnosis of Simple Traumatic Lesions of the Wrist. G. Chevalier.—p. 378.
- \*Scapulalgia. H. L. Rocher.—p. 380.
- Organization of Spa System. (Stations hydro-minérales.) Cornet.—p. 383.
- \*Medical Impressions of the United States. Béguin and Piqué.—p. 390. Cont'n.

**Scapulalgia.**—Rocher here reports two new cases of osteoarthritis of the humerus inducing severe pain in the scapula region. He remarks that certain environments and certain seasons of the year render nonsurgical measures practically impossible, while local injections to modify the tuberculous process sometimes actually whip up the process. In these and in his five other cases of scapulalgia a complete cure was finally realized by resection and immobilization. In all, the tuberculous lesion was in the head of the humerus. Some were of the white swelling type and others were dry caries.

**Impressions of the United States.**—Drs. Béguin and Piqué were the official delegates, with Dr. Lemaitre, from France at the Victory Meeting of the A. M. A. and they here review their impressions of this meeting and of their trip afterwards through the country. They express regret that France was represented by only three delegates when even Belgium sent five and Great Britain thirty. They add that they tried to make up in activity for their small numbers, "we multiplied ourselves, taking part in all the ceremonies and meetings and presenting, each, one or more communications." They describe the Victory Meeting and also the university system here in general and in detail, the research institutes, etc., and relate that they were shown a piece of connective tissue which has been kept alive in an artificial medium for seven years in Carrel's laboratory. Every second day the edges are resected. They mention that at the Johns Hopkins "a reading knowledge of French and German is one of the requirements for admission, and the examinations are severe. Farther along the examining boards are more lenient!" . . . "Each of the forty-eight states of the Union mistrusts its neighbor, and a physician admitted to practice in one state cannot practice in a neighbor state until he has passed a new examination. . . . In the United States—so modern from so many points of view—there are still custom house barriers for science."

**Journal de Radiologie et d'Electrologie, Paris**

September, 1919, 2, No. 8

- The Coolidge Tube. J. S. Shearer.—p. 337. To be continued.
- \*Clinical Radiology of Base of Tuberculous Lung. F. Barjon and Longy.—p. 346.
- \*Fluoroscopy Simultaneously in Two Planes. H. C. Gage.—p. 356.
- Absorption of Secondary Rays in Radiography. Dulhen.—p. 359.
- Radiography in a Case of Stenosis of the Ileum. I. Nahau.—p. 363.
- Destruction of Large Part of Scapula by an Aneurysm. A. Laquerrière.—p. 365.
- The Physical Laws of the Infinitely Small. H. Guilleminot.—p. 366.
- Radio-surgical Table. Rechou.—p. 370.

**Radiologic Findings at the Base of Tuberculous Lung.**—Barjon and Longy analyze the findings at the base as a guide for the production of artificial pneumothorax. The research on eleven patients with chronic tuberculosis was confirmed by necropsy, and the details of each case are given. They demonstrate that any modification of the shape and of the shadow cast by a costophrenic sinus must be accepted as testifying to symphysis. There may also be adhesion without any appreciable abnormal findings in the sinus. The existence of symphysis does not necessarily hamper materially the play of the diaphragm. It may modify the amplitude of the excursions of the diaphragm, but the respiratory amplitude of the diaphragm is determined almost entirely by the respiratory capacity of the tuberculous lung. The radiologic examination of the sinus on each side disclosed abnormal findings in only six of the total twenty-two,

but necropsy showed symphysis in seven others also. In every case of symphysis the amplitude was reduced somewhat on that side but the adhesions were responsible for this only secondarily.

**Fluoroscopy Simultaneously in Two Planes.**—Gage is the consulting radiologist at an American Red Cross hospital at Paris. The method he describes, with illustrations, by which the part can be inspected in the screen from two sides at once, is particularly useful in the reduction of fractures.

### Journal d'Urologie, Paris

September, 1919, 8, No. 3

- \*Hydronephrosis of Displaced Kidney. Rafin. p. 121.
- \*Electric Destruction of Ureter Papillomas. G. Marion.—p. 129.
- History and Future of Cystoscopy. A. Grandjean.—p. 135.
- War Wounds of Pelvic Urethra. V. Richter.—p. 145.
- \*Calculated Cyst in Epididymis. F. Marsan.—p. 157.
- \*Pararectal Hydatid Cyst. V. Planson.—p. 165.
- \*Microscopic Examination in Urologic Practice. M. Vivier.—p. 169.
- Surgical Treatment of Gonorrheal Epididymitis. L. Moreau.—p. 187.
- Progress to Hold Catheters. G. Almon.—p. 191.
- Massage Instrument for the Prostate. Id.—p. 192.
- Nonpenetrating Toothed Forceps. Id.—p. 192.

**Hydronephrosis of Movable Kidney.**—The kidney had sagged into the pelvis and had developed hydronephrosis which had become infected after a war wound of the knee. A catheter had been introduced into the sagging kidney and water introduced through it into the kidney induced the pain of distention of the kidney pelvis while water introduced into the bladder induced merely a desire for micturition. Recovery was soon complete after the nephrectomy although the latter had been complicated by a threatening hemorrhage. This and Kumpel's case, Rafin adds, are the only ones in which the correct diagnosis had been made before the operation.

**Papillomas in the Ureters.**—Marion is enthusiastic over his success in destroying with the electric current a polyp in the ureter in two cases. The electrode is a little narrower than that used for polyps in the bladder, but otherwise the technic is the same after the lesion has been located with the ureter catheter. A papilloma in the ureter should be suspected when a polyp is found in the bladder near the ureter mouth, in case of hematuria. Also when the ureter catheter releases suddenly a gush of bloody urine, or the catheter is arrested at some unusual point. His two patients were 64 and 76, and both had polyps in the bladder. The hematuria continued after they had been destroyed with the electric current, and the bleeding polyp was located by the arrest of the catheter when introduced to a depth of 5 cm. With a not very strong current he applied the *étincelage* for some time, moving the electrode about all the time but keeping it in the lower portion of the ureter. The pain was no more severe than during destruction of bladder polyps. In the younger woman the success was compromised by polyps in the kidney pelvis which compelled nephrectomy later.

**Calculated Cyst in Epididymis.**—Marsan reviews the history of epididymis cysts, and describes the case of a man who from childhood had had a bilateral tumor of the epididymis. It had never caused any trouble until at 52 sudden pain developed in the right hard tumor, and malignant disease seemed probable. The operation revealed calcification of the entire wall of the old cyst. The location and features of the cysts suggest that they had developed from embryonal relics of the wolffian body.

**Microscopic Study of Urologic Cases.**—Vivier gives two colored plates and nine photomicrographs in the text to illustrate the typical findings and their interpretation with disease of the urinary apparatus. Some of the photomicrographs show the findings in the same patient during the course of treatment.

### Paris Médical

Sept. 27, 1919, 9, No. 39

- \*Indications for Prostatectomy. E. Michon.—p. 237.
- \*Partial Paralysis of Abdominal Wall. H. Roger.—p. 239.
- \*Lessened Resisting Powers of the Bronchi. H. Flurin.—p. 243.
- \*Meningeal Complications of Influenza. G. Schreiber.—p. 246.
- \*Phlorizin in Therapeutics. A. Leclercq.—p. 248.
- Old Fracture of the Semilunar Bone. P. Japiot.—p. 250.

**Indications for Prostatectomy.**—Michon remarks that the renal filter is almost invariably more or less impaired by the time a *prostatique* reaches the surgeon. It is therefore extremely important to determine the extent of this impairment before the prostatectomy, as otherwise the postoperative azotemia common to all operations, superposed on a preceding high azotemia, may have disastrous effects. On the other hand, if the azotemia is induced or aggravated only by causes which the prostatectomy in itself will do away with, then even a high azotemia figure indicates merely that the prostatectomy had better be done at two sittings. Much graver is high azotemia when there is no retention or fever to explain it. Ambard's formula is instructive here, especially in the intermediate cases with the urea content of the blood between 0.70 or 0.90. The Ambard coefficient then will reveal whether the outlook is grave or not, and will enable us to seize the least unfavorable moment for the intervention.

**Partial Paralysis of the Abdominal Wall.**—Roger gives an illustration of a case of war wound of lumbar nerves which had entailed paralysis of part of the abdominal wall. The wall in this region had lost its elasticity and stretched, protruding like a woman's breast. No benefit has been realized in such cases from muscular exercise or electric treatment, and an abdominal band has to be worn, or the skin drawn up with quilted silk sutures.

**Debility of the Bronchi.**—Flurin ascribes to a local lack of vitality the inadequate resistance of the bronchi to infection in some persons. Ordinary saprophytes are able to set up infectious processes with this dystrophy of the respiratory "tree," and this opens the portals for disease in nose and throat. The *syndrome de débilité bronchique* is characterized by signs revealing the hyperesthesia of the mucosa, the unstable circulation and the special secretory response to any causes liable to stimulate secretion in the mucus glands. These signs may be detected even before the bronchial process has developed, so that it can be warded off by proper treatment.

**Meningeal Complications of Influenza.**—Schreiber comments on the fact that no one has published cases of purulent pneumococcus meningitis in the course of influenza, to his knowledge. Capitan has reported the discovery of pneumococci in the false membranes in the space around the optic chiasm, but the cerebrospinal fluid even in these cases was clear and sterile. In Rosenthal's two cases of alleged influenza meningitis the fluid was opaline rather than purulent. Netter found a distinct cellular reaction in the spinal fluid in his three cases of influenza serous meningitis, with recovery of two of the three patients. In his own experience, Schreiber encountered only one case of serous meningitis and the young soldier recovered after lumbar puncture. There were 20 or 30 lymphocytes in each field. From 8 to 10 is said by some to be a common finding in influenza as a transient meningeal reaction, but he saw it in only three cases. Influenza meningitis occurs more frequently. The symptoms suggest meningitis but the fluid keeps normal. Lumbar puncture thus clears up all these cases, and it is interesting to recall the "pseudo-meningitis" of the pandemic of influenza in 1890, which was before the days of lumbar puncture.

**Phlorizin in Therapeutics.**—Leclercq calls attention to the excellent results he has obtained with phlorizin in treatment of dyspnea, cardiorenal disease and the acidosis of diabetes. It acts where other diuretics fail. He used ampules of 0.005 or 0.01 gm. of the phlorizin dissolved in a 2.5 per cent. solution of sodium carbonate; 1 c.c. of this solution dissolves 0.005 gm. of the phlorizin. Intervals of four or five days between the injections seem the preferable technic. Two hours after the injection there is an output of sugar which keeps at about 8 gm. for four hours at most. He never found any sugar by the twelfth hour. The diuresis increases during the first few days up to the eighth day, then remains stationary, and begins to go down the ninth and the tenth days. There is no freshet, as after theobromin and digitalis, but it aids in the throwing off of the substances from which

urea is derived, and thus seems to act effectually in combating nitrogen intoxication. Dietetic restrictions, repose, sodium bicarbonate and four injections of phlorizin in the course of seven days banished the acidosis in a case of lean diabetes with the Gerhard reaction intense. Under this treatment 4 liters of urine were voided daily as the acidosis subsided, with 58 gm. of sugar.

### Presse Médicale, Paris

Sept. 18, 1919, 27, No. 52

- \*Etiology of Appendicitis. A. Riff.—p. 512.  
The Albumin Reaction in the Sputum. M. Salomon.—p. 523  
Oct. 1, 1919, 27, No. 55
- \*Serotherapy of Hemorrhage. II. Dufour and V. Le Hello.—p. 553.  
Abortive Treatment of Syphilis. L. Fournier and Guenet.—p. 554.  
Abscess in Breast with Inverted Nipple. J. Duverger.—p. 555.  
Pleural Spirochosis in Traumatic Hemothorax. E. Lancereaux.—p. 556.

**Etiology of Appendicitis.**—Riff declares that no evidence has been presented yet that disproves Letulle's assertion that appendicitis is always of intestinal and never of blood-borne origin, or the assumption that the primary lesion is some breach in the epithelial lining of the appendix. The oxyuris has been incriminated in the making of these primary breaches in the epithelium, as we know that this helminth finds a snug lurking place in the appendix. Riff found the oxyuris in the appendix in 48 per cent. of 152 operative cases at Strasbourg. In one appendix he counted 147 males and 50 females; in another 58 males and 201 females, and in a third there were over 400. In a recent series of 63 cases in children under 15, at Paris, the oxyuris was found in the appendix in 80 per cent. These findings convinced him of the causal role of the oxyuris, and this explains the immunity of young infants, the prevalence of the disease among the young, and its frequent familial occurrence. The discovery of the oxyuris may turn the scale in diagnosis in dubious cases, and if we finally learn how to expel the oxyuris we may hope to reduce the prevalence of appendicitis.

**Seric-Serum for Controlling Hemorrhage.**—Dufour and Le Hello noted that an anaphylactic reaction in a patient with hemorrhagic purpura seemed to modify the blood in such a way that the tendency to hemorrhage was arrested. This suggested that a therapeutic anaphylaxis might be induced which would arrest hemorrhages impossible to control by other means. They selected for this the method of passive anaphylaxis induced by injection of a small amount of serum from a rabbit in a state of anaphylaxis. They injected the rabbits several times at regular intervals with small doses of diphtheria antitoxin by the vein. They are bled the twenty-first day after the first injection, and their serum injected into guinea-pigs sensitizes the latter immediately, and induces manifest hypercoagulability. Injected subcutaneously in human beings, it almost immediately induces hypercoagulability and has thus arrested hemorrhage in numerous cases. Normal rabbit serum does not seem to modify the coagulation of the blood in man. A number of cases are described in which this seric-serum against hemorrhage, as they call it, arrested grave hemophilic and other postoperative hemorrhages, severe recurring uterine hemorrhage in a young woman, and fulminating epistaxis. They declare that nothing to compare with this prompt arrest of the tendency to hemorrhage has ever been realized with other measures. The seric-serum was injected in the dose of 10 c.c. and the effect was evident in about four hours, one hour or two hours in the different cases. In none of the cases were more than two injections needed.

### Revue Mens. de Gynécologie et d'Obstétrique, Paris

July, 1919, 14, No. 7

- \*Radium Treatment in Gynecology. E. Rouffart.—p. 241.  
\*Diagnosis of Impending Phlebitis. S. Remy.—p. 255.  
\*Embryotomy. J. Duque de Estrada.—p. 260.

**Radium Treatment in Gynecology.**—Rouffart here reviews the ultimate outcome in cases of gynecologic disease in which radium treatment had been applied five years ago. He mentions parenthetically the ever increasing numbers of uterine cancers encountered during the years of war. He says that

operative measures are preferable to radium treatment, but the latter is a useful adjuvant and in inoperable cases may induce long survival, as also after a palliative operation. The cancer heals over and the patient seems reborn, but after an interval of from one to four years the malignant disease reappears and radium then does not modify it. The postoperative exposures to radium do not cause any complications, but he reports a case of rapidly developing cancer in a woman of 27 which was treated with radium in three exposures and then the uterus was removed. The woman returned a month later with a gangrenous patch in the floor of the bladder, and she is still wearing a urinal, but there has been no return of the cancer during the five and a half years since. This is the only grave accident that has occurred from radium in his practice. The case teaches the necessity for extreme caution when radium is applied preliminary to an operation. This has the further disadvantage that it toughens the tissues and renders the operation harder. A palliative operation followed by radium exposures is much better.

In conclusion he expatiates on the efficacy of radium in arresting hemorrhages from uterine fibromas. In his fifty cases of the kind the promptest results were obtained when the tumor in the small pelvis did not reach higher than two or three fingerbreaths above the pubis, but equally good results were obtained with tumors extending to or beyond the umbilicus, only this took more time. By gaging the doses, the hemorrhages can be arrested without bringing on the artificial menopause, but the hemorrhages may recur eight or ten months later, requiring renewed radium treatment. Then the menopause sets in and the fibroma becomes reduced in size as a rule.

**Menace of Phlebitis.**—Remy advises absolute bed rest with measures to soothe the inflammation and reduce congestion when a pregnant woman or a parturient develops symptoms suggesting impending phlebitis. This proved all that was necessary in a case reported in which there was a history of phlegmatia alba dolens after the second of the five pregnancies. Remy denounces the idea of interrupting the pregnancy from fear of impending phlebitis.

**Embryotomy.**—Duque de Estrada writes from Mexico to extol the advantages of the embryotomy of which he gives an illustrated description. The metal conductor is 37 cm. long and curves. An elastic steel spring with a ball at the tip passes through the conductor and coils in concentric circles when forced out of the tip of the conductor. To the other end of the steel spring is fastened the strong chain to do the cutting; no saw is necessary. The ball-tipped spring glides along the body of the fetus from axilla to axilla or at the neck, and appears in the vagina. Pulling on the spring draws the Chassaignac chain into its place and the embryotomy can be completed without the slightest injury of the uterus.

### Revue Neurologique, Paris

July, 1919, 26, No. 7

- (Congenital Intraosseous Cyst. K. H. Kridde (Copenhagen).—p. 561.  
\*The Strümpell Phenomenon. Noea (Bucharest).—p. 567.  
\*Case of Gitanism with Acromegaly and Marie Depressive Psychosis. C. I. Parhon and A. Stocker (Jassy).—p. 573.

**The Strümpell Phenomenon.**—Noea remarks that in normal subjects, and especially in the young, there are movements in the other leg, when one leg is flexed on the thigh, which resemble the movements in Strümpell's phenomenon. In healthy persons the movements are not elicited unless some effort has to be made to overcome resistance, as when a hand is placed lightly on the subject's knee. He explains how this and other facts observed confirm the assumption that the Strümpell phenomenon is a normal associated movement but modified by the loss of the motility of the paralyzed extensors, while the motility of the tibialis anticus has been retained. The infant learns to make associated movements before it can make isolated movements. A man recovering from motor aphasia may be able to pronounce a certain word which he is unable to pronounce the letters separately that form the word. A lesion in the pyramidal tract partially suppresses voluntary control of movements and especially of isolated

movements, carrying us back as it were, to that early stage of our evolution in which only associated movements were possible.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 11, 1919, 49, No. 37

- \*The Danger of Giving Surgery. G. Hotz.—p. 1369.  
 \*Anatomical Aspects of Ascites. A. Schnyder.—p. 1371.  
 \*Early Recognition of Infection in Patients with Peritonitis. J. J. Bock.—p. 1381.  
 \*The Swallowing Reflex Elicited from the Eye. W. F. Schnyder.—p. 1388.  
 \*Sources of Error in Determination of a Low of Ph. L. Capriles. J. A. A. G. —p. 1393.

**Practical Training in Surgery.** Hotz has discarded the old system of giving lectures on surgery over the cadaver, and has introduced the system of teaching the students from the patient as the operation is being done. This throws a great burden of responsibility on the teacher, but the gain for the students is immeasurable. The students are separated into small groups and one serves as first and one as second assistant, while others have charge of the anesthetic and the instruments. Early in the term they are taught about anesthesia, dressings, surgical technic and all that will be called on for the operations. Just before the operation each group is instructed in the theoretical data and in the anatomy of the region, and pictures of it are inspected. Each group gathers around an operating table with the professor, the adjunct professor or an experienced assistant. These do the operation but in mild cases they may give the knife to a student and take his place as assistant. The rule is that from the first washing of the patient until he is put back to bed, the medical students do everything that is done, all of course under strict and constant supervision by the surgeon and the nurse.

**Subcutaneous or Retroperitoneal Drainage for Ascites.**—Schnyder reports the later outcome in the case of ascites in which Tavel drained the fluid into the subcutaneous tissue in 1910, using a glass spool to hold the communication open. No other case is on record of long permanent success. These operations have been done otherwise only to relieve ascites from cirrhosis of the liver. In Tavel's case the ascites was of the premenstrual type in a young girl. The fluid thus artificially drained into the subcutaneous tissue formed large cysts in the groins which sagged down on the thighs. These water bags were finally resected in 1918. The diversion of the ascitic fluid had remarkably improved the general health, but the symptomatic benefit was counterbalanced by the deformity resulting from the passive edema of the subcutaneous tissue and the proliferation of connective tissue in the interstices, this proliferation further impeding absorption. Conditions in the retroperitoneal and lumbar tissues are more or less favorable for absorption, as he explains, pointing out further that the fluid might work its way from here down over the leg, thus obtaining a very large area for absorption. The glass device for draining was cast off as a former drain in Tavel's case. Fish bladders and rubber tubes are liable to this same drawback, but calf aorta treated with formaldehyd seems to answer the purpose perfectly. The coils in place and become organized without becoming contracted. Possibly, merely a large hole in the retroperitoneum might answer the purpose without an actual drain. He notes the conditions in an old drainage of ascites, and gives the description of Tavel's case before and after the removal of the water, which was rubricous eight years after the removal of the drain.

**The Swallowing Reflex from the Cornea.**—Schnyder was unable to demonstrate that a swallowing reflex could be induced by irritation of the cornea, or that if it occurred it indicated a general excitation of the paracra.

### Annali d'Igiene, Rome

May 11, 1919, 29, No. 5

- \*The Danger of Water. G. L. in Thrombom. F. B. B. —p. 129.  
 \*Average Weights of Italian Soldiers and the Doctors. C. M. Belli.—p. 127.  
 \*Synthesis of Influenza Bacteria in Pathologic Products and in Cultures. M. Carpani.—p. 129.  
 \*Dermatogenous Diseases. H. A. S. —p. 126. Contin.

- The Venereal Peril after the War. V. Montesano.—p. 302.  
 \*Compulsory Registration of Infectious Diseases. G. Pecori.—p. 329.  
 \*Bacteriologic Diagnosis of Diphtheria. G. Sampietro.—p. 341.  
 \*Cold Storage and Frozen Meats. A. Scala.—p. 345.

**Food in Wartime.**—Both Rho's and Belli's articles were read at the Inter-Allied Sanitary Conference held at Paris last March. Belli's statistics include 4,418 sailors weighed after their sixth and eighteenth months in the service. The average weight was below 60 kg., and they all except 7.9 per cent had gained in weight. This is accepted as evidence that the diet represented adequate amounts of calories although the ration averaged only 2,800 or 2,900 calories.

**Vitality of the Influenza Bacillus.**—Carpano's experiments show that the influenza bacillus may long survive in a moist medium, even up to three months. When desiccated it dies in about four days. In sputum, effusions, and blood in the test tube it dies in about twenty days. Horse serum and hemoglobin-serum-agar offer the most favorable conditions for its survival of all the mediums tested. The most favorable temperature for its conservation is between 32 and 37 C.

**Deficiency Diseases.**—Scala presents the present status of our knowledge of the probable causes of beriberi, pellagra and other of the so-called deficiency diseases, and emphasizes the importance from this standpoint of the mineral elements in the food. Deductions from experiments in this line have not been conclusive to date as they have not reproduced natural conditions.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Aug. 14, 1919, 10, No. 65

- \*Effect of Paracresol and Indol on the Circulation. B. Vasoini.—p. 673.  
 Aug. 24, 1919, 10, No. 68  
 Clinical Notes on 10,921 Native Patients at Dispensary in Northern Africa. F. Mazzone.—p. 710.  
 Aug. 28, 1919, 40, No. 69  
 Postoperative Treatment and Complications of War Wounds of the Brain. A. de Castro.—p. 723.  
 Aug. 31, 1919, 10, No. 70  
 Principles for Treatment of Bone and Joint Lesions as Learned from War Surgery. M. Passano.—p. 731.

**Effect of Paracresol and Indol on the Circulation.**—Vasoini's experiments on cats and rabbits have apparently established that indol and paracresol have a vasoconstricting action. Paracresol induced in the animals an abrupt and pronounced drop in the blood pressure, and both this and indol reduce both the systolic and the diastolic excursions of the isolated heart.

Sept. 11, 1919, 10, No. 73

- \*Case of Chorea of Esophagus and Stomach. G. Ceresole.—p. 770.

**Chorea of Esophagus and Stomach.**—The young man whose case is described by Ceresole was of a weakly, nervous constitution and the contrast meal showed that the esophagus was the site of irregular choric movements changing about from point to point, peristalsis and antiperistalsis occurring irregularly and even together. The stomach showed similar irregular movements, with spastic closure and relaxation of the pylorus and the cardia. While these motor convulsions were going on in the esophagus and stomach, the abdomen seemed to be entirely at peace and the movements of the diaphragm were regular and normal. This localized chorea dated from childhood, and did not cause pain or vomiting or materially impair the general health.

### Riforma Medica, Naples

Sept. 13, 1919, 33, No. 37

- \*Multiple Endocrine Disturbances. V. L. —p. 778.  
 \*Agglutination Test in Diagnosis of Typhus. A. Montefusco.—p. 782.  
 \*Colon Bacillus Infection of the Eye. I. Betti.—p. 784.  
 \*Mammectomy for Cancer. N. Federici.—p. 786.  
 \*Varicos on the Legs. E. Avevoli.—p. 786.

**Multiple Endocrine Disturbances.**—Fili entitles his article "Sindrome pluriglandular," as the woman of 33 presented unmistakable evidences of deficient functioning of the suprarenals, pituitary body and ovary, along with status lymphaticus, and the spleen was much enlarged. None of the symptoms was pronounced enough to classify the case as one of Addison's disease, etc., but the combination of the

whole was grave and proved fatal in about seven years. She ascribed the beginning of her disturbances to sorrow over the loss of her child. The severe headaches and the rebellious eczema of the legs were evidently traceable to the pituitary and the endocrine anomalies. There was no reaction to injections of pituitary, ovary or thyroid, and only slight to epinephrin, but there was a good reaction to atropin and also a partial reaction to pilocarpin (no sweating); none to tuberculin. The tendency to vomiting, diarrhea and chronic bronchitis of the asthma type suggested vagotomy.

**Agglutination in Typhus.**—Montefusco remarks that during the present small epidemic of typhus at Naples, many physicians recognized the disease who had never seen typhus before, but the differential diagnosis is difficult in the first sporadic cases—the most important for prophylaxis. Agglutination of *Proteus X* occurred constantly—1:50 to 1:800—in the 100 cases of typhus in his experience, with a single exception. The reaction disappears completely during convalescence. The test was constantly negative in a large number of patients with acute diseases other than typhus except in one patient with smallpox. The agglutination does not become manifest until the eruption has appeared and by that time the clinical diagnosis is practically certain, but it may be important for a retrospective diagnosis and to detect atypical cases.

**Colon Bacillus Eye Disease.**—Betti reports two cases of panophthalmitis in men of 56 and 38, following a contusion of the eye. In four and two days the anterior chamber was full of pus, the vitreous all pus, and the eyeball had to be removed. Cultivation of the germs in the eye and inoculation of rabbit eyes demonstrated that a highly virulent colon bacillus was responsible. In a third case phlegmonous dacryocystitis developed three years after a contusion of the region which had been followed by recurring catarrhal conditions in the conjunctiva after the first stormy inflammation. The dacryocystitis perforated spontaneously and recovery was soon complete after dacryocystectomy. He cites a few other authors who have reported similar colon bacillus dacryocystitis. The colon bacillus is thus able to induce acute processes in the eye and its annexes, with a destructive course.

**Exenteration Mammectomy.**—Federici applies this term to the technic he has applied in two cases of cancer in its early stages. He cuts a pear-shaped flap encircling the breast, except that the incision skips the distance along the median line. The small end is at the axilla and he turns this flap of skin upward and inward. After excising all morbid tissue, he returns the flap to place and sutures without drainage. The outcome during the few months to date in his cases has been excellent.

**Treatment of Varicose Veins.**—Aievoli calls attention anew to Schiassi's method of injecting an iodine-iodid solution into the vein as a simple and effectual means of combating varices in the legs. He describes it in detail but without illustrations.

#### Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil

June, 1919, 10, No. 6

\*Quartan Malaria in S. Paulo. A. G. Guimarães and Mendonça Cortez—p. 130.  
Infant Feeding. Olindo Chiapparelli—p. 133. *Cont'n.*

**Quartan Malaria in S. Paulo.**—A colored plate shows the microscopic findings in what is supposed to be the first authentic case of quartan malaria published in the state. The plasmodium in question seemed to differ in certain minor respects from the typical malarial parasite.

#### Archivos Brasileiros de Medicina, Rio de Janeiro

May, 1919, 9, No. 5

\*The Pandemic of Influenza in 1918. J. Moreira and others—p. 443.  
\*Brazilian Publications on Influenza. W. de Almeida—p. 435.

**The Pandemic of Influenza.**—This is a special number of the *Archivos*, its 200 pages being devoted to various aspects of the 1918 pandemic especially the experiences at Rio, Juliano Moreira, Murillo de Campos and de Almeida discuss the mental disturbances and the influence of influenza on

mental disease; Ferreira, influenza in infants; Pinto, the prodromes; Balena, postinfluenzal Addison's disease, and Moreira da Fonseca, suprarenal insufficiency in influenza, while others review their experiences.

**Brazilian Bibliography on Influenza.**—De Almeida lists with brief summaries seventy-seven articles, theses or pamphlets that have been published by Brazilian writers on influenza. A review is also given of the suggestions that have appeared in various countries on treatment of influenza.

#### Archivos Españoles de Enf. del Ap. Digestivo, Madrid

August, 1919, 2, No. 8

\*Epileptic Gastric Crises. S. Martínez Gómez—p. 453.  
\*Rebellious Gastric Ulcer with Epigastrie Hernia. C. Ordoñez—p. 458.

**Epileptic Gastric Crises.**—Martínez describes the case of a man of 39, a gardener, apparently robust, who for three years had had attacks of pain in the stomach accompanied by great depression and sometimes by loss of consciousness and convulsions. During the intervals he felt well but said he had always had "a delicate stomach." The pain during the attacks was agonizing at times, and it reappeared each day for three days; then followed a free interval of about three months on an average. By exclusion, the only diagnosis possible seemed that the attacks were a manifestation of tardy epilepsy. In time the gastric symptoms grew less pronounced while the epileptic character of the seizures became unmistakable. No treatment addressed to the stomach had the slightest effect and the ordinary bromids were not borne well by the stomach, but considerable relief was obtained with strontium bromid which seemed to be well tolerated. The intervals grew longer and the seizures less severe. The fetid breath and large amounts of indican in the urine just before the seizures were combated with dieting, laxatives, hexamethylenamin and sodium benzoate by the mouth.

#### Archivos de Ginecopatía, Obstet. y Ped., Barcelona

June, 1919, 32, No. 6

\*Puerperal Psittis. J. Gorostegui—p. 111.  
\*Placenta Praevia plus Eclampsia after Induced Delivery at Eighth Month; Recovery. J. Peláez Brihuega—p. 178.  
\*Case of Intra-Uterine Ichthyosis. Fraets—p. 122.

**Puerperal Psittis.**—Gorostegui gives an illustration of the peculiar attitude of the woman with febrile psittis after a twin pregnancy with great autointoxication and premature delivery at the seventh month. The fever persisted after the uterus had been cleared of putrefying scraps, and there was much pain in the left iliac fossa, with tympanism. The woman held the left leg flexed and in abduction and outward rotation all the time as she lay in bed. An incision above Poupart's ligament where the tumor and the tenderness were most pronounced released a large amount of fetid pus and recovery was soon complete.

#### Brazil-Medico, Rio de Janeiro

Aug. 7, 1919, 33, No. 33

\*Ocular Prostheses. Ilharin de Gouveia—p. 241.  
\*Aug. 9, 1919, 33, No. 34.  
\*Clinical Forms of Granulomatosis. Alfredo da Matta—p. 249.

**Artificial Eyes.**—De Gouvya reproduces the photograph of a man showing ideal conditions in the orbit with an artificial eye mounted on a rabbit's eye which had been implanted in the orbit about twelve years ago. Since he learned in 1908 that rabbits were very subject to contamination with syphilis, he has not ventured to apply this technic, notwithstanding its advantages. In another case he introduced a ball of paraffin and the illustration shows good results with this also, perfect when the eyes are quiet, but there is some asymmetry with conjugated movements of the eyes.

#### Crônica Médica, Lima

July, 1919, 26, No. 67

\*Influenza and Tuberculosis. Alfredo Cortez—p. 231.  
\*Endocarditis Localizations of Rheumatism. E. Chacabaza—p. 234.  
\*Indications for Cesarean Section. Jorge Rojas—p. 238.

**Influenza and Tuberculosis.**—Cortez relates that none contracted influenza of the fifty-two tuberculous inmates of



**Repertorio de Medicina y Cirugía, Bogotá**

August, 1919, **10**, No. 11

- \*Sarcomas in Long Bones. Pomplio Martínez.—p. 570.
- Bullet Wound of Lung and Pericardium. J. Anzola Escobar.—p. 588.
- Treatment of Syphilis. M. Antonio Rueda.—p. 592. Concn.

**Sarcomas in Long Bones.**—Martínez gives illustrations of several of his 13 cases of extensive sarcoma of the long bones, and states that 80 per cent. were in males and that the age ranged from 20 to 40, with two cases in persons over 50. In almost every instance there was a history of contusion of the region. In his latest series the sarcoma was in the upper end of the femur in 5; of the humerus in 3; the lower end of the femur in 3; the lower end of the humerus in one, and in one case in the middle of the tibia. In some of his cases the sarcoma had grown to enormous size. His experience has confirmed that amputation or disarticulation is necessary in the rapidly developing sarcomas involving the soft parts, but under other conditions resections into sound tissue seem to give as durable results as amputation.

**Revista de Medicina y Cirugía, Havana**

Sept. 25, 1919, **24**, No. 18

- Total Irreducible Prolapse of the Rectum. R. Stincer.—p. 459.

**Revista Médica Cubana, Havana**

March, 1919, **30**, No. 3

- The Causal Germ of Influenza. L. Plasencia and others.—p. 115.
- April, 1919, **30**, No. 4
- The Medical Press and Scientific Hispano-Americanism and Pan-Americanism. J. Santos Fernández.—p. 201.
- Amputation of Tuberculous Mamma. D. González Mármol.—p. 205.
- Aneurysm of the Aorta; Two Cases. A. Castillo y Martínez.—p. 12.
- History of Discovery of Circulation of Blood. M. Tejerizo.—p. 219.
- Colloidal Metals and Iodin in Pneumonia. Sobrino Álvarez.—p. 220.

**Siglo Médico, Madrid**

Aug. 30, 1919, **66**, No. 3429

- \*Case of Frohlich's Adiposo-Genital Syndrome. A. Crespo Alvarez.—p. 713.
- The Differential Blood Count in Epileptics. R. Alvarez de Toledo.—p. 718. Concn.

**Adiposogenital Syndrome.**—In the case described by Crespo with the roentgenogram of the hand, the subnormal temperature, eunuchoid voice, rounded outlines suggesting the feminine type, especially at the breasts and abdomen, and the atrophy of the genital organs in the young man were accompanied by atrophy of the optic nerve, headache, and slight bulging of some segment of arm or leg. He theorizes to explain the evidently complex glandular action in this case.

Sept. 6, 1919, **66**, No. 3430

- \*Treatment of Morphin Addiction. Cesar Juarros.—p. 739.
- Treatment of Helminthiasis in 1750. R. Hernández Briz.—p. 740.

**Treatment of Morphin Addiction.**—Juarros comments on the constantly increasing numbers of morphin addicts, and emphasizes that treatment must be individualized, using the abrupt or the gradual method of suppressing the drug according as the patient is young, with the habit acquired within three years, the doses not over 2 gm. at most, and the viscera sound, or as the habit is of long standing and large amounts of morphin have been regularly taken. In this latter group, abrupt suspension is dangerous, especially if the patient is over 40, and has organic disease of any kind, particularly of the cardiovascular system. Strict individualization is necessary, even for the purges ordered. The lack of this is responsible for the many addicts whose cases are considered beyond redemption because two or three courses of treatment have failed. Juarros reiterates that 99 per cent. can be cured without fail if the physician can refrain from imposing his favorite method of treatment on all alike, and will remember that psychotherapy is an indispensable adjuvant. He prefers Sollier's technic for rapid suspension and Jennings' for the slow method.

Sept. 13, 1919, **66**, No. 3431

- \*Ferrán's Vaccination Against Tuberculosis. Angel Pulido.—p. 761.
- Induced Therapeutic Pneumothorax. A. Gutiérrez-Gamero and J. H. Cerdeiras.—p. 764.

- \*The Psychology of the Insane. H. F. Delgado.—p. 768. Com'd in No. 3430, p. 737.

- \*Indirect Surgical Treatment of Gastric Ulcer. Celestino Alvarez.—p. 770. Concn.

**Ferrán's Vaccination Against Tuberculosis.**—See Madrid Letter, Oct. 4, 1919, p. 1074.

**Induced Pneumothorax.**—Gutiérrez-Gamero and Cerdeiras trace the history of therapeutic artificial pneumothorax back to Baglivi's communication in 1609 on the frequent healing of pulmonary tuberculosis after a wound opening up the pleural cavity. Stokes in 1838 called attention to the way in which pulmonary lesions began to heal after spontaneous pneumothorax, but Forlanini in 1882 suggested artificial pneumothorax and in 1892 began to apply it systematically in treatment. This article pleads for its application early in pulmonary tuberculosis, not waiting until it is the last resource. This delay has materially hampered the progress of this valuable method of treatment and brought undeserved discredit on it, as more has been asked of it than it is capable of accomplishing. The technic is described in detail and it is emphasized that this "collapse therapy" does not conflict with any other therapeutic measures. In fact, it may smooth the path for them to be effectual. Fully 60 per cent. of the patients whose condition indicates artificial pneumothorax can be restored to normal life by this treatment they reiterate in conclusion.

**The Psychology of the Insane.**—Delgado explains that "deep in the soul of every one the lost Paradise lies buried, out of sight but alive, still inducing its magic seduction."

"Conduct is the result of the interaction between our response to the world of reality and to this inner seduction of the lost Paradise, and what we call sanity and insanity depends on which of these two forces elicits the predominating response."

**Indirect Surgical Treatment of Gastric Ulcer.**—Alvarez explains certain cases of gastric ulcer as the result of the excessive action of the sympathetic nerve innervating the stomach. This nerve has both a sensory and secretion-promoting function, and likewise a vasoconstricting action. When functioning to excess, there inevitably follow hyperchlorhydria and hypersecretion at the same time as anemia of the mucosa. The vasoconstricting influence deprives the mucosa of its proper nourishment and leaves it defenseless against the extra corroding action of the hyperchlorhydria which acts on the mucosa abnormally long on account of the hypersecretion. A further factor is the spastic closure of the pylorus from the irritation induced by the hyperchlorhydria. The whole train of phenomena can thus be traced to the excessive functioning of the sympathetic, and this he attacks by stretching the nerve involved to induce, as he says, *connoción á distancia del gran simpático torácico*. He has thus treated 53 patients and reports 25 completely cured and 8 improved. The outcome is not known in 10 cases and no benefit followed in 10 others. In the cases of failure, organic stenosis of the pylorus was evidently a factor, and this contraindicates this method, he says. He describes the technic and gives the details of a number of typical cases. Lately he has been restricting the intervention to stretching the fifth intercostal nerve on both sides. At first he acted on the sixth, seventh, eighth and ninth. The nerves are severed and each is stretched with forceps aiming to act on the great sympathetic and the semilunar ganglia and through them on the nerve fibers passing directly to the stomach. The consequence is an immediate vasodilation with hyperemia of the gastric mucosa, suppression of the hyperesthesia and hypersecretion, and as the consequence of this, arrest of the tendency to spastic contracture of the pylorus, and hence normal evacuation of the stomach contents.

**Tribuna Médica, Rio de Janeiro**

July 15, 1919, **25**, No. 14

- \*Diagnosis of Syphilis from the Spermatoc Fluid. V. Wladacovich.—p. 137.

**Diagnosis of Syphilis from Spermatoc Fluid.**—In this communication Wladacovich brings down to date the experience of which a summary was given in THE JOURNAL, May 3, 1919.

**Vida Nueva, Havana**

July, 1919, 14, No. 7

"Etiology of Yellow Fever. M. G. Lebrun, 145.  
"Anatomical and Medical Bacteriology of Cuba. Octavio  
Munoz, 158.

**Etiology of Yellow Fever.**—Lebrun is chief of the section in research and epidemiology at the national public health service in Cuba, and he is also a member of the Rockefeller Commission that has been studying yellow fever in Guayaquil and elsewhere. He discusses N. Zúñiga's recent announcements in regard to the *Lepidopyra* as the possible agent of yellow fever, and points out certain discrepancies in the data presented. He adds that a final judgment is impossible until the maximal test has been made, the test of transmission by the mosquito.

**Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam**

Aug. 1, 1919, 2, No. 7

"Paralysis of the Tibialis Anticus. H. A. Laan, p. 403.  
"Asphyxia of the Newly Born. P. J. Mink, p. 41.  
"Mammary Cancer of the Mammary and Uterine Cancer. J. Sanders, p. 41.  
"Typhoid Cholecystitis in Boy of Fourteen. G. J. J. van Berckel, p. 41.

**Paralysis of Tibialis Anticus.**—Laan has already published several comprehensive articles on the sequelae of poliomyelitis, seeking to determine the best technique for orthopedic treatment in the individual case. He here discusses what is to be done for isolated paralysis of the tibialis anticus, reporting 75 cases, including 4 with bilateral paralysis, thus a total of 79 cases. There was paralysis in the thigh or in the other leg besides in 46 cases, bilateral in 17. The literature has dealt mainly hitherto with paralysis of the tibialis posterior, but none of the 79 anticus paralysis cases was any improvement in the paralysis observed, the paralysis or the weakness persisted unmodified. In 70 cases the paralysis dated from before the fourth year and in 48 there had been no attempt at orthopedic treatment although the paralysis was of six to six years' standing in 30 and from seven to eighteen years in 18. All kinds of treatment had been applied except operative and orthopedic measures. Some of the patients could only crawl, and some others could not do even this. After the operation the patients have to be left in others' hands, and it is important to make the after-treatment as simple as possible. Massage and electricity have to be restricted to this account and the main reliance placed on keeping the foot in a good position and getting the patient to walk. In 10 of the cases only special shoes were found necessary to accomplish this, in 32 a walking stirrup was worn. A walking stick was worn at night also; in 38 special shoes were worn during the day and a correcting apparatus at night. Only 2 of the total number were unable finally to walk unassisted. The war has compelled revision of the course of treatment of infantile paralysis. This has emphasized the necessity for classifying cases for treatment by age and also the possible necessity for resection of the distal apparatus and of the skeleton of the feet. Too much stress used to be placed on tendon transplantations, etc. In the present series the outcome is not known in 11 and 3 have recurred. The outcome was poor in 12, but in all the 44 other cases the treatment may be considered a success. The most favorable results were obtained when the extensor digitorum was affected in place of the tibialis anticus. Only two out of 100 when paralyzed along the anticus without being cured. In all the other cases it seemed to answer the purpose excellently, and it was considered to be strong traction. In the few cases in which the muscle was utilized, its normal function had found the chief of anticus and the two posterior muscles remaining in function. He reiterates that if it is possible to obtain somewhat better results than first-class, it is hardly attainable. He gives the typical cases of the various different forms in which infantile paralysis may present itself, and the orthopedic treatment in each group. The primary remedy is in paralysis of other muscles which rarely, except in a few cases, is the exception. But it is in cases of the latter kind that the greatest benefit may be realized,

comparatively speaking, freeing the children from apparatus and reducing the crippling to the minimum.

**Asphyxia of the Newly Born.**—Mink explains that no air can get into the lungs of the new-born child so long as the entrance to the trachea is closed, and there is nothing to impel the air to enter the trachea if the vocal cords are impacted together. But a brisk downward movement of the diaphragm induces a vacuum and the air rushing in forces the cords open. The change from the uterus to the air of the room is such a sharp stimulus to the skin that by the resulting reflex action the diaphragm is usually forced downward and respiration is inaugurated. Schultze's swinging of the infant, he thinks, is merely another form of stimulating the skin, as even this is unable to force air into the trachea so long as its opening is obstructed. He recalls that stimulation of the nasal mucosa is a more potent source of reflex action on the diaphragm than can be realized from the skin. Ticking the nasal mucosa at its most sensitive point—perhaps with a feather—is an old measure. Its action might be promoted by ammonia or irritating gases. Clearing out the nose might facilitate matters; this is easily accomplished by blowing air from a rubber bulb into first one nostril and then the other. This forces out the mucus, etc., through the second nostril. From the theoretical standpoint, stimulation of the nasal mucosa should rank above all other measures for combating asphyxia neonatorum.

**Cancer in the Married.**—Sanders tabulates the statistics of cancer of the uterus and breast at Rotterdam 1902-1914. They show that cancer of the uterus is more prevalent in the married than in the unmarried. Cancer of the breast is also more common among the married up to the age of 40.

**Typhoid Cholecystitis.**—Van Berckel relates that the thirty-six gallstones found in the gallbladder of the boy of 14 had probably developed since the typhoid which had induced the cholecystitis. Typhoid bacilli were still found in the stools two and four months after the cholecystectomy.

Aug. 30, 1919, 2, No. 9

"Mammary Cancer. H. T. Deelman, p. 573.  
"Hyperthermia. J. R. Kollwijn, p. 584.

**Mammary Cancer.**—Deelman reviews the outcome in 582 operative cases of mammary cancer at the Amsterdam public hospital from 1885 to 1915. Among the points thus brought out is that there is at least an 8 per cent. difference in the mortality between the figures for a three year interval and a five year interval. Only 30.6 per cent. were still living five years after the operation of the 245 patients operated on 1885-1911. Only one third of the total operated on were living at the fourth year, and of those that had died in the interim five out of every six had succumbed to cancer or its consequences. A marked change for the better appears in the statistics from 1900 onward, and systematic postoperative raying seems to be improving conditions lately even more. Of the women operated on in 1900-1914, over 42 per cent. are still living. The figures show further that the age between 40 and 50 offers the best chances for survival.

**Hyperthermia.**—Kollwijn states that there were signs of exophthalmic goiter in two of the eight cases of protracted slight fever he reports, and syphilis was evident in another case. The temperature was persistently above normal, at least during the latter part of the day. Nothing could be found to explain this unless possibly nervousness or hysteria could be incriminated. He thinks that "nervous fever" might be found oftener if it were regularly sought for. At the same time he thinks that this can scarcely be accepted as the explanation for cases in which the temperature keeps above 38 C. (100.4 F.) for a long time. With men, syphilis should be suspected, with women impending exophthalmic goiter. If the temperature keeps below 38 C. there is scarcely need to interfere with the patient's occupation, but if it keeps above 38 the rest is safer.

**Correction.** The duplicated line in the first column of page 872 of THE JOURNAL, Sept. 13, 1919, should read (instead of "Descriptive Bacteria for Biologic Tests.—Signorelli says") "Nitrogen Metabolism.—Maragliano states that the research."

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## A NEW GERMICIDE FOR USE IN THE GENITO-URINARY TRACT: "MERCUROCHROME-220"

PRELIMINARY REPORT OF EXPERIMENTAL AND  
CLINICAL STUDIES\*

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BALTIMORE

During the past two years the research work in the laboratories of the James Buchanan Brady Urological Institute has been given over largely to the study of antiseptics with a view particularly to the development of drugs applicable to the genito-urinary tract. Attention was first directed to internal antiseptics, since Hinman<sup>1</sup> had previously shown in our laboratories the questionable value of hexamethylenamin. Starting with the remarkable selective activity of the kidneys on phenolsulphonephthalein, as shown by the work of Abel and Rowntree<sup>2</sup> and developed as a functional test in our clinic, we tried to attach other chemical agents to phenolsulphonephthalein and thus produce an effective internal urinary antiseptic. Some interesting drugs were produced and studied by Davis and one of us (E. C. W.<sup>3</sup>). The war interrupted these studies, but the urgent need of really effective antiseptics for local use in the genito-urinary tract induced us later to concentrate on this problem. Browning was visited in London by one of us, and sufficient quantities of his flavines were obtained and sent to Baltimore. As a result of experiments and clinical use in this clinic, Davis and Harrell<sup>4</sup> recommended the use of acriflavine in the treatment of acute gonorrhoea, and this form of therapy was then used with good results in certain venereal clinics of the American Expeditionary Forces.

Impressed with the possibilities of using dyes as a basis for the development of therapeutic compounds, we have concentrated our efforts on the production of new drugs possessing the penetrating qualities of dyes while at the same time being germicidal and relatively nontoxic and nonirritating. The number of compounds that have been and are being produced in the pursuit of this research is considerable. From among them

the substance reported on in this paper has been selected for extended study. In mercurochrome-220 we have a drug of demonstrated germicidal value. The speed with which some old infections of the bladder and kidney pelvis have disappeared after its use is striking, and the absence of irritating and toxic qualities, together with the ability of the patient to retain a 1 per cent. solution for hours without discomfort, are sufficiently proved to establish the possibilities of the drug in these conditions. For the first time, we have a drug of great germicidal strength that can be tolerated in the human bladder for several hours, which establishes an ideal condition from the standpoint of its sterilizing effects.

Its value in colon and staphylococcus infections has led us to apply mercurochrome-220 to gonorrhoea and chancroidal ulcerations, our investigations having been carried on under the grant recently made us by the Interdepartmental Social Hygiene Board for research in the prevention and treatment of venereal diseases. Our series of cases so far is limited, but the demonstration of the sterilizing value of the drug in the urethra, bladder and kidney pelvis is promising enough to warrant this early publication.

### CONSIDERATIONS GOVERNING SYNTHESIS OF A NEW URINARY GERMICIDE

In synthesizing a drug for local use as a urinary antiseptic, it was sought to combine the following properties: (1) ready penetration of the tissues in which the infection exists; (2) lack of irritation of the drug to tissues; (3) high germicidal activity; (4) ready solubility in water and stability of the solution; (5) freedom from precipitation in urine, and (6) sufficiently low toxicity to avoid systemic effects from the small amount of the drug that may be absorbed.

In order to meet the first requirement it was decided to make use of a penetrating dye, not necessarily a germicide of itself, but serving merely as a carrier in which a germicidal chemical group could be substituted. The clinical experience that the basic dyes such as fuchsin, brilliant green, crystal violet, and, in some cases, the flavines, are too irritating to the mucosa of the urinary tract for general use suggested the use of acid dyes. This class of colors, which includes as its commoner representatives the phthaleins and most of the azo dyes, offers a wide range of choice. From purely chemical considerations it might be predicted that the basic dyes would be more irritating than the acid dyes. The former are salts of weak bases, and therefore their solution must have an acid reaction. The acid dyes, on the other hand, are used as sodium salts, and solutions of them necessarily have a neutral or slightly alkaline reaction, depending on whether the free dye is a strong acid, such as a sulphonic acid, or

\* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, with the aid of funds granted by the Interdepartmental Social Hygiene Board for research in the prevention and cure of venereal diseases.

1. Hinman, Frank: *Urinary Antiseptics*, J. A. M. A. **65**: 1769 (Nov. 20) 1915.  
2. Abel and Rowntree: J. Pharmacol. & Exper. Therap. **1**: 231, 1909.  
3. Davis and White: J. Urol. **2**: 197, 1918. Davis, White and Rosen: J. Urol. **2**: 277, 1918.  
4. Davis and Harrell: J. Urol. **2**: 257 1918.

weak acid, such as a phthalein. Since the tissues are generally more sensitive to acidity than to alkalinity, this reasoning led to the choice of an acid dye as the basis of the synthetic germicide.

The extensive use of eosin as a cytoplasmic stain at once suggested its use as a suitable dye of this class. However, it does not lend itself to chemical modification, because those positions in its molecule susceptible to substitution by other chemical groups are already occupied by bromin. On the other hand, it was found that the closely related substance dibromofluorescein could undergo substitution by the germicidal group we chose and still retain practically the same tinctorial properties that eosin itself possesses.

Mercury was chosen as the active germicidal principle to be substituted in the dye molecule. Virtually the only form in which this metal has heretofore been used in the urinary tract has been that of the chlorid or cyanid salts. The chlorid is so extremely irritating that only very dilute solutions (1:30,000) are tolerated, and it is extremely doubtful whether such solutions, especially in the presence of urine, exert much effect on the infection. Concerning the use of the cyanid there is little available information. In the case of either salt, however, the degree of penetrability is uncertain and in all probability is slight.

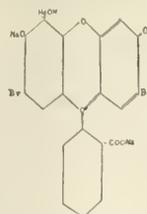
The irritating effect of solutions of mercuric chlorid is due to the mercury ion. If, however, the metal is substituted in an organic compound, such as an acid dye, the mercury no longer yields ions, but exists as a firmly bound part of the dye molecule itself. In this form of combination the properties of the metal as manifested by mercury salts are more or less completely masked. The new substance gives a negative reaction with the usual reagents for mercury, such as alkalis, iodids and alkali sulphids. The organic combinations of mercury also generally exhibit lower toxicity than do corresponding amounts of mercury in salt form, and frequently, but not always, their germicidal action is milder than that shown by the salts. With the great variety of possible combinations offered, depending on the nature of the organic substance used, it is not very difficult to find products whose advantages of nonirritability, lower toxicity and high penetrating power more than offset their somewhat decreased germicidal power as compared with that of the mercury salts.

Although a large amount of investigation of the therapeutics of the organic mercury compounds has been carried out in Europe, the study of these compounds in this country has, as far as we know, been limited to that of Davis, White and Rosen<sup>7</sup> and of Schenberg, Kelmer and Raiziss.<sup>8</sup> Most of the work reported has dealt with the use of these substances in treating acute infections. The principles we employ in the use of organic mercury compounds in the urinary tract we believe are new.

#### DISTRIBUTION OF MERCUROCHROME-220

To the substance obtained by substituting one atom of mercury in the molecule of dibromofluorescein we have given the name "mercurochrome-220."<sup>9</sup> Chem-

ically it is dibrom-oxymercurifluorescein, or its sodium salt. The latter contains about 26 per cent. of mercury, and is represented by the formula:



The free acid is a red powder insoluble in water but readily soluble in sodium hydroxid solution, with the formation of a deep cherry red color, showing fluorescence on dilution. The dry salt forms iridescent green scales, slightly hygroscopic and readily soluble in water. The solution is stable and is not affected by moderate heat or exposure to the air. Strongly acid urine ( $p_H=5.0$ ) gives a slight precipitate of the free dye; but if the acidity is  $p_H=6.4$  or less, no precipitation occurs. There is entire freedom from precipitation when a 1 per cent. solution of the drug is mixed with an equal volume of medium rich in protein, such as hydrocele fluid. The solution stains the skin a bright red color, but the stain is readily removed by rubbing first with 2 per cent. potassium permanganate solution, and then with 2 per cent. oxalic acid solution.

It was found that under proper conditions a second atom of mercury could be introduced into the dye molecule. However, the substance thus formed showed no greater germicidal action than the simpler compound, and was consequently discarded.

It should be mentioned that a "mercury dibromofluorescein" has been experimented with by Hahn and Kostenbader.<sup>7</sup> These authors give no description of their drug, but its mercury content (35 per cent.) indicates that it differs from our substance and that it is not a homogeneous chemical compound.

#### PENETRATION

Attention must be paid to the penetrating power of any germicide for use in the urinary tract. Fenger<sup>8</sup> has shown that "in thirty-eight hours after inoculation the gonococci have only just begun to effect entrance between the epithelial cells. The inflammation extends until the gonococci have penetrated deep into the layers of the mucous membrane, which has become acutely congested, the epithelium undergoing mucous degeneration, and exfoliating in patches." MacCallum<sup>9</sup> states that "the gonococcus penetrates among the epithelial cells and extends even into the subepithelial tissues of the urethra." Sections made from cases of papillary cystitis and from pyelitis show the organisms to have penetrated to the deeper layers of the epithelial cells.

Attention was called by Davis and Harrell<sup>1</sup> to the rapid diffusibility of acriflavine in the tissues. During the administration of mercurochrome-220 by injection of solutions into a rabbit's ear vein to determine toxicity, the same phenomenon was observed. This compound spread rapidly from the vein into which it was being injected, and in a few seconds the entire ear

<sup>1</sup> Schenberg, J. E.; Kelmer, J. A., and Raiziss, G. W., A New and Superior Mercuric Compound. *J. A. M. A.* 68:1458 (May 19) 1917.

<sup>2</sup> Schenberg, Kelmer, Raiziss, and Truitt, *J. Infect. Dis.* 24:537 (June) 1917.

<sup>3</sup> The name "mercurochrome" will be applied generically in all the mercury bearing salts that we are investigating, the individual being designated by the letter Y and Z following the name. We have made a number of such compounds, including phthaleins, azo dyes, basic dyes, thiazins, etc., on which we shall report in due time.

<sup>7</sup> Hahn and Kostenbader: *Ztschr. f. Chemotherap.*, Orig., 2:71, 1914.

<sup>8</sup> Fenger, quoted by Keyes: *Modern Urology*, 1:59.

<sup>9</sup> MacCallum: *Textbook of Pathology*, p. 530.

was colored a reddish pink. This color persisted with varying intensity for from twenty-four to forty-eight hours.

With a view to determining the penetrability of this mercury-bearing dye, when used in the urinary tract, a series of direct experiments was carried out. A rabbit was catheterized, a soft rubber catheter being used. Through this catheter an ounce of 1 per cent. solution of the drug was slowly injected into the bladder, and the catheter was slowly withdrawn, allowing some of the fluid to escape through the urethra. At the end of five minutes the catheter was again introduced, and the bladder was emptied. The rabbit was quickly killed, and the bladder and urethra were dissected out intact. The bladder was then opened, and excess of solution was removed by washing with water. Frozen sections of the urethra and bladder were made immediately and were examined without the use of any other stain. In other instances the bladder and urethra were opened and immediately transferred to formaldehyd solution and hardened. Paraffin blocks were made and sections were cut without the use of any other stain. This experiment was carried out several times, the catheter being used in one instance, and in the other instances the bladder being filled through the urethra by means of a small syringe. The latter method was used to avoid any possible trauma to the urethral mucosa. In other rabbits under ether anesthesia, the abdomen was opened, the ureters were exposed, and by means of a small record syringe the ureter and kidney pelvis were gently filled with a 1 per cent. dye solution, care being taken to prevent overdistention of the kidney pelvis, and the ureter was ligated. After five minutes the rabbit was killed, the ligature was removed from the ureter, the kidney and the ureter were taken out intact, and frozen sections were made and promptly examined. In other instances, paraffin sections were made.

Examination of the frozen sections as well as of the paraffin sections shows that the epithelial cells of the urethra are stained a deep red. This staining is most intense in the superficial layers, and becomes less intense toward the submucosa; but the submucosa was stained in places, though not so uniformly as the epithelial layers. In some places the stain penetrated the submucosa into the muscularis. This mercury-bearing dye stains the epithelium of the anterior and posterior urethra uniformly, and to a less extent penetrates to the submucous layers. Sections of the bladder and the ureter show the same uniform penetration and staining of the cytoplasm of the epithelial cells, and the submucosa is less deeply stained. Sections of the kidney pelvis showed penetration and staining of the epithelium. The dye had also been taken up by the cells of the collecting tubules, and they were stained for a short distance up the tubules from the papillae. In the urethra, the epithelium of the glands opening into the urethra was stained for some distance from the mouths of the ducts.

#### TOXICITY

In determining the toxicity of the drug, various solutions were administered intravenously. The urine was examined and the phenolsulphonephthalein excretion was determined, and in dogs blood urea was determined before injection. We noticed a variation in the amount of the drug that rabbits and dogs could tolerate. Ten mg. per kilogram invariably killed rabbits in

twenty-four hours, and no gross lesions were found at necropsy. Rabbits receiving 5 mg. per kilogram showed a decrease in phenolsulphonephthalein output and an albuminuria that lasted about a week. Dogs tolerated 10 mg. per kilogram very well with no evidence of discomfort or illness. In each instance there was produced an albuminuria without casts and a temporary reduction in phenolsulphonephthalein output but no rise in blood urea. The albuminuria persisted about five days. At no time were casts found. The phenolsulphonephthalein output returned to normal with the disappearance of the albuminuria. No evidence of kidney damage was found at necropsy on animals killed at the end of the experiments. With this toxic limit established no harm is to be expected from the small amount of the drug that may be absorbed when used locally in the genito-urinary tract.

#### IRRITATION

One per cent. solutions of mercurochrome-220 gave no evidence of irritating qualities when used in the conjunctival sac of rabbits. Solutions of this drug in strength from 0.1 to 5 per cent. have been used in the human genito-urinary tract as a local antiseptic. In the kidney pelvis a 1 per cent. solution was used. This was slowly injected through the ureteral catheter, the catheter was plugged, and the solution was retained for five minutes. There has been no sign of irritation or reaction following its use. This procedure has been carried out three times in one week in some instances. In the urethra a 5 per cent. solution caused only temporary burning when retained five minutes, and a number of cases of acute urethritis have been treated by the use of 1 per cent. solution injected four times a day, the solution being retained five minutes at each injection. There has been no irritation beyond occasional temporary smarting. No cases of retention have been seen, and no stricture formation has resulted from its use in our series of cases, as will be seen from the case reports.

In only two instances was there any complaint of burning or irritation. These were both chronic cystitis cases in old men with residual urine. One of them had extensive carcinoma of the prostate involving the bladder, with a residual urine of 200 c.c. He was on interval catheterization, and about 1 ounce of 1 per cent. mercurochrome was placed in the bladder and retained until the next catheterization, about six hours later. This man complained of severe burning in the bladder and had a reaction, which persisted for several days, after which his urine became much clearer but his infection persisted. The other case was similar, that of an old man with an enlarged prostate, his general condition being such as to make prostatectomy out of the question. There were several hundred cubic centimeters of residual urine. After several hours he complained of severe burning in the bladder, which persisted several days.

With the exception of the two cases noted, we have seen no irritation beyond occasional temporary smarting at the time of injection. The solution has been used in a number of bladder infections with small amounts of residual urine without irritation. The fact that irritation has been seen so rarely indicates that its occurrence in these cases is due to some individual hypersensitiveness rather than to any inherent property of the drug. Some observers who have been using

it have reported not only absence of irritation but also a prompt cessation of pain following the use of the drug in infected bladders and kidney pelves.

#### BACTERIOLOGIC TECHNIC

The medium chosen in which to test the germicidal action of drugs intended for use in the urinary tract was urine. We are aware that the objection may be raised that many infections have their seat in an environment more closely related to serum than to urine, and that serum therefore represents the most rational medium for test tube experiments. How far this contention really applies to infection of the urinary tract may well be questioned, especially in such infections as may be located not much deeper than the epithelial layers. Moreover, no set of test-tube experiments can be relied on for much more than a rough comparative evaluation of various germicides, which will bear no necessary relation to relative efficiency in clinical tests. For this reason urine seemed a medium fairly well representing clinical conditions. It had the further advantage that the results obtained with it take into account any precipitation or other chemical change that the drug may undergo under conditions of actual clinical application in the urinary tract.

The tests were carried out after this manner: Urine was voided aseptically into sterile flasks, and adjusted to the reaction of 6.4 on the hydrogen-ion scale. Blank tests were made to insure sterility. Nine c.c. of this urine were inoculated with a 3 mm. loopful of a twenty-four hour broth culture of the organism. To the inoculated urine was added 1 c.c. of an aqueous solution of the drug ten times as strong as was desired in urine dilution. Thus, 9 c.c. of urine plus 1 c.c. of the 1:100 drug solution gave a final dilution of 1:1,000 in urine. The mixture was at once well shaken, and at the end of the desired time period 0.1 c.c. of the mixture was transferred with a sterile capillary pipet to 10 c.c. of agar, and this mixture was immediately plated. The advantage of adding the drug to inoculated medium rather than to inoculate medium already containing the drug has been forcibly pointed out by Dakin and Dunham.<sup>10</sup> The former procedure simulates that carried out in an actual disinfection, and has the advantage that, in case the drug is altered in any way by the medium, it at least gets an equal chance to act on the organisms as well as be acted on by the medium.

In making tests with final dilutions that are low (for example, 1:100), it must be remembered that a considerable concentration of the drug may be present in the agar plate. Thus, if 0.1 c.c. of a 1:100 solution in urine be transferred to 10 c.c. of agar, we shall have a new hundredfold dilution; that is, the dilution in agar will be 1:10,000. Since the agar plate is inoculated at least twenty-four hours, we have in effect a dilution of a 1:10,000 solution on the organism for twenty-four hours rather than action of a 1:100 solution for whatever time period we may choose in our test. The results thus obtained are obviously erroneous, and in order to avoid them, this expedient was adopted: After the low dilution (1:100) had acted on the inoculated urine for the stipulated time, 0.1 c.c. was mixed with 2 c.c. of sterile water, and 0.1 c.c. of this new dilution was plated with 10 c.c. of agar. The dilution in agar was then 1:200,000, a dilution which separate experiments showed was without action on

the organisms even in twenty-four hours. Blank experiments with this double dilution showed that when no drug was present, enough organisms were left to give a good growth in agar plates.

The composition of urine from the same individual varies considerably, and of course variable results were obtained. In every case three or more tests were made, and the figures given in the tables represent the highest dilution that always gave a sterile plate. In all cases an average of results would be more favorable to the drug, but we feel that the method of report we have adopted is safer and less open to criticism than an average would be.

In testing the germicidal value of the flavines, the precaution must be taken to read the plates after forty-eight hours as well as after twenty-four hours. We have frequently found that a flavine plate would apparently be sterile at the end of the first period and would show a growth of many colonies at the end of the second period. No such delayed growth was observed in tests with mercurochrome-220. This emphasizes the fact that the value of the flavines lies in their antiseptic action rather than in their germicidal action.

It should be mentioned that the notable difference between the action in acid and in alkaline urine shown by acriflavine is not shown by mercurochrome-220. The action shown by this compound in alkaline urine was slightly inferior to that shown in slightly acid urine.

#### COMMENT ON BACTERIOLOGIC TESTS

The outstanding fact observed on comparing the germicidal values of mercurochrome-220, acriflavine, protargol and argyrol (Tables 1, 2, 3, 4 and 5) is the rapidity of action of the mercury compound in fairly high dilutions. In one minute it kills *B. coli* or *Staphylococcus aureus* in a dilution of about 1:1,000, a result obtained with none of the other drugs even in one hour. In fifteen minutes its effect is nearly as great as in twenty-four hours, killing *B. coli* in this short time at 1:5,000, and *Staphylococcus aureus* at 1:10,000. A few tests were made to learn the minimal time in which a 1:100 solution would sterilize. *Staphylococcus aureus* was killed almost instantaneously; that is, as rapidly as we could introduce the drug, withdraw a sample, dilute in water (to dilute the drug out of action in the agar) and plate. This procedure took no longer than ten seconds. The same test on *B. coli* revealed that a few organisms remained after ten seconds' exposure to the drug. Since a 1:800 solution kills this organism in one minute, the time necessary for a 1:100 solution to kill is possibly no more than thirty seconds.

Acriflavine is shown to be much less potent as a germicide in even the most concentrated solutions, if allowed to act on the organisms for one hour or less. It surpasses mercurochrome-220 in the twenty-four hour test, at this time period appearing to be about four times as effective as the mercury compound. It is hardly logical to judge a local urinary germicide by its action on organisms during such a long period of time; a short period of exposure in the test, on the other hand, approximates clinical conditions. If rapid disinfection is a desideratum, as it appears to be, mercurochrome-220 is superior to acriflavine.

Comparison of mercurochrome-220 with the silver protein compounds is open to two interpretations. If we consider the action in the test tube of those solu-

10. Dakin and Dunham: Brit. M. J. 2: 641 (Nov. 17) 1917.

tions used clinically—10 per cent. argyrol and 1 per cent. protargol—the silver compounds compare favorably with the mercury dye except in the action of

TABLE 1.—THE GERMICIDAL STRENGTH OF MERCUROCHROME-220 IN URINE\*

Medium	Organism	Time Exposed to Drug	Highest Dilution Killing Uniformly
Urine (pu = 6.4)	B. coli	1 minute	1: 800
	S. aureus	1 minute	1: 1,000
	B. coli	5 minutes	1: 1,000
	S. aureus	5 minutes	1: 5,000
	B. coli	15 minutes	1: 5,000
	S. aureus	15 minutes	1: 10,000
	B. coli	1 hour	1: 5,000
	S. aureus	1 hour	1: 10,000
	B. coli	24 hours	1: 20,000
	S. aureus	24 hours	1: 20,000
Hydrocol fluid	B. coli	1 hour	1: 1,000
	S. aureus	1 hour	1: 1,000
	B. coli	24 hours	1: 4,000
	S. aureus	24 hours	1: 4,000

\* The test consisted in treating 9 c.c. of sterile urine with 1 c.c. of drug solution ten times as strong as desired in final urine dilution. One-tenth c.c. portions were placed in agar at the end of stipulated periods.

protargol on *Staphylococcus aureus*. If, on the other hand, we consider the action of solutions of the same concentration of these three substances, we find that the silver compounds are in no wise comparable with mercurochrome-220. Since most of the urinary infections penetrate more or less deeply into the mucosa, therapeutic results will probably be controlled by the concentration of the germicide that finds its way into the tissues. It therefore appears that our comparison should take into account the effective concentration of the various drugs, rather than the concentrations applied to the surface of the infected area. The latter concentrations may not, and in the case of a nonpenetrating substance, like argyrol or protargol, probably do not, represent the relative concentrations of the germicide actually reaching the seat of the infection.

TABLE 2.—THE GERMICIDAL STRENGTH OF ACRIPLAVIN IN URINE\*

Medium	Organism	Time Exposed to Drug Action	Highest Dilution Killing Uniformly
Urine pu = 6.4	B. coli	1 hour	1: 100
	Staph. aureus	1 hour	1: 200
Urine pu = 7.6	B. coli	1 hour	1: 200
	Staph. aureus	1 hour	1: 400
Urine pu = 6.4	B. coli	24 hours	1: 10,000
	Staph. aureus	24 hours	1: 10,000
Urine pu = 7.6	B. coli	24 hours	1: 70,000
	Staph. aureus	24 hours	1: 80,000

\* No exposure for less than one hour was made because of the weak germicidal action for the one hour period.

For this reason a comparison of absolute concentrations (Table 5) seems a reasonable one, in view of the superior penetrating power of mercurochrome-220, and such a comparison shows a superiority of the mercury dye over the silver proteins. Thus, whereas both argyrol and protargol at 1:1,000 fail to kill either *B. coli* or *Staphylococcus aureus* in one hour, the same concentration of the mercury dye kills both organisms in about one minute.

METHODS EMPLOYED IN THE CLINICAL USE OF MERCUROCHROME 220

In the treatment of infections of the kidney pelvis, the following procedure was employed: Ureteral catheterization was done and a separate collection was made from each kidney. This was centrifuged, and a stained smear was made and examined microscopically. After the collection was completed, the kidney pelvis was gently filled, the gravity method being used in

some instances and the syringe in others, with a 1 per cent. solution of mercurochrome-220, the catheter being plugged and the fluid retained in the pelvis for five minutes. There has been no complaint of pain and no severe reaction in any of our cases. This procedure was repeated twice a week, and when the urine from each kidney was free from pus and organisms for a week, the patient was discharged to return for further observation in a month.

In treatment of bladder conditions, the urethra was first irrigated with sterile water, a coudé catheter was passed, and the bladder was washed clean. One ounce of 1 per cent. mercurochrome-220 was then injected into the bladder through the catheter by pressure from a bulb syringe, or by a Keyes syringe. The patient was instructed to retain this solution for at least one hour, and longer if possible. Some patients have been able to retain the solution for more than three hours. This procedure was carried out twice a day, as a rule, and in some instances three times a day. There was

TABLE 3.—GERMICIDAL STRENGTH OF ARGYROL, 10 PER CENT. SOLUTION, IN URINE

Time of Exposure	Organism	Result
5 minutes	B. coli	No growth
5 minutes	S. aureus	No growth
15 minutes	B. coli	No growth
15 minutes	S. aureus	No growth
1 hour	B. coli	No growth
1 hour	S. aureus	No growth

TABLE 4.—GERMICIDAL STRENGTH OF PROTARGOL, 1 PER CENT. SOLUTION, IN URINE

Time of Exposure	Organism	Result
5 minutes	B. coli	No growth
5 minutes	S. aureus	No growth
15 minutes	B. coli	No growth
15 minutes	S. aureus	Growth
1 hour	B. coli	No growth
1 hour	S. aureus	Growth

occasionally some slight burning and smarting, which lasted only a short time. Several complained of smarting of short duration after three or four treatments, but not at first. The urine voided by the patient on arising in the morning was centrifuged. A stained smear was made and examined. After three or four treatments, the urine usually began to clear up, and as soon as it was free from organisms, the number of treatments per day was gradually reduced. It was noticed that as long as mercurochrome-220 was used in the bladder, the urine remained hazy owing to the

TABLE 5.—GERMICIDAL STRENGTH OF ARGYROL AND PROTARGOL IN URINE, pu = 6.4

Drug	Organism	Time of Exposure	Highest Dilution Killing the Organism
Protargol	B. coli	1 hour	1: 1,000 failed
	S. aureus	1 hour	1: 1,000 failed
	B. coli	24 hours	1: 2,000
	S. aureus	24 hours	1: 2,000
Argyrol	B. coli	1 hour	1: 1,000 failed
	S. aureus	1 hour	1: 1,000 failed
	B. coli	5 hours	1: 1,000 failed
	S. aureus	24 hours	1: 1,000 failed

presence of exfoliated epithelial cells, and not of pus and organisms.

An abstract of ten cases treated in this clinic is included herewith.

REPORT OF CASES

CASE 1 (F 32830, J. H. H. D., Dr. Wesson).—Urethral stricture, perurethral abscess, cystitis and posterior urethritis.

A white man, aged 54, came in complaining of inability to void urine. The family history was negative. The patient denied previous venereal disease. Four years before, the patient was admitted to the Johns Hopkins Hospital with a diagnosis of perineal abscess and urethral stricture. During his stay of one month in the hospital, the abscess was opened and the stricture was thoroughly dilated. During the interval the patient had no trouble. On his return there was a large swelling in the perineum, and the patient voided with great difficulty. Filiforms and fall-wipers up to 24 F. were passed, and a caude catheter was then introduced, through which 500 c.c. of foul-smelling, sanguinolent urine was withdrawn. The patient was placed on daily bladder irrigations of a potassium permanganate solution (1:1,000) and at the end of five days the urine was still cloudy and infected with both bacilli and cocci. Irrigation of a warm solution of mercurochrome-220 (1:1,000) were then given daily. Following the irrigation, 1 ounce of 1 per cent. mercurochrome-220 was placed in the bladder and the patient was instructed to retain this for at least one hour. The infection immediately began to clear up, and at the end of five days the urine was clear and entirely free from pus and organisms, and remained so until his discharge from the clinic four weeks later. The patient is still under observation, returning for weekly dilations of the stricture. The patient was able to retain the 1 per cent. mercurochrome-220 solution for more than two hours in the bladder without any discomfort.

CASE 2 (7298, B. U. 1).—*Subacute cystitis with chronic terminal vesiculitis*.—A white man, aged 20, came in complaining of the presence of pus in the urine. The family and venereal histories were negative. The patient stated that for the past three years he had had intervals of bladder irritability associated with the passage of cloudy urine. The past history was otherwise negative. Examination of the urine disclosed the presence of a bacillus infection and a large amount of pus. Urethral catheterization repeated several times revealed that the kidneys were free from infection, and no acid-fast organisms were ever found. The patient received treatment at irregular intervals at the Brady Clinic for six months, receiving prostatic massage, seminal vesicle stripping, irrigations with potassium permanganate solutions (1:1,000), and instillations of solutions of acriflavine (1:1,000). Flavine solutions were used twice a week for two months without clearing up the infection. Instillations of from one-half to 1 ounce of 1 per cent. solution of mercurochrome-220 were then begun, given on alternate days. The urine began to clear immediately, and after the sixth treatment was found to be free from pus and organisms. The urine was examined at weekly intervals for a month, and no infection was found at any time. The patient had no difficulty in retaining the solutions in the bladder for from one to three hours. The patient returned, after a month's absence, with cloudy urine, which was found to be due to phosphates and was free from infection and pus.

CASE 3 (7775, B. U. 1).—*Cystitis*.—A white man, aged 54, came in complaining of kidney trouble. The family and venereal history were negative. He gave a history of a severe bilateral renal colic twenty years previously. He had had no recurrence or symptoms until six months before, but had had about a dozen attacks in the past six months. On admission his bladder urine was cloudy, owing to a small amount of pus and a bacillus infection. The duration of this infection was indefinite. On cystoscopy there was no residual urine, and the bladder capacity was 250 c.c. The bladder was traumatized, and a small median bar with a pouch behind it existed. The kidneys were negative and no stone was found either in the ureter or the kidney by wax tip, plain roentgen ray or pyelogram. The treatment consisted of daily instillations of one-half ounce of 1 per cent. mercurochrome-220 through a posterior urethral instillator into the empty bladder, the patient retaining the solution for at least an hour and for longer periods if possible. After the first injection, the urine became clearer, but pus cells and organisms persisted until the fourth treatment. After this the urine contained a few desquamated epithelial cells, but no organisms were found at any time. The urine was studied twice during the

week following the discontinuance of treatments and was found free from infection both times, and also on discharge at the end of this time.

CASE 4 (6007, B. U. 1).—*Bilateral pyelitis and cystitis*.—A white man, aged 58, came in complaining of soreness in the left kidney region. This was the patient's third admission to the hospital. On his first admission he had a perineal prostaticectomy, convalescence from which was satisfactory except for a complicating epididymitis, and a febrile reaction associated with a pain in the lumbar region, probably due to a pyelitis. The patient improved markedly after leaving the hospital, and was well up to five weeks previous to his second admission. At this time he noticed that the urine was cloudy and highly colored. Three weeks previous to this he had had a second febrile reaction associated with pains in the kidneys. Urethral catheterization disclosed a bacillary infection of both kidney pelvis. The patient was treated by pelvic lavage, silver nitrate solutions being used and his infection entirely cleared up, so that on his discharge he had no pus or organisms in the urine. At this time he developed an acute epididymitis, which prolonged his convalescence. Four months later he returned to the hospital the third time, and a diagnosis of bilateral pyelitis and papillary cystitis due to a bacillus was made. The pyelitis was treated by pelvic lavage, 1 per cent. mercurochrome-220 solutions being used. The pelvis was gently filled with the solution until the patient became conscious of a sense of distention; the catheter was then withdrawn, leaving the pelvis filled. This was done once a week, and on alternate days the bladder was treated. From one-half to 1 ounce of a 1 per cent. mercurochrome-220 solution was used, being injected into the empty bladder and retained for an hour or more. It required ten treatments to render the urine pus-free and organism-free. The patient's urine was free from pus and infection on discharge after one month's treatment.

CASE 5 (7498, B. U. 1).—*Prostatic bar obstruction; Cystitis and bilateral pyelitis*.—A white man complained of pain across the pubic region on admission. The family history was negative except for the death of one brother from tuberculosis. He admitted a gonorrhoeal infection twenty years previously with no complications or recurrences. He dated his trouble to a severe attack of influenza about one year before. On his first admission to the hospital, studies made then led to the diagnosis of cystitis, median bar obstruction, bilateral pyelitis due to a bacillus infection, and a right-sided hydronephrosis of moderate grade. Previous to his admission the patient had been treated in another hospital for seven weeks by pelvic lavages, autogenous vaccines and bladder irrigations, but the infection persisted.

On his second admission a punch operation was done. When convalescent, urethral catheterization was performed, and the urine from both kidneys was found infected with bacilli, there being only a few pus cells present. Each pelvis was filled by gravity with a 1 per cent. mercurochrome-220 solution, and the catheter was withdrawn. Examination of the urine obtained by urethral catheterization on the first and third days following this one treatment failed to reveal any pus or organism. The patient left the city immediately after this last examination, but at a later date is to report for observation.

CASE 6 (E, outside case).—*Cystitis*.—A white man, aged 35, came in for an examination because of cloudy urine. The family and personal history were negative. The patient's urine was found to contain a small amount of pus and many bacilli. No definite history as to the length of time the infection had existed could be obtained. The kidneys were negative on urethral catheterization. No pathologic condition was found in the bladder except signs of a chronic cystitis due to long-standing infection. Daily instillations of one-half ounce of 1 per cent. mercurochrome-220 were carried out, and on the fourth day the urine was found to be free from infection and pus, and remained clear until the patient left the clinic.

CASE 7 (7728, B. U. 1).—*Prostatic bar; cystitis*.—A white man, aged 53, came in complaining of prostate trouble. The family and personal histories were negative except for two

gonorrhoeal infections without complications. On admission the patient had a few cocci in his bladder urine but no pus cells. Cystoscopy revealed a prostatic bar, and a punch operation was done and a retention catheter was left in place for forty-eight hours. On the removal of the catheter the urine was found to contain a large amount of pus, many bacilli and no cocci. The patient was treated by instillations of from one-half to 1 ounce of 1 per cent. mercurochrome-220. These treatments were preceded by irrigation of the anterior urethra; a coudé catheter was then passed, and the bladder was irrigated with sterile water. Instillations were given twice a day, and the solution was retained for at least an hour without any pain or burning. After the first day the urine became clearer, and after seven instillations (the morning of the fourth day) the urine was found to be free from organisms. Daily examination of the first urine voided in the morning failed to detect any infection during his subsequent stay of one week at the clinic.

CASE 8 (4364, B. U. L.).—*Chronic cystitis*.—A white man, aged 68, came back for observation. The patient had had a perineal prostatectomy four years previously, and had secured an excellent result; but a bladder infection persisted. Examination of the urine revealed a large amount of pus and many bacilli. The urethra was thoroughly irrigated with sterile water; a coudé catheter was passed; the bladder was washed clean with sterile water, and 1 ounce of 1 per cent. mercurochrome-220 was injected through the catheter into the bladder. This was done twice a day. Daily examination of the urine was made. The morning urine the third day (after five treatments) was found to be free from organisms, but contained many epithelial cells. The urine was examined each day during the rest of his stay at the clinic (three days), and no organisms were found at any time. There was no irritation or burning when the solution was retained in the bladder from two to three hours.

CASE 9 (7732, B. U. L.).—*Chronic cystitis*.—A white man, aged 53, complained of kidney trouble. The family and personal histories were negative. For the past three years the patient had had a pain in the right lumbar region at times. This was never severe, but rather of the dull aching character. Five months before admission, the patient began to have hematuria and renal colic on the right side. Urethral catheterization revealed a coccus infection on the right side and no infection on the left side. A pyelogram was made and a diagnosis of right hypernephroma made. Nephrectomy was performed. Following this the bladder infection persisted. The patient was then given bladder instillations of one-half ounce of 1 per cent. mercurochrome-220 on alternate days to be retained for one hour. There was an immediate reduction in the number of pus cells and organisms. After the seventh treatment the urine was found to be free from infection and remained so for two weeks. In this time the urine was carefully examined four times, but no infection was found.

CASE 10 (7857, B. U. L.).—*Cystitis*.—A white man, aged 50, had complained of urinary difficulty for the past six years. The family and personal histories were negative except for two gonorrhoeal infections, the last one being six years previously, from which time the patient dated his urinary trouble. Examination detected a tight stricture in the membranous urethra and a contracted vesical orifice. A punch operation was done under local anesthesia, and a retention catheter was left in the bladder for drainage for forty-eight hours. The patient developed a mixed infection of the bladder, both bacilli and cocci together with a large amount of pus being found in the urine. After the removal of the tube, daily instillations of 1 per cent. mercurochrome-220, preceded by irrigations of sterile water, were begun. The urine was examined daily. There was a gradual diminution in the number of organisms and the amount of pus. There were no organisms found on the fifth day, a very few on the sixth and none afterward up to the twelfth day of the treatment.

#### RESULTS IN URETHRITIS

The bacteriologic tests of the action of mercurochrome-220 on the gonococcus have not been completed as yet and will be published later.

In fifty-one cases of acute specific urethritis, treatment has been given by intra-urethral injections of 1 per cent. solutions of this drug. These were all public dispensary cases, and a large number of the patients were negroes, many of whom failed to cooperate, while others failed to continue their treatment after the discharge began to diminish, especially if they had no complication to cause them pain or annoyance. In none of these cases have we seen any irritation beyond a temporary burning or smarting, whether the drug was used in the anterior or in the posterior urethra.

The method used in these cases has been: microscopic diagnosis as to the presence or absence of gonococcus; the three glass test to determine the part of the urethra involved and the extent of involvement, and an examination of the prostate and the vesicles on the first visit. We did not examine the urethra with a bougie à boule, owing to the presence of an acute discharge. An anterior urethral irrigation of warm sterile water or dilute (1:10,000) potassium permanganate solution was then given. This was followed by the careful injection into the anterior urethra of sufficient 1 per cent. mercurochrome-220 solution to fill completely the anterior urethra, the patient compressing the lips of the meatus and retaining the solution for five minutes. If the posterior urethra was involved, the solution was gently forced into the posterior urethra by means of a bulb syringe, and was retained in the bladder for an hour or more. A small quantity of the drug solution and a blunt nosed urethral syringe were dispensed, and the patient was instructed to inject the solution four times a day immediately after urinating, retaining it for five minutes. On return to the clinic, smears were examined microscopically, and as the organisms lessened in number, the number of injections was reduced to three and then to two and later to one per day. The reduction should be gradual. As long as the drug is used the urine will remain cloudy owing to exfoliated epithelial cells, which will be found stained pink, while the polymorphonuclear cells will not be stained by this drug.

We were able to follow thirty cases until an apparent cure was effected. This involved in some cases the treatment of preexisting or consequent prostatitis, vesiculitis or stricture. In such cases a cure was considered accomplished when the urethral discharge had disappeared and the urine remained free from shreds for two weeks. It was found very difficult to secure the cooperation of this class of patients, in the treatment of residual prostatitis, when all urethral and urinary signs had disappeared.

Twenty-one other patients were improved and discontinued treatment. The average length of time required to render the discharge free from gonococci was ten days. The shortest time required to accomplish this was three days. These were acute cases, two of which remained free from further infection, but in one case there was a recurrence of organisms after nineteen days, due to a reinfection from the prostate. The longest time required to render any case gonococcus-free was seventeen days. This was an acute exacerbation of a chronic infection, with involvement of the posterior urethra and the prostate.

Recurrence of organisms took place in six cases, or 20 per cent. of our total. Two of these six were cases in which the anterior urethra alone was involved, and the recurrence was probably due to stopping the injections before the entire canal had been sterilized.



CHANCROIDAL ULCERATIONS

As a result of the laboratory tests demonstrating the penetrability and germicidal activity of mercurochrome-220, it was decided to use it as a local application in the treatment of nonsyphilitic venereal ulcerations. Fourteen dispensary patients were treated with the local application of mercurochrome solutions. We were able to follow ten of these patients until healed. In four cases an initial treatment was administered and some of the solution was given for local use, but the patients failed to return for further treatment and observation. All these cases were negative on repeated dark field examination for *Spirochaeta pallida*, and gave negative Wassermann reactions. No cases are included in which the patients were found to be syphilitic or were receiving intravenous arsenical medication. The type of sore was that of the old sore with undermined edges and dirty gray necrotic base which showed no tendency to heal.

These sores were thoroughly cleaned with soap and water, and all the necrotic tissue was removed. A moist dressing of 1 per cent. mercurochrome-220 was then applied, and some of the solution was given the patient with instructions to moisten the dressings twice a day with the solution. Later it was found more convenient to use a starch paste containing 5 per cent. mercurochrome-220 by weight, instead of the solution, the sore being dressed only once a day. No irritation or burning was complained of by any of our patients.

TABLE 7.—SYNOPSIS OF RESULTS DETAILED IN TABLE 6

Number of cases studied.....	51
Number of cases observed until an apparent cure was effected.....	30
Number failing to improve.....	0
Minimum time required to render discharge gonococcus-free.....	2 days
Maximum time required to render discharge gonococcus-free.....	17 days
Average time required to render discharge gonococcus-free.....	10 days
Number of cases in which complications developed after treatment was begun.....	3

In all of the cases, the sores cleaned off in from one to four days and presented a healthy healing surface. The prompt change in the appearance of the lesions when treated with mercurochrome was very striking. After the sore was clean and healing over, a simple ointment of boric acid was used as a protective dressing, silver nitrate being used on the granulations as needed. Whenever indicated, a dorsal slit was made and buboes were opened and drained. Tables giving the length of time required for complete healing are not included, as many of the patients left the clinic after the sore was partly healed.

CONCLUSIONS

1. Mercurochrome-220 is experimentally a drug of great germicidal value, a solution of about 1:1,000 killing *B. coli* and *Staphylococcus aureus* in urine in one minute. It has practically fifty times the germicidal strength of acriflavine in urine medium for exposures of one hour.

2. In a strength of 1 per cent. the new drug is tolerated by the human bladder for from one to three hours without irritation. Injections of 1 per cent solution into the renal pelvis are likewise free from pain, even when held in situ by plugging the catheter.

3. That mercurochrome-220 has a remarkable germicidal value is shown by the rapid sterilization accomplished in a series of cases of cystitis and pyelitis of long standing and refractory to other treatments. Now for the first time we feel that we have a method of quickly curing certain chronic infections of the bladder.

The rapidity with which a few cases of old purulent cystitis disappeared was surprising, becoming free of pus and bacteria in a few days.

4. Studies of the comparative value of acriflavine and mercurochrome-220 in gonorrhoea are not yet complete, but it has been demonstrated that with both drugs, methods of great value in the treatment of the disease have been produced.

5. Mercurochrome-220 has proved to be eminently satisfactory in the treatment of chancroids and as a dressing for buboes after incision.

Other drugs developed along the same lines have been produced and are being experimented with by us.<sup>11</sup>

ROENTGEN-RAY TREATMENT OF WIDE-SPREAD AND GENERALIZED DISEASES OF THE SKIN\*

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In the early days of the roentgen-ray therapy of skin diseases, those who resorted to this mode of treatment employed it chiefly in certain cutaneous affections which, as a rule, were restricted in area, or were limited to certain well defined regions of the body, or occurred only as circumscribed or isolated lesions. For example, such affections as epithelioma and sarcoma, the various granulomas, keloid, ringworm of the hairy surfaces, and other diseases which did not readily respond to the older methods of treatment in common use at the time, would be, so to speak, consigned to the mercies of the roentgen ray, to reap the benefits of, or to suffer the evils from a subtle and powerful therapeutic agent, the precise nature and action of which is to this day unknown. Even in such relatively small and well defined lesions as basal cell epitheliomas, keloids, warts and circumscribed granulomas, the administration of the roentgen ray was at one time, not far gone, a more or less haphazard, indeterminate process, the outcome of which, if it resulted favorably, was often at best only "the happy combination of fortuitous circumstances."

EXACTNESS IN THE ADMINISTRATION OF DOSAGE OF RAYS

As is well known, the last few years have witnessed great strides in the science and art of roentgenotherapy as applied to cutaneous affections. Improvements in the manufacture of the various types of exciting apparatus, and in devices for measuring the quality and quantity of the rays, have done much toward the introduction of many refinements in technic, so that we are enabled today to measure the exact quality and to determine the exact quantity of a given roentgen-ray

11. In treating acute anterior gonorrhoea, we are at present using a 1 per cent solution of mercurochrome instead of 1 per cent. This may be used every three hours, and should be preceded by a vigorous irrigation of sterile water. It is now a three hours burning that is 1 per cent solution, which, however, is temporary. On one subject, it is seen that the time necessary for the bacteria to be rendered unfavorable complications have been observed. At present a series of cases is being treated by the use of a 1 per cent solution of mercurochrome, and preliminary cup part of the treatment. The above results indicate that the famous content is an essential in the search for a more easily prepared. Read before the Section on Dermatology at the Twenty-third Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

emanation, without the least difficulty; in other words, we can easily administer an exact dose of roentgen rays. These improvements in apparatus and advances in technic have culminated in the production of the Coolidge tube with its remarkable flexibility and its steady delivery of rays of uniform quality.

The present-day degree of perfection attained in this method of treatment of skin diseases may therefore be measured by the facility and the simplicity with which a given dose may be safely and accurately administered, within a specified and reasonable length of time. This degree of perfection was not arrived at without much laborious experimentation and investigation; and the modern dermatologist owes a large debt of gratitude to such diligent workers and scientists as Sabouraud and Noire, Benoist, Holzknecht, Kienböck, Pusey and Caldwell, MacKee and Remer, Withelbee, Shearer, Corbett, Hampson and many others, too numerous to mention here.

#### TECHNIC

For the benefit of those who have not yet taken up this method of dermatotherapy and who contemplate doing so, I will briefly describe the technic which I employ with the best results in my practice and the effects of which I have constantly the opportunity to observe in the roentgen-ray service of the Vanderbilt Clinic, under the direction of Dr. John Remer. This technic has been elaborated and standardized by Drs. MacKee and Remer, and it is to them that I am indebted for my acquaintance with the more recent refinements of roentgen-ray administration.

Heretofore it had been necessary to employ a Holzknecht radiometer and a Benoist penetrometer or other similar devices designed for the purpose of ascertaining the quality and quantity of roentgen-ray doses. With the advent of the Coolidge tube, however, these measuring instruments are no longer essential to practical and accurate dosing. The vacuum of the Coolidge tube being stable and constant, the dosage may be determined by the observance of other important factors: namely, the length of the parallel spark gap, the distance between the anode of the tube and the skin, the amount of current passing through the tube during a given exposure, and the length of time of the exposure.

*Apparatus.*—Many excellent types of apparatus are on the market. That which I use consists of a two kilowatt, sixty cycle transformer unit, with a rotary converter to convert the direct current of 220 volts to an alternating current, and with a so-called rectifying disk, mounted on the same shaft. Attached to the cabinet are an amperemeter, a rheostat, a millimeter for the exciting current, and a meter for the Coolidge tube filament. The filament is heated by a current from a small, separate rotary converter, fed by a 110 volt main, the current from which is passed through a step-down transformer. An apparatus of this type appears to be sufficient for all purposes which the dermatologist is likely to require in his daily practice. It is capable of backing up an 8-inch parallel spark gap, and may therefore be employed also for deep therapy, a filter of 3mm. of aluminum being used.

*Standardization of Apparatus.*—This apparatus was standardized according to the method suggested by MacKee and Remer. To obtain one Holzknecht unit at "skin distance," that is, with the exposed pastil of lithium platinoeyanid resting on the skin, the following

factors were found to be serviceable as convenient working constants: length of parallel spark gap, 6 inches; amount of current passing through the tube, 2 milliamperes; distance from the anode to the skin, 8 inches; time of exposure, three minutes.

With the Coolidge tube backing up a 6-inch parallel spark gap, the Benoist penetrometer reading is approximately No. 8, that is, a "hard" ray. Experience has taught that a No. 8 to 9 B ray is to be preferred in dermatologic practice, to much softer or much harder emanations.

*Accessories.*—A stout wooden table, 6½ feet long, 2 feet wide and of the height of an ordinary dining room table, fitted with heavy roller casters, is most useful. It should be fitted with an adjustable head rest and leg and arm rests, preferably made of wood, and so constructed that they may be folded and put out of the way when not in use. A heavy tube stand, constructed with a well-balanced counterweight and a stout lead glass bowl for the Coolidge tube is to be preferred to the lighter wooden stands, the risk of accident to tube and patient being lessened with the use of a heavy apparatus. An overhead trolley system for conducting the leads to the tube, and a lead screen to protect the operator, complete the outfit.

*Method of Administration.*—In a general way, it may be said that the treatment of widespread and generalized skin diseases consists in the administration of repeated fractional doses to the entire affected integument. In the majority of eruptions a dose of one-eighth to one-quarter Holzknecht units at "skin distance," administered once or twice a week, over periods varying from two to eight weeks, is sufficient to bring about involution of many of the dermatoses amenable to the treatment, so that the skin is exposed to a total dosage varying from three-quarters to one and a half Holzknecht units (skin distance) in from three to eight or nine weeks. These figures are, of course, only approximate, being subject to considerable variation. For example, a superficial, thin-scaled generalized psoriasis may involute under a half or even a quarter the amount of radiation that would be required to heal a chronic, infiltrated and thick-scaled eruption of the same disease. Again, certain eruptions as a whole require different amounts of roentgen ray and different intervals between the exposures: for example, the smooth plaques and the elevated tumors of mycosis fungoides, which may occur simultaneously in one patient.

*Exposures of Large Areas of the Skin.*—When large areas, such as the anterior surface of the trunk, or the entire back, are to be treated, the rays are so administered as to permit of an approximately equal distribution of the dose over the flat and convex surfaces of the body. This is accomplished by allowing the rays to overlap from different focal points of the tube, on the same principle as the Kienböck-Adamson method of treating ringworm of the scalp, although the accuracy of the latter method cannot be duplicated in treating the trunk, nor is such exact dosage strictly necessary for practical purposes. The usual procedure is to expose certain regions of the skin in succession, as both sides of the upper chest, both sides of the mid-thoracic region, both sides of the abdominal region, etc., each area receiving the required one-eighth to one-quarter unit of radiation. Investigations bearing on this technic were carried out, about a year ago, by

W. H. Guy,<sup>1</sup> under the direction of MacKee and Remer. Guy found that a uniform dosage of roentgen rays striking a flat surface is not circular in outline as was thought to be the case, but is elliptical, with the long axis of the ellipse at right angles to the long axis of the tube. Employing a standard treating distance of 8 inches from the anode, the ellipse measured 8 by 4 or 5 inches. To quote from Guy's paper:

Thus at 8 inches the selected points for treatment should be not more than 5 inches apart in the long axis of the tube if the method of multiple application be followed. On the other hand, if one uses the open tube and allows for overlapping of rays, then in the long axis of the tube, treatments should be applied about 10 inches apart; at right angles to the long axis of the tube, about 15 to 20 inches apart. This of course applies only to a flat surface, concavities and convexities being allowed for, according to the law that intensity varies inversely as the square of the distance, excepting when using filtered rays, when the rule of direct proportion applies, as recently established by Remer and Witherbee. In treating large or convex surfaces, the law relative to the intensity being in direct proportion to the sine of the angle of incidence, must be considered. By increasing the distance from the anode we found that the size of the elliptical field increased proportionately, but was not as well defined as at the shorter distance. On the other hand, when the tube was moved nearer, the field was narrowed. Thus, if one desires to treat a comparatively large area by a single application, approximately accurate dosage may be obtained by placing the tube farther away.

*Subdivision of Doses.*—It is unwise, and may even prove to be dangerous, to expose more than one third or even one fourth of the body surface at the same sitting, or on the same day. It is best to allow several days to intervene between the treatments, so that approximately two exposures a week are administered, when the entire skin requires radiation, the different regions of the body being treated at different times. For example, the arms and thighs may be exposed to the rays at one sitting, to be followed, after a lapse of three or four days, by roentgenization of the skin of the back or of the chest. This is done to obviate all risk of toxemia from absorption products or ill effects brought about by changes in the blood, resulting from exposure of large surfaces of the integument to roentgen rays.

When treating extensive surfaces, such as the chest and abdomen or the back, cognizance must be taken of the law that the intensity<sup>2</sup> varies inversely as the square of the distance. That is, the quantity of roentgen rays striking a given area of integument varies inversely as the square of the distance between the anode and the skin. In the application of this rule in practice—for example, in exposing the entire chest of a man—the anode may be focused at a given distance above each nipple, to which areas a certain dose is administered, say  $\frac{1}{4}$  H unit over each breast. In this procedure, calculations based on the law of intensity determine the quantity of rays striking the area of skin between the two focal points, in this case, each nipple; that is to say, the sternal portion of the chest receives overlapping rays from each lateral exposure, approximately equivalent to  $\frac{1}{8}$  H unit from each side, resulting in a  $\frac{1}{4}$  H dose to the intermammary region.

*Two Groups of Skin Diseases.*—Broadly speaking, the extensive dermatoses that most favorably respond to roentgenotherapy may be placed in two groups. The

first group comprises those in which a lasting amelioration of the symptoms or a permanent cure is to be expected; the second group comprises those in which only a temporary subsidence or removal of the lesions can be hoped for. The first group includes such diseases as lichen planus, seborrheic dermatitis, various forms of eczema, extensive eruptions of pityriasis rosea and of acne, generalized prurigo, and various forms of lichenification. The second group embraces psoriasis, dermatitis exfoliativa, pityriasis rubra, mycosis fungoides, leukemia cutis, the various forms of sarcomatosis and lymphogranulomatosis, Darier's disease, acanthosis nigricans, and other dermatoses having a tendency to implicate extensive surfaces of the body.

#### THERAPEUTIC RESULTS

I do not intend, in this paper, to go into details with regard to the therapeutic results obtained in these various dermatoses. It will suffice to say that extensive outbreaks of eczema, seborrheic dermatitis, lichen planus, widespread lichenifications, psoriasis, dermatitis exfoliativa, infectious eczematoid dermatitis and similar obstinate diseases respond to the treatment much more readily, and exhibit involution of the lesions much more rapidly, than they do under any other form of therapeutic procedure. Very few cases of this kind fail to show distinct improvement after a series of exposures amounting to three quarters to one and a quarter units of roentgen rays, administered over a period of from three to eight weeks.

The advantages of roentgenotherapy over the older methods of treatment with ointments, lotions, plasters, etc., need not be enumerated. In the pruritic eruptions, the itching, smarting and burning sensations usually are relieved after the second or third exposure. The annoyances and inconveniences attending the use of external applications are eliminated. Patients with extensive eruptions of psoriasis are freed of their trouble, if only for a time, within from three to six weeks, without resorting to mercury, tar or chrysarobinunctions, although they are advised to use petrolatum or cold cream to hasten the elimination of scale formation. In my experience, seborrheic dermatitis and psoriasis respond to the treatment more rapidly than the other affections above mentioned, the various lichenifications of the skin and lichen planus of the diffuse variety being next in order. In some patients, a well marked pigmentation of the skin remains at the sites of the lesions for several weeks after involution has taken place, especially after psoriasis and lichen planus.

With regard to the graver dermatoses, such as Darier's disease, mycosis fungoides, leukemia cutis, disseminated sarcoma of the skin and related maladies, we have in roentgenotherapy practically the only remedy which may be said to be of the slightest practical value in the treatment of extensive diseased surfaces. The most striking results are obtained in mycosis fungoides and Kaposi's sarcoma. In cases in which the lesions are not too far advanced, and sometimes even in the most advanced instances, the individual plaques, tumors and ulcerations are often healed without difficulty and in a remarkably short time. Not only does roentgenotherapy keep alive the patients with these diseases, but, if they submit to persistent and judicious treatment, they live in comparative comfort and retain a fair state of general health. In mycosis fungoides the ordinary unfiltered applications suffice

1. Guy, W. H.: Experiments with Roentgen Rays and Radium, *J. Cutan. Dis.* 30:332 (June) 1918.  
2. Amount or quantity of roentgen rays.

to bring about involution of most of the lesions; but in the various forms of disseminated sarcoma it has been found necessary to employ the deep, filtered ray to restore the tissues to their normal state (Remer). It is quite true that roentgen rays do not cure patients with these grave maladies; the lesions recur sooner or later, and the victim dies of metastases or intercurrent disease. But it is equally true that no other form of treatment can compare with roentgenotherapy in effectiveness with regard to the relief of subjective symptoms and objective signs, and with regard to checking the progress of the disease and retarding the fatal outcome. To permit this class of patients to spend the few remaining months or years of their lives in constant agony, when relief and perhaps even cure may result from roentgen treatment, seems to me to be nothing short of heartless negligence.

#### OTHER DISEASES AMENABLE TO ROENTGENOTHERAPY

I<sup>3</sup> recently reported an instance of acanthosis nigricans of the juvenile type, occurring in a young woman under my care. She presented typical and well pronounced lesions implicating practically the entire body, with rugose and papillary growths in the axillae and the groins. A series of roentgen-ray treatments, extending over a period of five months, has resulted in complete involution of the lesions, so that her skin today is normal in appearance and texture. Cognizance is taken of the fact that the juvenile variety of this disease occasionally heals spontaneously; but the fact remains that until the rays were administered, no definite signs of healing were manifested in this patient's eruption.

In the treatment of pityriasis rubra pilaris, dermatitis herpetiformis and the various bullous and desquamative diseases grouped under the head of pemphigus, I have had too little personal experience to venture an opinion as to the efficacy of roentgenotherapy. But I feel that we are justified in giving this form of treatment a very thorough trial in such affections, knowing, as we do, that in most instances our efforts to cure the patients or even to ameliorate their symptoms with the older remedies usually prove to be fruitless.

#### CONCLUSION

The carefully computed fractional dose administration of roentgen rays may be used with impunity in the great majority of extensive dermatoses, which do not readily respond to the usual older remedies; and though it is true that certain maladies seem to be not susceptible to the healing properties of the rays, roentgenotherapy should nevertheless be given a chance to prove its worth, in the knowledge that no harm, and possibly a great deal of good, may result from its judicious administration in many of the widespread dermatoses.

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#### ABSTRACT OF DISCUSSION

DR. EBERETT S. LAIN, Oklahoma City: I was pleased to hear this very concise and interesting résumé of Dr. Wise's experience with the roentgen ray. He has gone into the details so explicitly as regards the technic that it seems that almost any one might follow his technic and do successful work. There are a few things, however, on which he was not so explicit and which might lead to error on the part of some one attempting to treat diseases. Of course,

it was only lack of time that Dr. Wise did not mention these things. He considers the advantage of treating psoriasis by roentgen ray though he certainly should have mentioned the misfortune one might have in treating the scalp with this agent, also over the eyebrows and eyelashes. However, in my experience, and that of others too, a first depilatory ray is usually not permanent. Dermatitis herpetiformis, I believe, belongs in the second group, as mentioned by Dr. Wise. It is more benefited by this method than by the use of medicine, but, like psoriasis, it is sure to return unless some etiologic factor is sought and removed. He mentions the use of only one radiometer, the Holzknicht. If I am not mistaken that is not obtainable at present. I was unable to obtain the pastilles soon after the war began and so had to invest in another, a Hampson, and I believe it is more convenient for the inexperienced man than the Holzknicht is. No one should attempt treatment at all without first measuring his machine carefully. Every machine varies. No two machines will give exactly the same output under the same conditions, for many reasons; first, because of the different windings in the various coils, also because of the different output conditions in the various cities. Again, the same type of machine from the same manufacturer, in my experience will not always give the same amount of ray which a former machine may have measured. Machines should always be carefully tested before attempting roentgen therapy.

DR. GEORGE M. MACKEE, New York: I believe that a technic has been developed that stands all the requirements of practical work, a technic that is very versatile and that can be handed from one individual to another and used on any apparatus in any part of the country. Dr. Remer and Dr. Witherbee, among others, have tested this technic very accurately in every way on every transformer we have been able to find in the different cities, and the results are absolutely the same. What Dr. Lain says one must take cognizance of, of course. The technic, although accurate, is by no means fool proof, and one must not only be acquainted with the technic but with all possible errors. The technic cannot be made fool proof. It is no longer necessary, I am glad to say, to depend on any form of radiometer whatever. It is possible to estimate the dose with arithmetical accuracy, provided a man has had any experience. Any technic that can be used on the scalp by a number of different individuals, some of them necessarily in different cities, certainly stands all the tests, and that has been accomplished. Listening to Dr. Wise's paper has made me a little reminiscent and I cannot help but recall the difficulties we had ten or fifteen years ago. Those of you who are undertaking the work now do not realize the difficulties the earlier workers encountered and overcame, some of them dying in the attempt. There was at first a wave of enthusiasm and confidence and everybody was going to treat everything with the roentgen ray. That wave did not last long and was followed by a wave of pessimism and it was difficult to get permission to apply the roentgen ray, either from the patient or the patient's doctor. Within the last few years, thanks to the efforts of a few scientifically inclined dermatologists and roentgenologists, we have roentgen-ray therapy placed on a scientific basis and there is again a feeling of confidence. I would urge that those who write on roentgen rays and use them pay particular attention to technic and the avoidance of statements that are not conservative. Otherwise we will have history repeated and in claiming results we cannot get, together with untoward results associated with overconfidence and carelessness, we may have another wave of pessimism. Thanks to modern technic, the day of the acute roentgen-ray burn has passed, but the day of sequels has not passed, and that has not so much to do with the roentgen ray as with judgment. That depends on the judgment of the person using it and that requires a certain amount of experience which is within any one's reach. Sequels such as telangiectases, atrophy, roentgen warts and epithelioma can be avoided. We make it a rule in the clinic never to produce an erythema, except in some cases where we are justified in doing so, such as in epithelioma. We never produce an erythema in any disease where it is not absolutely necessary,

<sup>3</sup> Wise, Fred: Acanthosis Nigricans Foll wig Decapitation of the Nails: Report of a Case, *J. Cutan. Dis.* **34**: 35 (Jan.) 1913.

because an erythema may lead to telangiectasia and atrophy years afterward. It is not only a question of technic but also of judgment.

DR. J. D. GIBSON, Denver: Unfortunately, many of us got our burns before the technic was produced, and I was one of them. We must watch the treatment and know what we are trying to accomplish. In skin treatments we must never lose sight of the fact of whether we want to get a reaction or not. In the deep conditions we usually want a reaction, but in many of the others, like psoriasis, it is not necessary to produce a profound reaction.

DR. WALKER J. HIGHMAN, New York: In substantiation of Dr. MacKee's experiences, I wish to state that the latter were confined on the skin service at the Walter Reed General Hospital, Washington, D. C. The scheme of dosage suggested by MacKee was followed.

DR. JOSEPH ZEISLER, Chicago: It is with a great deal of hesitancy that I get up to say a few words, not at all in criticism of what has been presented and with admiration of the modern progress in roentgen-ray therapy. But after all, we should hold to this maxim; we employ roentgen rays for the purpose of accomplishing a certain result and in doing so we should avoid harm. If these two conditions are fulfilled the technic becomes of minor importance. I think I am expressing not only my own view but also that of Dr. Pusey when I say that with fractional doses these conditions can be fulfilled. I do not deprecate massive doses. I have employed fractional doses for eighteen years and have never had a sleepless night or any worry whatever on their account. In using the roentgen ray for generalized dermatoses I have always held that it should serve merely as an adjuvant, and that the more important consideration is the underlying cause.

DR. GEORGE M. MACKEE, New York: We have not been talking about massive doses. These are used only in a very few conditions, like plantar warts, epithelioma, etc. What we have been talking about is not a massive dose but a carefully measured dose, so that we know exactly how much is given. If so much treatment is given per week, we know how much per month. The technic is so simple in that respect that in Dr. Fordyce's clinic I simply write out a prescription for the dose. We advocate carefully measured doses, fractional or intensive, and with a technic that can be made universal so that results may be duplicated by the same operator and by other operators.

DR. HENRY H. HAZEN, Washington, D. C.: I would like to agree with everything Dr. Wise and Dr. MacKee have said. I have had several years' experience and in the last four years have been using the measured dose. If there is anything I dislike to get it is a patient coming from a man who does not measure his dose and does not know what the patient has received. You have no idea where the patient is going to get off or where you are going to get off. You cannot possibly send the patient from one man to another unless you can tell absolutely what has been done. So far as personal results are concerned, in the case of my own patients who have not been referred I can see no more comparison than between daylight and darkness and I would not think of going back to the old methods of unmeasured dosage. One thing I think we should be careful about at present. In view of the fact that we are using the Coolidge tube and much larger doses, it seems to me that the safety of the operator should be looked after. We are using a very powerful ray and we should protect the operator. For that purpose I have a telephone booth with lead on four sides and a switchboard inside, with holes for ventilation. It seems to me we should not neglect to protect ourselves and I do not think that a lead screen in front is sufficient. I thought that with the various Coolidge tubes I had I could estimate my dose in the manner mentioned. Then something happened and I had to use an old tube with a heavy metal deposit on it. I apparently found that with this tube we did not get quite the radiation with the same technic as we had before. It seems to me possible that with an old tube with an extremely heavy deposit there might be some slight difference in the result.

DR. R. A. McDONNELL, New Haven, Conn.: In the employment of roentgen rays and radium we sometimes neglect adjuvants to their use. I have not heard anything said about the advantages of curetting such lesions as epitheliomas and other deep growths before using the roentgen ray. In the last few years I have made it a rule to use the curet on the lesion before using the roentgen ray, and when that is done it is possible to get results with a much smaller dose, and consequently greater safety.

DR. GEORGE M. MACKEE, New York: In regard to using an old Coolidge tube: We have naturally tried out a large variety of tubes, old and new, and we now have one old tube that is absolutely black, but there is no difference in the results obtained. No two tubes have exactly the same resistance in the filament but that makes no difference. We pay no attention to the filament meter for we are guided entirely by the milliamperage and spark gap.

DR. FRED WISE, New York: Dr. McDonnell evidently misunderstood me. I was speaking not of epithelioma but of widespread skin diseases, in which the curet is not used. Dr. Lain's remarks were apropos; I failed to state that seborrheic dermatitis and other scalp diseases should not be treated in the scalp and eyebrow region with large doses of roentgen rays. One thing should be emphasized for those who are not acquainted with roentgen-ray technic and that was one point that I brought out. It is no longer essential to employ the various radiometers and penetrometers to obtain exact dosage, so that we are not dependent on various European devices as we were heretofore, but are enabled to measure accurately a dose of roentgen rays by means of the various factors which were elucidated in my paper.

#### SPECIAL SPLINTS FOR CERTAIN INJURIES AND DISABILITIES OF THE EXTREMITIES\*

E. W. CLEARY, M.D.

SAN FRANCISCO

War and the accidents of civil industry produce large numbers of injuries to the extremities, the care of which involves the problem of splinting active ambulatory patients. Satisfactory appliances must be light, secure of adjustment and so contrived as to disturb the statics and dynamics of the wearer to the minimum degree consistent with the performance of the function for which the splint is prescribed. It is my purpose here to describe three appliances developed in caring for several hundreds of war wounds of the extremities. These appliances are (1) a shoulder abduction splint; (2) an elbow and knee traction splint, and (3) a forearm supination splint. Three models of the shoulder splint and two of the elbow splint are to be presented.

##### SHOULDER ABDUCTION SPLINT

The framework of the simplest model of the shoulder abduction splint is shown in Figure 1, and the complete appliance in Figure 2. This splint is remarkably comfortable because (1) it disturbs the statics of the wearer hardly at all; (2) the weight of the disabled arm is supported by a broad leather saddle on the well shoulder, and (3) though no metal part presses against the body, yet no ordinary activity can disturb the adjustment. With a pair of brace wrenches the frame can be bent and shaped to carry the arm at almost any angle within the normal range of motion. Patients wearing this splint bear themselves with a relaxed and easy carriage which is in marked contrast to the strained posture of those wearing any type of splint

\* Observations made and work done while the author was chief of the orthopedic section, U. S. Army General Hospital, N. Y.

which throws the weight of the abducted arm and of the appliance all, or nearly all, on the side of the injury, thus throwing to that side the center of gravity of the body.

The construction is so simple that one shopworker, without special machinery, turns out a complete frame (Fig. 1) in twenty minutes. We use the detachable diagonal brace only when an extra heavy patient is fitted, or when lighter rods are used for the frame. We have found it expedient to have a stock of splints made up in a standard size. By adjusting with wrenches we are able to make this standard size serve for the average man weighing from

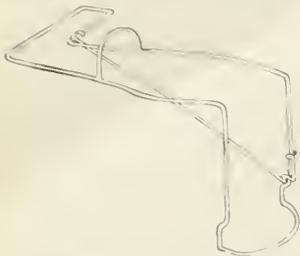


Fig. 1—Arm abduction splint with detachable brace. For left arm (frame only, rear view).

130 to 185 pounds. We make special sizes for very small and very large patients.

In order that the reader may clearly visualize the appliance, I will describe the making of a standard size abduction splint as if it were being shaped about the body of the patient:

A soft iron rod 12 feet long and five-sixteenths inch in diameter is bent into the shape of a double pointed carpet tack with legs of equal length and a middle segment 12 inches long. The middle segment is curved to fit the waist on the uninjured side at the level of the iliac crest, the two ends pointed upward. Each end is bent laterad through a right angle at a point 2 inches above the middle segment. Another right angle bend in the reverse direction is made in each end of the rod one-half inch higher. These bends form offsets which will keep the belt of the finished splint from slipping upward. The end sections of the rod now stand upright, one in front of, and the other behind, the well shoulder. The next step is to bend each horizontally across the body, 1 inch above the level of the axilla. Both hori-

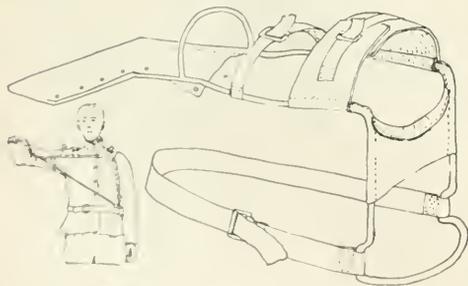


Fig. 2—Arm abduction splint complete.

zontal segments are given a slight curvature, with the convexity toward the body. The injured arm is brought to a position of 90 degrees abduction, with the elbow in right angled flexion in the horizontal plane. The rear rod lies behind the arm and projects beyond the elbow. It is now bent forward through a right angle, 26½ inches from the last bend, so that it lies along the forearm. In the same way, the front rod is bent at a point 21½ inches from its last bend, so that it extends forward inside the forearm. Eleven inches from the bend at the elbow this inside rod is

now bent through a right angle across the hand. The outside rod is bent inward through a right angle where the inside rod crosses it, and the surplus ends of the two rods are cut off so that when the ends of the frame are brazed together the space between the inside and the outside forearm rods is 5½ inches. A piece of five-sixteenths rod 13 inches long is bent into an arch and brazed to the front and rear rods so as to arch over the injured shoulder. Its purpose is to increase the rigidity of the frame. It should never rest on the shoulder when the splint is adjusted. The construction of the detachable diagonal brace is sufficiently well illustrated by Figure 1.

The splint is completed, as shown in Figure 2, by the addition of a waist belt of webbing 2 inches wide, and by leather axillary and shoulder saddles. The axillary saddle has a thick roll of felt under leather at the top edge, and its front and rear borders arch up to the angles of the frame and are sewed firmly to the acromial borders of the shoulder saddle. This is a very important detail, as it makes a firm armpit for the well shoulder and adds an essential factor to the stability of the splint. Both axillary and shoulder saddles should be of leather and 4 or 5 inches wide. The two flaps of the shoulder saddle are held firmly down by a strap and buckle, as illustrated. For additional sta-

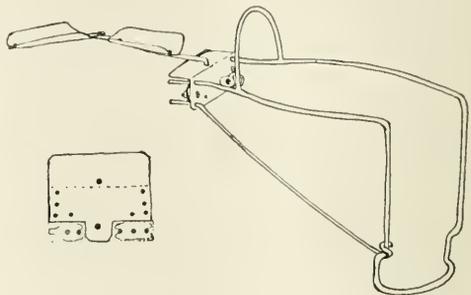


Fig. 3—Arm abduction splint with shoulder and elbow hinges. For use on either arm—adjustable to breadth of shoulders. (Inset shows detail of hinge plate.)

bility, a webbing strap may be added to buckle over the injured shoulder (Fig. 2), but this should never be tightened so as to carry any considerable weight. A flap of canvas is sewed to the outside of the arm piece from the axilla to the hand. The inside edge of this flap is provided with eyelets and laced to the inside rod. Only in severe cases is it necessary to undo this lacing to put on the splint. Many of our patients whose condition necessitates their wearing the splint only during the day, put on and remove their own splints. When the No. 1 model is to be worn night and day, we sew a strip of thick leather, 3 inches wide and 14 inches long, so that it lies between the rear rod and the body. The leather is padded with felt. Patients sleep without special discomfort in a splint so padded. We are, however, coming to use almost exclusively for continuous wear the model shown in Figure 4.

A reversible abduction splint capable of a considerable degree of adjustment as to size, and applicable to either right or left arm injuries, is shown in Figure 3. The hinge plate is of sheet iron one-sixteenth inch thick. A sheet 6 by 5½ inches will cut for the hinge plate and the two locking plates. The holes in the locking plates are farther apart than the corresponding holes in the hinge plate. Each locking plate is curved

sufficiently to make the holes correspond to those in the hinge plate. When the locking plate is in place, tightening the bolt through its center effectually locks the rods which pass through the end holes, so that they cannot slip in the hinge plate. One locking plate is made with a lug instead of a hole at one end. This lug goes into the hole at the back of the hinge plate which receives the end of the diagonal brace when the splint is reversed. On account of the wide range of motion permitted to the abducted arm, this splint has to be fitted with a diagonal leather strap from the rear belt offset to the hinge plate at the rear. The axillary saddle used is made to unbuckle at one end for convenience in applying the splint; the strapping is otherwise the same as in Figure 2. Owing to the satisfactory way in which the other models meet the requirements of most patients, this model has not been much used.

The all-anterior model of the arm abduction splint shown in Figure 4 has two advantages: (1) it may be applied with ease to even the severest injuries, and (2) no metal crosses the back of the patient and interferes with his comfort when he is lying in bed. The frame is but little more difficult to make than that of the Figure 1 model. The distance between the axillary half loops (standard size) should be 14 inches. The vertical distance from the horizontal bar to the lower edge of the waist belt should be 15 inches. Other dimensions are the same as in the standard size of the Figure 1 model. In this model a broad leather strap crosses the back from the rear border of the axillary saddle and fastens by two flat buckles to the rear of the axillary half

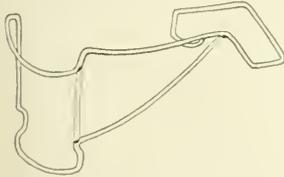


Fig. 4.—Arm abduction splint (left). Frame with double anterior brace. No metal across the back.

loop on the injured side. A diagonal strap, extending up from the rear waist belt offset, buckles just below the broad horizontal strap. Thus, a leather triangle at the back corresponding to the metal triangle in front holds the splint firmly in place. Buckles must be close in the axilla so as not to come under the back of the recumbent patient. The axillary saddle is as described above and shown in Figure 2. It extends between the metal half loop and the body and should carry all the pressure of the axilla and the side. The metal loop should stand free and function only as a stay. It is a fundamental principle of every model of this type of abduction splint that all the weight and pressure of the body be sustained on fabric straps and leather saddles, and not on metal parts. In the all-anterior model, the rear of the shoulder saddle is sewed partly to the short horizontal segment of the frame at the rear of the axillary half loop and, for the rest of its width, to the broad strap crossing the shoulders. The buckle strap of the shoulder saddle should attach to the frame and not to the back strap.

The arm, supported on one of these abduction splints, lies relaxed on a comfortable platform. It may be subjected to traction, tied down firmly, or allowed any degree of motion consistent with the patient's welfare. I have seen a patient whose arm was being held in right-angled abduction using a small carpenter's plane with the abducted hand. If it is desired to hold the

arm directed forward at an angle of 45 degrees to the sagittal plane of the body, a position much favored by some eminent surgeons, the splint can easily be adjusted for this position by bending the rods. I have observed, however, that patients who are much of the

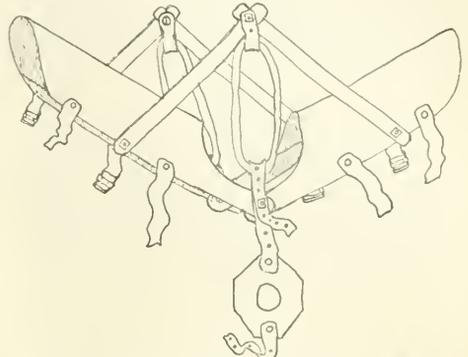


Fig. 5.—Elbow extension splint for increasing extension by elastic traction, the so-called "diamond splint."

time in an erect position prefer to have the arm abducted straight out from the side. This is specially true of those whose forearms may be left free for use of the wrist. A patient with the splint adjusted straight out can, without disturbing the abduction of his shoulder, swing his forearm inward free of the splint and do many sorts of things with his hand and wrist without having the splint so much in his way as if it were bent forward 45 degrees.

Very light frames made according to the all anterior model of this splint should be of much service in caring for the pitiful little dangle arms left by infantile paralysis. An appalling amount of disability and suffering is still occurring for the want of an ideal shoulder abduction splint. I believe that such a splint must provide for the carrying of the weight of the injured arm on the well shoulder and the axilla. I trust that the models presented will direct attention to this fundamental principle of successful shoulder abduction splinting.

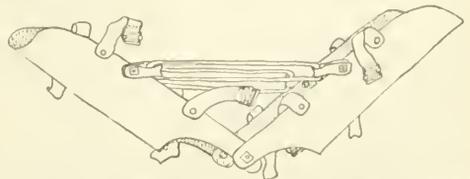


Fig. 6.—Elbow splint, same as in Figure 5, adjusted to increase flexion.

#### ELBOW AND KNEE SPLINTS

Elastic traction as an agency for the correction of deformity has, through misuse and injudicious use, come somewhat into disfavor. I have found it of very great assistance in the treatment of a large number of elbow and knee injuries involving limitations in joint motion. When india rubber is used with sufficient patience and discrimination, I consider it one of the most potent of all agencies for the restoration of joint function. Extreme care must be taken not to apply

too great a force. The amount of a continuously acting force necessary to increase the range of motion in a joint tied up with scars and adhesions is often surprisingly small. It is usually best to begin with very light traction and gradually to increase it until careful measurements, taken at intervals of a few days, show definite improvement, or until the degree of force being exerted is causing marked discomfort. Definite acute pain or inflammatory reaction in the affected joint

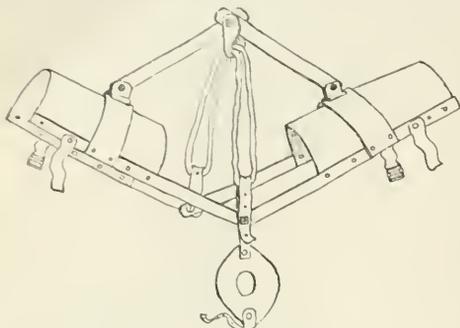


Fig. 7.—Elbow splint, light model, made of "vulcanite" fiber.

indicates that too great force is being applied, or that the condition is unsuited for this treatment. When such a reaction occurs, traction should be discontinued at once and the joint immobilized until all signs of reaction have for some days been absent. Very light traction may then be again begun. A dull ache is usual after hours of efficient traction, and is not an indication for discontinuing the treatment. It is practicable to relieve deformities by the use of rubber traction only by imitating that slow, insidious, persistent march by which the forces of gravity, muscular pull and connective tissue contraction produce deformities. Stretching and pressure atrophy are accountable for the results obtained.

Figures 5, 6 and 7 illustrate the types of splint which we are using in elbow cases. For knee extension, I use a heavier, longer splint, built as shown in Figure 7, but with two pairs of traction levers. For exerting traction, I prefer loops cut from the end of new automobile inner tubing, varying the width of the cut according to the force required. Ordinary rubber bands of assorted widths may be used. For elbows, we have used the Figure 5 model most for extension, and the same splint, reversed and stripped of traction levers and olecranon strap, for flexion (Fig. 6). The cuffs of this splint are each made of a sheet of thin tin 8 inches square. A three-fourths inch strip is bent back and flattened along two opposite edges. The flat pattern is then cut roughly to the shape of a dress shield. The cuff is bent into a semicylinder, the doubled edges forming the sides. The two horns of each cuff are rounded and drilled. Each horn, bolted to the corresponding horn of the opposing cuff, forms half of the elbow hinge. Four iron straps, one-eighth by one-half by 6 inches, make the traction levers. These are drilled at each end and bolted together at one end in pairs. Each pair is bolted by its free ends through holes drilled midway in the corresponding edges of each cuff. Stove bolts, three-sixteenths by one-half inch, are used. Adjustable leather button straps, buckle straps and a felted

olecranon strap with a hole in the center are added as shown in Figure 5. The entire splint is lined with felt, which should extend one-half inch beyond the metal on all edges. The diamond shape formed by a pair of traction levers with the opposed edges of the cuff caused this splint to become known as the "diamond splint." Under this name, various models of the splint have been used in several of the army hospitals.

The light model shown in Figure 7 is made of vulcanite fiber. A still simpler model, the cuffs of which are attached to each side bar by one rivet only, is now being tried out. The cuffs of this model, being free to swing, adjust themselves perfectly to the surface of the limb. The model maintains its adjustment with one strap only, the olecranon strap. It is chiefly useful for extension. Long traction levers on any of these splints are unnecessary. Far more force than is therapeutically practicable may be exerted through short levers. Lightness, simplicity and slightness are significant factors in securing the results from appliances in ambulatory cases. It is in the effort to have all of these essentials in the highest practicable degree that the various models have been developed.

#### FOREARM SPLINT FOR SUPINATION OR PRONATION

For maintaining the forearm in any desired degree of rotation, we use the splint shown in Figure 8. A paddle-shaped sheet of tin, 6 inches wide at the palm, 4 inches wide at the elbow and 16 inches long, turned down along all edges, makes the forearm piece. A piece of strap iron, one-eighth by one-half by 17 inches, is riveted down the center so as to project  $2\frac{1}{2}$  inches at the elbow end. A  $5\frac{1}{2}$  by 7 inch sheet of tin, rounded at the corners and bent into a semicylinder  $5\frac{1}{2}$  inches long, forms the arm piece. Strap iron, one-eighth by one-half by 7 inches, is riveted down the center, projecting  $1\frac{1}{2}$  inches. The free ends of the two pieces of strap iron, joined by a rivet, make the elbow hinge. The arm cuff can swing from one side to the other of the forearm piece, so that the splint may be used for either arm. An adjustable strap prevents the applied splint from swinging to the point of full extension of

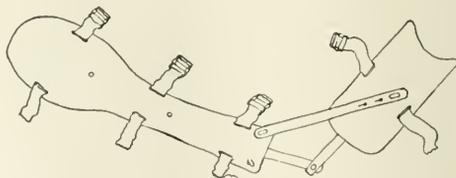


Fig. 8.—Forearm supination splint for use on either arm, adjusted for neutral rotation.

the arm, as in that position the splint no longer controls forearm rotation. The palm of the hand is next the forearm piece. The strap iron is twisted to get the desired degree of rotation. Any degree of wrist cock-up is secured by bending the hand piece. This splint is efficient but somewhat clumsy and unsightly. Effort is being made to perfect a better appliance.

**Feeble-mindedness.**—There is no panacea for feeble-mindedness. There will always be mentally defective persons in the population of every state and country. The program for meeting the needs of these persons must be as flexible and complex as the problem itself.—W. E. Fernald, *Mental Hygiene*, October, 1919.

THE MOULAGE AS A RECORD  
EMPLOYED AT THE ARMY  
MEDICAL MUSEUM\*J. FRANK WALLIS, M.D.  
WASHINGTON, D. C.

Medical institutions in Europe are famous for their wonderful collections of reproductions in wax of dermatologic lesions and pathologic conditions, and for their models of embryology, histology and anatomy.

The great educational value of these artistic records has long been appreciated by Americans who have taken graduate medical courses in these foreign clinics. All who have studied abroad remember the great assistance these models have afforded, and return with regret that their own country lacks this impressive manner of teaching.

America has awakened; she has gradually unfolded until she now stands equal with the world of nations. To hold this lofty position which she has acquired she must prove herself equal to teach the science of medicine as she has taught the world her prowess in war and industrial achievement.

To make her medical course complete, the art of illustration is essential. Max Brödel and his pupils have demonstrated the value of medical illustration to literature, and the realistic moulage is necessary to complete the teaching of the medical sciences.

The art of wax modeling should be taught in our universities. Every large medical clinic should have a modeler on its staff, to reproduce the usual and the unusual pathologic states. All large cities are rich in clinical material that can be recorded and made available to the medical student and the graduate.

A course in wax modeling should include a brief study of histology, pathology and anatomy as an aid in reproducing the various structures in their normal and abnormal conditions. The technic required in making the uncolored wax model is quickly learned, but accurate coloring will depend on the interpretation of the surface markings of the wax positive. This course should also include a study of the chemistry of pigment and its durability, the association of color with disease and its diagnostic value, the memory of color, the taking of color notes and sketches, and the application of color to the surface of the wax.

Many physicians have artistic ability and will rapidly acquire a knowledge of the various steps necessary in the production of a moulage. To them, it is hoped, this short paper may be of assistance, as it briefly outlines the method now in use in the Army Medical Museum in Washington, D. C.

A moulage or wax model of the skin and underlying structures must truthfully represent a map of the topographic structures of the normal tissues and their pathologic states. It must be a positive in wax, unaltered by tooling or handling.

The negative or plaster mold is the matrix from which the wax impression is obtained. The plaster negative bears the same truthful relations as does the negative film in photography.

The wax impression must possess all of the delicate tracings of the normal skin as well as those of the altering or destructive processes of disease. An uncol-

ored wax positive or impression is translatable to those who are familiar with the histology and pathology of the skin.

The formation of a wax model is divided into four steps: (1) negative plaster impression; (2) positive wax impression; (3) mounting, and (4) coloring.

The first step comprises the preparation of the patient and selection of the field from which may be reproduced the lesion or lesions, and in which there will be sufficient evidence of landmarks to indicate the location of the eruptions.

The preparation of the patient consists in placing the subject in the most comfortable position necessary to expose the field of operation. Papers are placed on the floor to collect particles of plaster; towels are spread to cover bedding or clothing; the part is shaved if it exhibits much hair, and the lesion is cleansed of exudate. A dam is now built around the area selected. The most satisfactory material for this purpose is made by saturating gauze or cheesecloth in a thin mixture of plaster of Paris and water. The dam should extend about 1½ inches above the surface of the skin. This method is very good, as it reinforces the edge of the cast and thus eliminates the possibility of breakage in the transport of molds. The method we now employ is to use wet towels as a dam. When the plaster is poured on the towel, it leaves an impression of the fabric which is reproduced in wax, affording reinforcement as well as an attractive border.

When the dam is formed, the surface of the skin and the lesions is oiled with a thin oil. This is done to prevent particles of plaster from adhering to the skin or hair on removal of the cast. When a distinctly hairy region is to be cast, such as the head, bearded face, axilla or the pubic region, petrolatum is a good medium to clump the hairs together. These are then smoothed down and a thin oil applied as on any other surface.

All is then ready for the mixing of the plaster of Paris. This is to be prepared after the dam is built and the parts oiled; otherwise, the mixture would harden before it could be used. The plaster of Paris is sifted into a basin half full of cold water until the saturated plaster fills the basin within an eighth of an inch from the surface of the water. The mixture is gently stirred to drive off the air, and this produces an even combination, free from lumps.

The plaster must be of a consistency approximating whipped cream in order to insure a fine impression. After the proper consistency is obtained by stirring or by adding plaster of Paris gradually and in small quantities, the mixture is applied with a scoop, large spoon or cup. The plaster is first poured around the edges, then on the surface, and last on the lesion or wound. A fine impression is obtained if the plaster is blown with the mouth as it is being distributed. This also eliminates the possibility of bubbles, which often spoil the impression.

The mold is now built up evenly to about the height of 1 inch, and strips of burlap dipped in plaster are placed over the cast. The burlap prevents the cast from breaking if the plaster should happen to crack while it is setting. The mold is now formed and allowed to set about fifteen minutes. The absorption of water by the plaster causes heat to be radiated. When the mold feels warm to the touch, it can be removed with safety, as the chemical action of the plaster and water has then taken place.

\* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Various areas of the body require special technic so that precautions are necessary to insure a good mold, free from cracks and imperfections.

The greatest difficulty comes in avoiding undercuts. These usually occur in casting angular, rounded or irregular surfaces when making a one piece mold. Two piece molds should be avoided unless the distribution of the eruption requires it; even then, two distinct models mounted on a single board would be more desirable, as for example, in instances of eruptions on the dorsal and palmar surfaces of the hand.

Casts of the face are best made in one piece molds. The dam is built the same as for any other part of the body. Eyebrows are well greased with petrolatum, and the hair well smoothed down in the natural direction of growth. The eyelashes should be treated in the same manner. It is often advisable to cover the eyelids with cigaret paper. Rubber tubing should be placed in the nostrils, and cotton plugs in the ears.

Molds of the chest and of the abdomen should not be taken at the same time on account of respiratory movements. Any slight movement on the part of the patient will crack the cast. Cracks are often unavoidable in molds of this kind; but unless very large, they will not be conspicuous in the finished model.

The procedure of taking a plaster cast is not painful, even in the most sensitive lesions. The only discomfort will be caused by the pulling of hair along with the cast.

When molds of deep wounds are taken, the plaster and all utensils should be sterilized with dry heat by being baked in an oven for an hour. The most important precaution necessary to insure a good mold is to use a good grade of plaster.

The wax impression or model is made by pouring melted wax into the plaster mold. After this is colored and mounted, we have the finished model, which should bear an exact resemblance to the original as regards shape, color and surface markings.

It must be remembered that before making a wax model from a mold the plaster cast should be soaked in water for from twelve to twenty-four hours, until it becomes entirely saturated and free from air. After being taken out of the water it should be thoroughly dried with absorbent cotton.

The wax material is composed of: white beeswax, 2 pounds; paraffin, 1½ pounds; starch, 1 pound; talcum powder, 1 pound, and yellow beeswax, 2 ounces.

The white beeswax and the paraffin are first heated on a water bath until entirely melted, when the starch and talcum powder are slowly added through a fine sieve. When the powders are entirely submerged, the mixture is stirred gently and allowed to remain over the fire for about an hour, with occasional stirring. The yellow beeswax is added to give the mixture the proper color.

This wax combination is now poured into the plaster cast and quickly shaken, so that it will cover rapidly the entire surface, without lines or streaks. The remaining wax is then poured back into the boiler, and the process is repeated until the proper thickness is obtained, usually about one-quarter inch. The wax is allowed to cool, from five to ten minutes generally being sufficient for this purpose, before being removed from the mold. The wax impression should be removed with great care and immersed in cold water.

Care must be taken during all of the processes from now on, so as not to mar the model with the warm

hands or to allow it to come in contact with anything but wet cotton. The impression, as now made, must be kept perfect, otherwise the model is of no value. As a precaution, it is advisable to wear wet cotton gloves while working with the model.

The method of mounting models at the Army Medical Museum has a distinct advantage over the old method used by some artists. The linen draping is eliminated, as it does not add attraction. The small tacks which were used to attach the model to the baseboard are responsible for the cracked models and offer frail support to the specimen.

To mount the model, bolts are screwed into blocks of wood, are embedded in the reverse side of the model, and are held by nuts to the baseboard. The baseboard is selected from well seasoned wood. To prevent the board from warping, cross strips are inserted at both ends of the board. This precaution is necessary, as the slightest warping might crack the model. After the model is safely mounted, it is ready for coloring.

Pure colors in oil, free from opaques, are absolutely necessary for wax. The surface of the wax impression after leaving the plaster cast is receptive to color. All good, permanent, transparent colors are satisfactory, and the accuracy of reproduction is dependent on the skill of the artist.

The wax model can be adapted to illustrate pathologic conditions in the deeper structures of the thorax and abdomen, lesions in the brain and spinal cord, and in various organs. The field for the pathologic moulage is unlimited and is of extreme value in recording unusual mortuary findings as well as in providing the usual teaching specimens for the student.

When we review the various lesions of tuberculosis and syphilis and their selected territorial invasions, we can appreciate the advantage of permanent records, accurate as to color and structure, over the transient specimen often imperfectly mounted in its preserving fluid in the museum jar. Reproductions in wax of the various types of pneumonia would be of great educational value. Models of surgical anatomy and stages of operations would be of much value to the surgeon, as well as to the medical student.

The Army Medical Museum is now building a collection that will surpass any ever produced in the foreign clinics. Every medical man in this country is going to be interested in the American collection, and many will contribute to its formation and receive honorable mention in our National Museum.

To establish this American collection it is necessary for physicians and clinicians in American cities to cooperate with the museum in obtaining material of interest. This material can be easily gathered if plaster molds of all interesting lesions, rare skin diseases or pathologic findings, with photographs, are sent to the curator of the Army Medical Museum. With the aid of Congress in appropriation of sufficient money to carry on our work, and with a staff of well trained artists, we would accumulate rapidly a fine collection of usual and unusual dermatologic and pathologic models.

The day will come when it will be possible to visit our Army Medical Museum in our national capital and study diseased conditions in its various phases, and leave with the conviction that medicine can be taught in America and can be learned without visiting the well known clinics in European cities.

## ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: I would like to express my appreciation of the work which Dr. Wallis has undertaken. The only large collection of models that has ever been made is the collection in Paris made by Beretta. There is no doubt that good models are the best illustrations of the diseases of the skin which we can have, and I think the work that Dr. Wallis has initiated is one that we should support. Dr. Wallis is a trained dermatologist and he is self-sacrificing enough to take up this work. It has been started under the auspices of the army and it is to be hoped that the army will continue to support the work. If it does, it will in time have a collection that will be worthy of pilgrimages from all over the country, and that will be a source of reputation to the institution that possesses it. There is great room for such a thing in this country. Every medical school that undertakes to teach skin diseases should have a collection of the common diseases. If Dr. Wallis can only develop that work he will be doing a benefit to the dermatologists of the entire country.

DR. J. FRANK WALLIS, Washington, D. C.: I appreciate the interest you have taken in this work. It was largely accidental. I started to carry out the work and then we found that men who were interested in dermatology were expected to make models, but the work was very slow and was given up. I did very little with it until a year ago when I made a model, very quietly, of a case of pityriasis rosea that was developing into a psoriasis. Another dermatologist had also seen the case before I saw it. I made a model of it and it was seen by my commanding officer, but instead of being court-martialed I was sent to Washington and I have been there for a year having a good time. I enjoy it and if I can do anything to help others I shall be glad to do it. America has never had any modeling and I shall be very happy to help carry out the work.

## LATE RESULTS OF SUPPOSEDLY SUCCESSFUL ABDOMINAL OPERATIONS ON THE DIGESTIVE TRACT\*

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When one contemplates the marvelous change in the past twenty years in our knowledge of the diseases of the digestive apparatus and honestly tries to analyze what has been the fundamental cause of this change—this metamorphosis from poverty of method and uncertainty of result to our present wealth of diagnostic data and successful therapy—I feel that we must admit that it is to the surgeon and to the physiologist that this great change is mainly due.

The use of the stomach tube has been an aid, and the more refined and newer methods of studying gastric and intestinal secretions have proved of interest; but an attempt to evolve a gastro-intestinal pathology fundamentally on the basis of secretory variations is to lean on a frail reed—and in the stomach the secretory findings must be regarded as but general indexes of the tendency of the functional digestive act rather than as exact expressions of discrete pathologic entities—one of the many clinical data which does not furnish the answer itself but which adds its little to the many other aids at our command at reaching a true conception of the underlying disease process.

From the physiologist we have learned a great deal. The work of Pawlow and his followers, of Baylis

and Starling and of Cannon has shown us that there is order, not chaos, in the physiology of digestion in both motor and secretory spheres, and has furnished us with normal standards of inestimable value in studying the changes in the various digestive functions due to disease.

But, after all, it is the development of modern surgical technic with its concomitant ability to explore safely and carefully—not disturbed by the factors of time or of pain or of possible infection—the abdominal cavity in its various diseased conditions that has been the fons et origo of our modern knowledge of the pathology of digestion, furnishing us a real comparison of clinical signs and symptoms with definite pathologic changes—both gross and microscopic—a true necropsy in vivo. There is no clinician who is not eager to render to the surgeon full credit for the marvelous increase in our knowledge of the diseases of the digestive tract.

So many of the organic lesions of the stomach and intestine are fundamentally surgical—the results, especially the early results of surgical treatment have been so brilliant—that there has arisen in the minds of most patients, many clinicians and more than a few surgeons the idea that the knife is the sole therapeutic agent of value in this field. Yet, especially within the past few years, there has been a growing feeling that although a condition may be fundamentally surgical, nevertheless, the limitations of surgical method may be such that sequelae may develop which nullify the good effects of the primary operation; and there has been a noticeable lessening of enthusiasm for the surgical treatment of organic gastro-intestinal lesions, notably, of course, those of a chronic nature, for obviously in the severe acute lesions such as acute appendicitis, perforated gastric ulcer, repeated attacks of gallstone colic, empyema of the gallbladder and acute intestinal obstruction, immediate surgery is the one and only safe mode of treatment.

Why is this? There can be but one answer, and that is, that notwithstanding the brilliant early results of surgery in most of the acute and many of the chronic digestive lesions there is a realization that the late results in these cases are often far from ideal, and that the second state of the patient may be no better and even worse than the first, owing to postoperative adhesions or partial obstruction with a recurrence of the same or the development of new symptoms or other causes.

In this short paper I wish to discuss very briefly some of the factors that play a part in this connection, to make certain suggestions as regards postoperative treatment from the point of view of the clinician, and to try to suggest certain principles in the treatment of the chronic abdominal lesions which may, if followed, be likely to produce the minimal percentage of failure.

## METHODS OF AVOIDING COMPLICATIONS

Let us then, in the first place, discuss methods by means of which the aftermath of inevitable abdominal operations may be as free from complications as possible—taking up, in turn, operations on the stomach, on the gallbladder, and on the intestine, these conclusions being based on the careful study of operative treatment and its sequelae in many hundreds of cases during the past ten years. After all, it is to the internist rather than to the surgeon that the patient returns if the results of operation are not so successful as

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expected—or often as promised. It is, in fact, the skilled clinician who should in the chronic—not the acute—conditions be the final judge as to whether treatment should be medical with its accessory dietetic and physical aids, or surgical; although even now the clinician's hand is often forced by the patient's insistence on the apparently quicker surgical route, although in our experience this enthusiasm for surgery on the part of the laity is very markedly less than it was five or even three years ago, obviously because there is a gradually dawning realization that, after all, surgery is a two edged sword, and is not omnipotent in the prevention of postoperative adhesions or a catarrhal intestinal condition which may nullify partly, or in whole, the success of the operation per se.

In deciding on the relative value of surgical and non-surgical treatment, we feel that the tendency has been far too great to rush into surgery without giving other means a fair and honest trial. Our feeling is that the more acute the need for immediate surgery, the more clean-cut the picture, the more likely the success, both immediate and later, of surgical treatment.

There are many conditions, as, for example, chronic appendicitis, various forms of abdominal adhesions, as those associated with chronic appendicitis, former attacks of gastric or duodenal ulcer, pericholecystitis, as well as that large and evergrowing group of postoperative adhesions in which the tendency has been to operate—especially on the part of the patient, and the clinician, and when the surgeon is often by far the most reluctant of the three, in which surgery should be resorted to only as a last resort—for in this group of cases we have the greatest chance, even with the best postoperative care, of the formation of new adhesions with the reappearance of the old or other symptoms. No one who has studied this group of cases thoroughly can have failed to note that there are certain individuals in whom adhesions are peculiarly likely to form, however rigorous the operative technic.

On the other hand, it is in this group of cases that the functional and organic are so exquisitely blended in the production of symptoms that it would take a veritable magician to determine beforehand the relative rôle played by each in the production of symptoms.

Rest—that most potent of all medicaments in gastrointestinal therapy; elimination of foci of infection; local heat or cold; posture; supports; an appropriate diet, sometimes soothing, sometimes stimulating; massage; exercises; medicines, antispasmodic, lubricating, tonic; oil instillations; irrigations—all of these should be tried conscientiously before one thinks of surgical treatment, for these are the cases that test the stuff of which the physician is made; if he realizes that, to get results by medical and physical means, time is essential, that the patient, while being encouraged, should be made to realize that improvement must, of necessity, be slow, possibly taking many weeks, oftener months; and if he can get a real appreciation on the part of the patient of the underlying principles of the treatment and his hearty cooperation in carrying it out, then he will, indeed, be able to get good and often brilliant results in this most difficult group of cases, and to realize that, after all, the organic, which is fundamentally surgical, we freely admit, was playing but a minor rôle, or possibly no part, in the causation

of symptoms, and that by correcting the functional disturbances associated with it the patient became so nearly well that he was unconscious, or almost so, that any organic lesion was present.

Again, operation is advised in many cases on a wrong conception of the underlying process—notably that enormous group of cases of so-called chronic appendicitis associated with high grades of visceroprosis in which the patient and physician both believe that removal of the appendix will be followed by a complete cessation of symptoms, when in reality such a belief is chimerical to say the least, as the chronically diseased appendix represents but one phase of a diffuse low grade peritonitis involving the terminal ileum, cecum and ascending colon, and frequently pelvic organs as well. These are the cases, extremely numerous, in which a realization of this fact and absence of surgical treatment will save the patient and the physician from disappointment and heartache.

Another point of great importance in cases in which surgery is obviously necessary as, notably, callous ulcer with true obstruction (although even here it is well to try first the effect of nonirritating diet, local heat, rest and antispasmodic and alkaline treatment to determine the relative rôle of functional spasm and true organic obstruction in the production of symptoms); ulcer with repeated hemorrhages or intractable to the ordinary therapeutic procedures; gallbladder disease, either obviously surgical from the first or in which conscientious treatment along other lines has proved unavailing—a point of fundamental importance is the choice of the proper operation. I feel very strongly, for instance, that a gastroenterostomy, whether with and even more so without pyloric resection, is fundamentally unphysiologic in that an acid, unchymified mass is projected without the benefit of true sphincter control into a portion of intestine designed only to receive alkaline semiliquid chyme, and that even with the utmost postoperative dietetic care it is almost impossible to avoid a certain amount of jejunal irritation, to which, of course, must be added the possibilities of the regurgitation of duodenal contents or even a true vicious circle in those cases in which the pylorus is left patent. We have followed the subsequent history of many of these cases, and we feel, as did Mathieu, from his series of more than thirty years, that in practically all cases there is to be found some form of digestive disturbance, usually intestinal.

Whenever possible I believe that a pyloroplasty or even a Polya operation should be performed in preference, as these, especially the former, far more closely approximate normal physiologic conditions.

In cases of gallbladder disease, my feeling has been that in the majority of cases, in my experience at least, a cholecystectomy, even with its slight possibility of refractory duodenitis and diarrhea, is more productive of good results than a cholecystotomy, while obviously far less likely to be followed by a return of gallbladder symptoms or by malignant changes.

In cases of gastric carcinoma I have always felt that far too many patients are operated on, when the abdomen is simply opened and closed, merely to confirm a palpably obvious diagnosis, but that if an operation is performed, far too few surgeons are willing to make extensive resections in the one hope of really pro-

ducing radical improvement. In fact, for many years my feeling has been that surgery of the chronic lesions of the upper right quadrant has been so likely to have an unsatisfactory aftermath that I have been delaying operation further and further and trying other forms of treatment longer and longer, sometimes with almost complete or partial success, oftener, I am free to admit, with final recourse to surgery after all.

As for extensive resection of the bowel, my feeling is that in the vast majority of these cases, absolute failure is the usual ultimate outcome; and in my experience, the only cases in which even partial success has been obtained are those in which the resection is only of a limited portion of intestine, notably from terminal ileum to beginning transverse colon which, after all, in the majority of cases is that portion most likely to show real pathologic changes.

#### POSTOPERATIVE TREATMENT

As regards postoperative treatment in abdominal surgery, I feel very strongly that a far closer association between surgeon and clinician is essential to get the best results for the patient. The surgeon is not trained in dietetics; he is singularly prone to follow a routine in the postoperative management of his cases, and this lack of individualization is often productive of deplorable results.

For instance, in cases of reflex hyperacidity and pylorospasm secondary to a diseased appendix, the gastric symptoms persist long after the appendix is removed, and a nonirritating diet with alkalis and antispasmodics may be necessary for many weeks. Yet, how often do we find our patients eating salads and acids on the fifth or sixth day because they were told by the surgeon that "the only trouble was with the appendix, and they could eat anything now that it had been removed."

Also, to my way of thinking, every case of major operation on the stomach—gastro-enterostomy, resection, pyloroplasty or Polya operation—should be treated *exactly* like an acute gastric ulcer. I am convinced by the study of a great many cases that by a carefully and slowly graded dietetic therapy, from a few days of absolute starvation, through many days of nonirritating liquid diet in small amounts, to many weeks of a bland, soft diet, a great many, if not all, of the discouraging sequelae of these operations could be avoided; for I am sure that the tendency of the vast majority of surgeons is to feed these patients too soon and too much.

A third point of great importance, I believe, is the advisability—I was almost going to say the necessity—of every clinician's attending every operation in his cases of digestive disease. In the first place, it is of incomparable value in demonstrating the correctness or incorrectness of his diagnosis, and, in the latter case, of suggesting to him the cause of his mistake; in the second place, it should make him realize the difficulties which confront the surgeon in so many of these cases, and, in the chronic group of which I have spoken so often, should accentuate the advisability of further treatment by medical, dietetic and physical means before having recourse to surgery; while in the third place his presence at the operation should suggest to the surgeon the wisdom of utilizing his clinical experience both at the operation and in the management of the postoperative period.

Of course, the most important of all is the installation of proper postoperative measures to minimize that bugbear of surgeon, clinician and patient, the formation of postoperative adhesions. I have followed this group of cases for many years and have made many hundreds of fluoroscopic studies of them, always, of course, studying the patients in both prone and upright positions, and I am convinced beyond peradventure that a great deal can be done by measures designed to prevent stasis of intestinal contents and of the intestine itself. Admitting perfect surgical technic with the closing in of all raw surfaces, as far as possible, the postoperative treatment should consist of frequent change of position in most cases, or sometimes with especially localized adhesions, a special position, such as elevated foot of bed or head of bed, or lying on one side or the other, with free purgation as early as possible, repeated very frequently, and, as soon as the incision warrants it, deep abdominal massage, to be kept up for several weeks.

I am absolutely convinced that by a persistence in these measures, adhesion formation, while not abolished, is reduced to a minimum, just as I am convinced that the leaving within the abdominal cavity of oil, salt solution or solution of sodium citrate or the hypodermic administration of fibrolysin is valueless in this connection.

If a perfect operation for diseases of the stomach and intestine had been devised there would be no need for a paper such as this; but there is no ideal abdominal operation. In all, even with perfect technic, adhesions are not only possible, but probable. In many cases, such as gastro-enterostomy or cholecystectomy, an unphysiologic condition is produced. In others, such as pyloroplasty, pyloric resection, Polya operation, especially if retrocolic but even with a long anterior loop, closure due to adhesions, or changes in the omental fat with partial or complete obstruction and the necessity of a secondary operation may occur, while the value of a gastro-enterostomy may be nullified by the development of a vicious circle, by the subsequent closure of the new orifice or by subsequent development of ulcer.

I realize that I have offered in this article thoughts which have occurred to many surgeons and clinicians, especially those interested chiefly in digestive diseases, and that most that I have said is but a series of truisms. But it has seemed to me that such a general presentation is more likely to do good than a careful statistical study, although my conclusions are based on a study of many hundreds of postoperative cases through a long series of years and on personal attendance at several thousand abdominal operations.

When we realize the cases of late failure, each of us has seen after surgical treatment, as, for example, jejunal ulcer or jejunitis; vicious circle, or recurrence of old ulcer symptoms after gastro-enterostomy; postoperative adhesions, here, as well as in pyloroplasty, Polya, or other operations for resection of the stomach with partial obstruction and sometimes need of a secondary operation; adhesions; duodenitis; return of calculi or infection after gallbladder operations; adhesions after appendix operations or persistence of symptoms notwithstanding the removal of the appendix, due to unrecognized trouble elsewhere; extensive adhesions after partial or complete resections of the bowel, or the formation of new adhesions after opera-

tion for old adhesions, I feel that I am, indeed, justified in calling attention to this group of cases in the hope that some means of lessening the failures may be formulated.

#### CONCLUSIONS

The conclusions that have come to me from these many years of intensive study of this peculiarly difficult yet wonderfully interesting field are, in summary:

1. The surgeon has been too prone to believe in the success of treatment of abdominal lesions because of the brilliant success of surgery for acute abdominal conditions and to the apparent early cure of many chronic conditions when, however, some of the improvement must be ascribed to rest, careful nursing, change of environment, diet, and the other adjuncts to successful hospital treatment. If, after a few months, there is a return of the same or the development of new symptoms, the surgeon is often not cognizant of them, for it is to the clinician and not to the surgeon that the patient is likely to return with his complaints.

2. Some failures are to be ascribed to a definitely wrong appreciation of the real underlying pathologic process, as notably in the case of the so-called chronic appendicitis met with in cases of visceroposis of marked degree and of long standing; and here the operation falls into the same category as that of many cases of fixation of the kidney, or suspension of the uterus, in which symptoms are ascribed to these abnormalities quite out of proportion to their true pathologic significance.

3. In many cases, partial or complete failure may be converted into partial or complete success by a clearer conception on the part of the surgeon of the underlying pathologic physiology, for in none of these abdominal lesions is it safe to rely on the correction of the morphologic changes done. Without a realization of the associated and often quite persistent functional disturbances, what should be a successful operation is often a failure. A proper diet determined in each case individually; the utilization of posture, purgation and massage to minimize adhesion formation; the choice of medication appropriate to the motor and secretory disturbances associated with the organic lesion—all these measures add immensely to the chance of a successful issue in this group of cases. While the clinician is unquestionably too prone to ascribe too much to functional disturbances, the surgeon, on the other hand, is far too likely to be guided by morphologic changes alone, and it is only by a proper balance between these two in our conception of the disease process and its consequent therapy—surgical and medical—that the optimum result can be obtained.

4. There is far too great a tendency to plunge too soon into surgery in the treatment of chronic and subtle abdominal conditions, and far too little enthusiasm for persistence in medical, dietetic and physical therapy in these cases before having recourse to surgery. Until methods have been devised absolutely to eliminate adhesion formation or operations evolved which can absolutely duplicate the normal physiology—if not the normal anatomy—of the various abdominal viscera, surgery should not be our first choice but should be the *dernier ressort*, only to be employed if skillfully directed therapy along nonsurgical lines has been tried conscientiously and over a sufficiently long period of time to prove that it is absolutely unavailing.

5. And this, after all, is really the motif of this paper: Real success in this most difficult field can only be obtained by a far closer rapprochement between surgeon and clinician: the internist should be present at every operation on his patients; the surgeon will be able to compare operative findings and preoperative clinical data, and the clinician's advice should be of help to the surgeon in the choice of the operative procedure. On the other hand, the visual demonstration of the pathology of the disease to the clinician should be of inestimable value to him in his future study of similar syndromes; the clinician with his knowledge of the previous functional digestive disturbances of his patient should cooperate with the surgeon in the management of the postoperative and convalescent period, and with his greater training along these lines, should direct the diet, medication and physical therapy, always, of course, in collaboration with his surgical confrère. The clinician, on the other hand, should keep the surgeon posted as to the subsequent history of the patient, and, if symptoms do recur, should not neglect, either through forgetfulness or tenderheartedness, to notify the surgeon of the fact. For, after all, the object of each is the same—to bring health to the patient—and it is only by far closer cooperation and a far greater appreciation on the part of each of the rôle that the other should play in the management of this group of cases that we shall be able to reduce to the irreducible minimum the failures—a really appalling number in toto—in cases which have been regarded as successful examples of the surgical treatment of abdominal diseases but whose subsequent histories—often altogether unknown to the surgeon—absolutely nullify this belief.

#### ABSTRACT OF DISCUSSION

Dr. JOHN A. LIGHTY, Pittsburgh: The physician has noticed the shortcomings of surgical procedure for a long time, and the surgeon himself is aware of his shortcomings. A few years ago a surgeon called attention to the unsatisfactory results from surgical procedure, in gastro-intestinal diseases particularly, and was recommending methods by which this could be overcome, such as regulation as to who should and who should not operate, etc. It will not be decided in that way. It will be decided in a coming together, as Dr. Brown suggests, of the physicians and the surgeons, and a more close cooperation. I noticed in my own work for a number of years a class of cases diagnosed secondarily as "postoperative cases." At first they were few in number, but about six years ago I began to collate and tabulate these cases. Of about 6,000 patients, 348 had the so-called postoperative symptoms. The patient was asked whether the symptoms were the same as they had been before the operation, and when the answer was affirmative, it was called a "postoperative" case. Among those 348 cases there were 150 cases of operations for appendicitis, gallbladder disease, peptic ulcer, etc. I was rather surprised at this. I thought there would be more cases of gastro-intestinal tract disease. Then I began to look over my own cases, because for some patients I had advised operation, and they came back with poor results. Most of these cases were very early gastro-enterotomies. A patient who was operated on for gastric ulcer alone, without any other indications, was worse after than before operation. We do not see very many of these cases any more because surgeons will not operate for a pure, simple, gastric or duodenal ulcer unless some other conditions are associated, such as intense, uncontrollable hemorrhage, perforation, or pyloric obstruction, or where it is decided that the patient cannot follow out his ordinary occupation under medical treatment. The other cases were

gallbladder cases. In those cases we usually found that the difficulty was that the pathology which had occurred in the biliary tract was of such a nature that surgery could not be expected to cure it. You could drain the gallbladder or remove it, and yet you did not cure the patient. The conclusion which I would like to present, together with Dr. Brown's conclusion, is that surgery is not a panacea. Some of these conditions cannot be cured by the best surgery. When the surgeon stops saying that he can cure all patients simply because he can operate, and will put himself on a plane with the clinician, who usually recognizes his limitations, I believe we will have fewer of these cases. The one class of cases which gave me the most trouble was that in which there was a button-hole incision for "chronic appendicitis," a small in the right lower abdomen, only about one inch long, with the evidence of only one suture having been inserted.

DR. ALFRED A. STRAUSS, Chicago: Medical men will turn their patients with appendicitis or a diseased gallbladder over to the surgeon for removal of the offending organ, but they will stand beside the operator and see him perform a simple gastroenterostomy for relief of a gastric or duodenal ulcer without an attempt to excise the ulcer. The same pathologic and surgical principles that hold good for the removal of the diseased gallbladder and appendix should hold good for removal of the ulcer. Many surgeons claim that gastroenterostomy alone cures the ulcer because less food passes over it and the regurgitation of bile into the stomach alkalizes the secretions, but no one has ever proved that bile cures the ulcers or that the regurgitation actually takes place to any extent, except in a vicious circle, and the idea is contrary to all information we have as to the physiology of the flow of bile from the liver into the duodenum. Realizing the ineffectiveness of simple gastroenterostomy for gastric and duodenal ulcers, I devised plastic operations both on the stomach and duodenum whereby those portions of the stomach may be reconstructed after excision of the ulcer by fascial transplants. If the ulcer is on the stomach side, as, for instance, in an ulcer of the lesser curvature, an additional plastic operation is performed on the pyloric sphincter by cutting a small portion of the ring sphincter away, without incising the mucosa. This allows the stomach to empty very rapidly, in from one and one-half to two hours, and is far more effective than a gastroenterostomy. It takes less time and requires less surgical skill and leaves the stomach and duodenum in their normal anatomical physical relationship. So far as the hyperacidity is concerned, we have learned by the fractional test meal in cases where the ulcer has been excised that these patients have a normal acidity within a short time after operation, although a marked hyperacidity was present before operation. This must be interpreted to mean that the hyperacidity is the result of the ulcer and not that the ulcer is caused by the hyperacidity. Duodenal ulcers that cannot be excised should be closed off by means of a fascial transplant plus gastroenterostomy. I agree with Dr. Brown that the patient should be guarded carefully by the medical man after operation, but one thing is positive: if the pathology, namely the ulcer, is excised, the patient will need far less medical treatment than if the ulcer is permitted to remain.

DR. JULIUS FRIEDENWALD, Baltimore: I am very interested in Dr. Brown's paper because I have been following the results of operation for many years. In 1915, Dr. Finney and I collected our pyloroplasty and gastro-enterostomy cases and compared the results of both operations. We found that in our gastro-enterostomy cases 82 per cent. were immediately satisfactory, while of the pyloroplastic cases 90 per cent. were immediately successful. Of the gastro-enterostomy cases followed during the first year after operation the results were satisfactory in 84 per cent. of the cases, while in the cases of pyloroplasty the results were entirely satisfactory in 93 per cent. The end results after five years in the gastro-enterostomy cases showed 77 per cent. satisfactory results, while the pyloroplasty cases presented 88 per cent. of satisfactory results. These figures demonstrate that while the immediate effect of an operation may be exceedingly

satisfactory, the final results may not be nearly as satisfactory.

DR. ROBERT H. ROSE, New York: The truth is we hoped for too much from surgery. We got to the point where we expected an operation to cure the patient absolutely. Sometimes it did, sometimes it could not. I believe surgery often does more than we have a right to expect. I had a case of appendicitis with a good deal of cecal stasis. Appendectomy was performed. The operation had no effect on the stasis. In a similar case appendectomy cured constipation and stasis. We really have no right to expect appendectomy to cure cecal stasis. Appendicitis has its effect on motility, and where there is intestinal inflammation it will always or practically always disturb motility. Now, in a case of a cecal stasis, appendectomy may help the stasis because it does away with a certain amount of interference with the normal motility. It is effective when dilatation is not extreme. But it is not going to reduce the caliber of that portion of the intestine to any great extent. It will improve motility and tone. It will help evacuation. Then if we continue to follow up the case, as we should, we may be able to reduce the stasis of the cecum still further. No one treatment will cure all cases, and when we talk as if surgery could, it shows that we have expected too much of it. What surgery does not do, the gastro-enterologists ought to be able to do in some other way, and I think we can nearly always accomplish it if we follow up our cases. When surgery is indicated, other methods fail. I know it is proverbially true that surgeons know very little about diet, and they are very much inclined to overfeed patients after operations.

DR. HARRIS WEINSTEIN, New York: The surgeon has come in for well deserved criticism for postoperative failures in operations on the digestive tract, but I would ask the medical man what he can accomplish by medical treatment in organic, or, for that matter, in functional gastro-intestinal diseases. I would like to hear any man indicate the treatment for gastric or duodenal ulcer, or for chronic appendicitis, that would be effective or permanent. While we relieve symptoms, the relief is but temporary, lasting from three months to one year. If we are very fortunate it might last a little longer, but the symptoms are bound to return. There is not a method of medical treatment in chronic appendicitis that is effective, and sooner or later the appendix will have to be removed. If you do not get it out sooner, you will regret it when compelled to remove it later. Recurrence of distressing gastric symptoms after appendectomy emphasizes the inefficiency of surgery in these cases, but we have nothing better to offer. In operations for gastric or duodenal ulcer, the tendency is either to operate without proper regard for indications, or to have recourse to a compromise operation, gastro-enterostomy, which disturbs the normal physiology of the stomach and does not remove the dangers from complications. Hence the many postoperative failures, which, in my estimation, are far above the accepted 15 or 20 per cent. Resections are generally shunned by the surgeon for good or bad reasons.

DR. G. A. FRIEDMAN, New York: Dr. Brown's paper is a very important one, but his suggestion that surgeons and medical men should get together and come to definite conclusions is of little value, because we do not know what the etiology of these conditions is, and that is the reason why the medical man does not succeed with medical treatment and the surgeon does succeed with the knife. I pointed out last year that gastric and duodenal ulcer is due to a constitutional disturbance, and no matter what the end results, the organic lesion is removed but the constitutional disturbance, which is the cause of the ulcer, remains with the patient. That is the reason why many of the patients return unimproved. In the first years of my practice I was very enthusiastic about surgery. I sent practically every patient for operation, and the majority of them returned unimproved. When I found hyperacidity before the operation, I found it later, and the roentgen-ray findings were identical with those found before operation. This shows that all the conditions are not due to the ulcer, but it is possible that the nervous element, the functional disturbance, leads to the

ulcer; and, therefore, assuming that the medical man does not succeed with treatment and sends some patients to the surgeon, it is not because he is sure the operation will cure the patient, but because there is a limit at the present time to medical treatment. There is a strict indication for operation only in those cases where there is obstruction. Operations for ulcers are somewhat discredited by the public. I do not agree with Dr. Strauss that the hyperacidity is the cause of ulcer. If that were so we would have hyperacidity only with ulcer. We have hyperacidity in so many other conditions that one cannot absolutely consider the hyperacidity as the cause of ulcer. Hyperacidity is only a coincidence in ulcer.

DR. HENRY LITOWAY, New York: This is the most remarkable surgical paper I have heard in a long time—remarkable in that it takes up the matter of the many post-operative recurrences, and seeks to find the reasons therefor. I believe it will do more for the advancement of gastro-intestinal surgery than many of the more elaborate papers on this subject that have been presented hitherto. He says that the after-treatment of the patient is of the utmost importance. This is certainly true, more especially so as far as the diet is concerned. After the patient has been operated on and has recovered, he is sent out with the information that he is entirely well now, and that all restrictions on his eating and drinking are removed. It is in these cases that we have the post-operative recurrences. It is not the fault of the surgeons. The operations have been made skillfully, but the same causes that brought on the trouble originally have brought it on again. I do not look on gastric diseases, cancer, tuberculosis, syphilis (the latter two of rarest occurrence) excepted, either as infections or as constitutional diseases. They all have a local origin. The stomach is neither a leather nor a rubber bag. It is a highly organized organ of flesh and blood. It has most important physiologic functions, and has certain capacities, and if these are overtaxed, trouble ensues. If the surgeon will tell the patient on whom he has operated, assuming that the operation was performed with the necessary skill, and the wound well healed, what he must do and what he must avoid to keep well, he will not have any post-operative recurrences. As to gastro-entrostomies, I have never opposed to them for a number of years. I have never seen any benefit from a gastro-entrostomy that could not have been obtained as well by other measures of treatment. In several cases that have come under my observation, the patients have been much worse than before the operation. Only in cases of cancer where the days of the patient are numbered and where the conditions are frequently such as to make any other operation extra-hazardous, do I advise a gastro-entrostomy. Otherwise, I hold that an excision of the pylorus after some fashion is the operation to be preferred. With regard to ulcer of the stomach, I believe that with proper treatment the patient can be cured without an operation. Ulcer is not a constitutional disturbance, but a local ailment produced by a local cause. The hyperacidity produces the ulcer. The acid secreted by the stomach is the strongest of acids, and if you will take into consideration the patient's habits of life you will find ample cause for the hyperacidity and for the ulcer. Correct what it is, and you will cure your patient.

DR. EDWIN C. DODDING, New York: I did not hear enough about the influence of infection as the cause of ulcers and some of the other conditions mentioned. Focal infection has taken a great deal of our attention in the last few years and if it is what it is said to be it must be considered in a routine way in the preparation and treatment of all these cases. Rosenow has done what seems to be very complete and thorough work and proved that the streptococcus originating from the oral abscesses either at the apices of the teeth, from root infection, or from the tonsils, is the cause of duodenal and gastric ulcers; and it is said by other men to be the cause of various functional disturbances. If this is true it should be brought into the routine treatment of the case, and I would like to ask Dr. Brown whether they have gone into this matter thoroughly, whether they have

had satisfactory results, and what he thinks of the matter in general.

THOMAS R. BROWN, Baltimore: I am not one of those who have yet been convinced of the efficiency of the streptococcus in the development of gastro-intestinal ulcers. This is really very much more than a surgical or medical paper. It is a plea in recognition of the fact that the more acute the thing and the more striking the symptoms, the more successful the surgery. That is the reason, entirely contrary to the consensus of medical opinion expressed here, my experience with gastro-entrostomy has not been bad in some cases. In cases of high obstruction, when other forms of exploration were impossible and gastro-entrostomy has been done to relieve it, the results have been very good, and I do not fear that the condemnation of gastro-entrostomy is wrong. My plea is that it should only be done in cases where it is absolutely necessary. One, at least, of the good results of gastro-entrostomy is due to the regurgitation of acid contents in the stomach. I think that point has been made enough of, but I believe it is a specially fundamental point. Another point of great fundamental interest, in regard to Dr. Friedenwald's series, is perhaps that some percentage of the series depends on the choice of the surgeon. It is really a question of what not to do. I have been connected with Dr. Finney for many years, he has done a great many operations for me, and he has convinced me more and more that every year he does a little bit better, even though he has an enormous experience, because he knows what to leave undone. After all, the object of the paper is to call attention to the fact that where we have to do the operation in chronic conditions surgery is a two-edged saw. If we could help and bring back a normal physiology, if not a normal anatomy of the gastro-intestinal tract in the first place, and if we could devise means by which postoperative adhesions could be averted, surgery would be absolutely the treatment for every one of these cases. It is just because we cannot duplicate normal physiology that we do have a probability of adhesions and a probability of recurrence of these other symptoms. It is for this reason that the result is unsatisfactory in the chronic group. It is for this reason that it seems a timely moment to bring together in a very broad way the surgeons and the clinicians, not criticizing the surgeons, nor criticizing the clinicians, but criticizing the clinician much more than the surgeon, because it is very much more the surgeon's hand that is forced by the clinician in the chronic condition. It is just the broad general principle that two people, clinician and surgeon, one trained in one line and one in another, ought both to apply their best energies to the treatment of these chronic cases.

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**Plague and the Rat.**—Some connection between plague and rats or mice has been repeatedly noted since the time mentioned in I Samuel, IV, and VI, when "the mice marred the land," and at the same time the people were smitten with "tumours." In the eighteenth century, in Yunnan, China, is the record that "in the day time, strange rats appeared in the house and lying down on the ground perished with blood spitting." There was not a man escaped the instantaneous death after being infected with the miasma." Probably one of the oldest references to plague in rats is that contained in the Bhāgavata Purāna, one of the most important, and perhaps one of the most ancient of the sacred Hindu writings. The people are instructed to quit their houses and go elsewhere as soon as they observe that "rats fall from the roofs above, jump about and die." These instructions are followed in many parts of India to this day. When the plague prevailed in India, in 1611-1618, rats and mice seem to have been affected by the disease. During the great plague of London in 1665, it was feared that rats and mice might be the means of spreading the infection. DeFoe writes, "All possible endeavours were used to destroy the mice and rats, especially the latter . . . and a prodigious multitude of them were also destroyed." (He also says that they tried to kill off all the dogs and cats.)—Clemow, "The Geography of Disease."

THE PHYSICAL AND ECONOMIC BENEFITS OF TREATMENT FOR HOOKWORM DISEASE\*

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A campaign for the relief and control of any disease, to be effective, must result not only in a reduction of morbidity, mortality and suffering, but likewise in a monetary saving to the individual and the community. For more than two years we wished to demonstrate to the government and people of Costa Rica the economic value of the campaign for the relief and control of hookworm disease that was being carried on in that republic. But it was impossible to do this because we had worked in but few areas in which accurate data as to wages were available, and in these few areas sufficient time had not elapsed after the people had been examined and treated for a satisfactory comparison to be made of their earning capacities before and after treatment.

Lately, however, we have had opportunity to make a detailed analysis of the earning capacities before and after treatment of 320 patients cured of hookworm disease on the estates of Rodeo (located in the canton of Mora, province of San Jose) and Aquiares (canton of Turrialba, province of Cartago). These are representative estates on which conditions are neither better nor worse than the average. They are situated, the first on the Atlantic, the second on the Pacific, slope of the country, in the midst of rich agricultural regions. The owners of these estates, always interested in the welfare of their people, insisted that they should be examined for hookworm disease, and be treated and cured if found infected.

Rodeo lies partly in the central tableland of Costa Rica, and partly on the Pacific slope, at an altitude of about 2,000 feet. The climate is tropical. Sugar cane is cultivated, corn and beans are grown, and cattle are raised. The people live in poorly constructed wooden houses. They take their water for domestic purposes from creeks.

Aquiares is situated on the southern slope of Turrialba volcano, at an altitude of about 3,000 feet. The climate is moderately warm. Coffee, corn and beans are cultivated for export. The people live in well constructed, though neglected, wooden houses. Water for the homes is supplied by creeks and by an open ditch.

SUMMARY OF CAMPAIGN AND SURVEY

In the campaign of relief and control, conducted on Rodeo from September to December, 1916, 243 of the 263 persons living on the estate were examined, and 237, or 97.5 per cent., of those examined were found to be infected with hookworm disease. Two hundred and twenty-eight of the infected persons were treated one or more times, and 191 of them were eventually shown by microscopic reexamination to have been cured. To learn what effects the relief from hookworm infection had had on the general health and earning capacity of the workers on this estate, we went back and reexamined, during the period from June 4

to June 8, 1918, ninety-seven (or approximately one half) of the 191 persons who had been cured eighteen months earlier. Fourteen of them were found to have been reinfected—a reinfection rate of only 14.4 per cent. Not one of the homes on this estate was provided with a latrine when the campaign of relief and control began, and only 25.6 per cent. were so provided when it ended. At the time of the resurvey in 1918, the percentage of homes with latrines was only 30.2. All of these figures are shown in Table 1.

The first campaign of control on Aquiares was carried out during two periods, from June 5 to Dec. 22, 1916, and from July 6 to Dec. 20, 1917. There were then 822 workers on the farm, and 745 of them were examined. Infection was found in 447, or 60 per cent., of those examined. All but eighteen of those found infected received one or more treatments, and 334 of them were eventually shown by microscopic reexamination to have been cured. When we went back for our resurvey, between May 7 and May 20, 1918, we reexamined 223 of these 334 cured persons, and found that only nine of them had been reinfected since the close of our first campaign five months previously.

TABLE 1.—STATISTICAL SUMMARY OF CAMPAIGN AND SURVEY OF RODEO AND AQUIARES ESTATES

	Rodeo Estate			Aquiares Estate		
	Campaign of Relief and Control		Resurvey	Campaign of Relief and Control		Resurvey
	No.	%	No.	%	No.	%
Census of estate.....	263	....	....	822	....	....
Examined for hookworm disease.....	243	92.4 <sup>1</sup>	97	....	745	90.6 <sup>2</sup>
Found infected with hookworm disease .....	237	97.5 <sup>1</sup>	14	14.1 <sup>3</sup>	417	60.0 <sup>2</sup>
Given treatment for hookworm disease.....	228	96.2 <sup>1</sup>	....	429	96.0 <sup>2</sup>	....
Cured of hookworm disease.....	191	80.8 <sup>3</sup>	....	334	77.9 <sup>3</sup>	....
Houses on estate.....	43	....	43	....	132	....
Houses with latrines:						
First inspection.....	0	0.0	13	30.2 <sup>4</sup>	7	4.6
Last inspection.....	11	25.6	15	30.2 <sup>4</sup>	76	50.0

\* Percentage based on census.  
<sup>1</sup> Percentage based on number examined.  
<sup>2</sup> Percentage based on number found infected.  
<sup>3</sup> Percentage based on number given first treatment.

This gave a lower reinfection rate than that for Rodeo, being only 4.0 per cent. In the resurveys on both estates, three negative 2 by 3 inch microscope slides were required before any person was pronounced free of infection. On Aquiares, 4.6 per cent. of the homes were provided with latrine accommodation at the beginning of the campaign of relief and control. One half of the homes, however, had latrines when this campaign ended. This situation remained unchanged when the resurvey was made in May, 1918. The resurvey on both estates showed that the latrines that had been erected during the progress of the campaign were being maintained in satisfactory condition.

INCREASE IN HEMOGLOBIN

In the campaign of relief and control on Rodeo estate, the average percentage of hemoglobin among 185 of the infected persons before they were treated was but 42.1. Among 169 of these persons after they had been cured of hookworm disease, the average hemoglobin was 63.3 per cent. This is an increase of 21.1 per cent. In the resurvey the fourteen persons found reinfected had an average hemoglobin of 71 per cent., as compared with an average of 76.8 per cent. among the fifty persons who remained uninfected. The

\* The studies described in this paper were made during the progress of a campaign for the relief and control of hookworm disease, conducted by the International Health Board of the Rockefeller Foundation and the government of Costa Rica.

resurvey figures for this estate suggest that the hemoglobin index continued to rise for a considerable period following the close of the regular campaign measures.

On Aquiras the hemoglobin index among 280 infected persons before treatment was 70 per cent.

TABLE 2.—HEMOGLOBIN INDEX OF INFECTED PERSONS BEFORE AND AFTER TREATMENT FOR HOOKWORM DISEASE

	Rodeo Estate				Aquiras Estate			
	Campaign of Relief and Control		Resurvey		Campaign of Relief and Control		Resurvey	
	Infected Persons before Being Treated	Infected Persons after Being Cured	Persons Found Reinfected	Persons Remaining Cured	Infected Persons before Being Treated	Infected Persons after Being Cured	Persons Found Reinfected	Persons Remaining Cured
Average percentage hemoglobin	65.1	67.3	71.0	76.8	70.0	78.9	83.3	79.7
Total persons examined	185	109	14	50	280	100	0	94

Among 100 of these persons after they had been cured, the average was 78.9 per cent. The resurvey figures indicate that the cured persons who were reinfected sustained a slight decrease in hemoglobin between the close of the campaign of relief and control and the date of the resurvey. In the resurvey, the persons found reinfected had an average hemoglobin index of 73.3, and those who remained cured an average of 79.7 per cent.—the latter slightly higher than the average of 78.9 per cent. established immediately after cure. All of these figures are summarized in Table 2.

#### INCREASE IN EARNING CAPACITY

In an effort to arrive at an accurate estimate of the increased earnings of the workers on the two plantations, the records of all persons remaining cured in the resurvey were carefully checked and all were excluded from consideration except those for men more than 18 years of age who had worked on the estates at least one year before the campaign of relief and control began, and at least six months after it ended. The

TABLE 3.—DAILY AND MONTHLY WAGES OF ESTATE LABORERS BEFORE AND AFTER BEING CURED OF HOOKWORM DISEASE

	Average Monthly Earnings (Colones)	Monthly Gain (Colones)	Average Daily Earnings (Colones)	Daily Gain (Colones)	Percentage of Increase in Earnings
Rodeo Estate					
before treatment	4.96	...	1.68	...	...
after treatment	5.66	0.70	1.92	0.24	14.6
Aquiras Estate					
before treatment	1.76	...	0.50	...	...
after treatment	1.74	0.56	1.36	0.27	27.0

1 Colón = 86.00.

gross earnings of these men during three selected months of 1916 before the campaign had opened—were then compared with their gross earnings during the same three months of 1917 or 1918—after it had closed. On Rodeo, the months of June, July and August were chosen; on Aquiras, those of February, March and April. In the case of the latter estate, the comparison was made between the wages for three months of 1916 and those for three months of 1918.

The data show that there was an increase in the earning capacity of the workers on Rodeo estate of 14.6

per cent., and on Aquiras of 27 per cent. The wages on Rodeo remained the same, while those on Aquiras were reduced 15 per cent. between the periods compared. On the latter estate there was, therefore, an increase of 42 per cent. in earning capacity if the 15 per cent. reduction in pay is taken into consideration. Detailed figures for wages during the periods before and after treatment for hookworm disease are given in Table 3.

#### INCREASE IN ACREAGE CULTIVATED

Larger areas have been cultivated and greater crops obtained since the workers were treated and cured of hookworm disease. On Aquiras, as Table 4 indicates, the acreage under coffee cultivation was increased 33 per cent. This has been accomplished without additional labor, and with a lower unit cost for cultivation.

During 1916, ten colonos were paid for each manzana (17½ acres) cultivated, while at present 8.5 colonos are paid, yet the worker receives higher compensation.

The table indicates also a considerable increase in the acreage devoted to corn cultivation. The estate donates to its workers small plots of ground for raising corn, with the understanding that the corn produced thereon may either be used by the laborers themselves or be disposed of to their profit. The increase in the

TABLE 4.—AREA CULTIVATED ON ONE ESTATE BEFORE AND AFTER TREATMENT OF LABORERS FOR HOOKWORM DISEASE (NUMBER OF LABORERS THE SAME ON BOTH OCCASIONS)

Crop	Area Cultivated (Manzanas)		Percentage of Increase 1918 over 1916
	1916	1918	
Coffee	300	400	33.3
Corn	80	250	212.5
Beans	40	40	0.0
Pasture	182	200	9.9
Total	602	890	47.8

acreage devoted to corn cultivation therefore means that the workers are producing not only enough corn for their own consumption, but have some to export as well. The owners report that the net results of this, and of the higher wages the laborers are receiving, are a healthier, more contented, more permanent laboring force, earning more for themselves and producing more for their employers.

#### CONCLUSIONS

Although the life, labor and customs of the people living on these two estates do not differ from those that obtain generally throughout the country, and although every effort was exercised to guard against error in conducting the study, the number of cases considered is probably insufficient to justify the drawing of conclusions that will apply to whole territories. Nevertheless, the figures may be taken as pointing toward, if not as establishing, the following:

1. There is a permanent increase in hemoglobin as a result of treatment for hookworm disease.

2. On one farm, in spite of a 15 per cent. reduction in unit pay, the laborers earn 27 per cent. more. On another, where there has been no reduction in unit pay, they earn 14.6 per cent. more.

3. The owners of one farm are cultivating 33 per cent. more coffee with the same number of laborers, at a lower unit cost.

In addition to the benefits mentioned above, one estate reports a marked reduction in morbidity and in

infant mortality, and both estates report that the laborers spend less than formerly, or else spend nothing at all, for quack medicines and quack physicians to cure their infirmities.

## FURTHER EXPERIENCES WITH THE STRING TEST\*

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In several papers,<sup>1</sup> I have published numerous observations on the duodenal bucket and the value of the thread or string test. It is now about twelve years since my first paper on the duodenal bucket appeared. I thought it would be of interest to give you my experiences regarding the string test up to date.

Since the accuracy of the test will depend on the exactness of its performance I herewith give again a detailed description of this method.

### METHOD OF USE

The patient swallows the duodenal bucket in the evening, late after supper, with a glass of water. The end of the thread is attached to the nightgown in such a manner that a length of from 30 to 32 inches from the lips can enter the digestive tract, and the bucket is allowed to travel by itself over night while the patient is asleep. In the morning before breakfast, it is slowly and carefully withdrawn by the physician. When the larynx is reached a resistance will be felt. This must not be overcome by forcible pulling, but the patient must be told to swallow, and during the act of deglutition the bucket may be easily withdrawn.

Before the bucket is removed, a knot must be made at the teeth in order to determine the length of the thread in the digestive tract. It is important that the patient should take no substances at supper that might cause a stain on the white silk thread resembling blood (as coffee, jellies, claret, etc.). It is also essential that the entire length of 30 inches should be within the digestive tract before the patient goes to bed.

After withdrawal of the bucket, the thread is immediately and carefully examined (1) for blood spots and (2) bile stains. Then the contents of the bucket are aspirated by means of a small pipet and likewise examined.

### SIGNIFICANCE OF THE STRING TEST

The distance of the blood spots from the knot at the teeth will give the location of the ulcer. If the end, say the lower 4 to 8 inches, is stained a golden yellow, it will show that the bucket had passed the pylorus—provided the length of the thread in the digestive tract remaining white exceeds 22 inches—and that, therefore, the pylorus is permeable. (The distance from the teeth to the pylorus is on an average 22 inches.)

If the bucket has been in the duodenum, the contents are usually golden yellow, viscid and slightly alkaline. Sometimes, however, they may be acid and whitish, especially if the bucket has been only beyond the pylorus.

A blood stain in the neighborhood of 40 cm. (16 inches) points to an ulcer at the cardia; from 44 to 54 cm. (17½ to 21½ inches), ulcer of the lesser curvature; from 55 to 56 cm. (22 to 22½ inches), pylorus; 57 cm. (22½ inches) and more, ulcer in the duodenum. Two definite small blood stains near each other usually indicate the size of the ulcer, the spots being given by the margins of the ulcer.

If the string test is made several times, the results usually harmonize. Sometimes, however, there is a difference in the site of the brownish spot. This may be explained by the patient's involuntarily pulling the thread somewhat out of position during the process of washing and dressing. There is at times a very long brownish discoloration for a great distance. This need not correspond to the size of the ulcer, and can be easily explained by different parts of the thread coming into contact with the ulcer successively during the migration of the bucket through the pylorus and the duodenum. This is particularly noticed in malignant disease of the stomach, which as a rule presents fresh ulcerations.

The thread test appears to be of importance not only in the recognition of the position of the ulcer, but also as a criterion of the efficiency of our procedures, especially whether a cure has been accomplished or not. In those cases in which perfect healing of the ulcer has taken place, the test becomes negative.

In the diagnosis of cancer of the stomach, the thread test is of value in aiding us to recognize a suspected neoplasm before it is yet palpable. This is particularly the case in malignant affections of the cardia and the pylorus. In a case of cancer of the cardia, the bucket returned once filled with a piece of tissue of the tumor showing microscopically all the characteristics of a cancerous growth, while the thread above showed a blood stain. In several cases of neoplasm of the pylorus, the bucket did not pass beyond the pylorus and came back filled with a brownish fluid of a fetid odor, the thread being discolored brownish for quite a distance from the bucket.

The string showing no bile stain and having a length of 25 inches or more from the lips indicates the failure of the bucket to pass the pylorus. This may be due to either an organic stricture or a spasm of the pylorus. To decide this the test is repeated and atropin given. Absence of bile on the string in this second test seems to speak for a real pyloric stenosis.

### EXPERIENCES IN PRIVATE PRACTICE

In reporting my experiences with regard to the string test in peptic ulcers I select the material of my private practice, as the figures are more definite. Moreover, the strings of all my private patients were kept as a record and are to be found in my collection. By far the greater majority examined with the string test had some symptoms of peptic ulcer, or belonged to that group in which there was a possibility of its existence.

All in all, 1,044 patients with suspicion of peptic ulcer were examined, with the string test, during the last eleven or twelve years. Of these, 481 showed a positive blood stain, while 563 were negative with regard to blood.

The location of the ulcer (according to the string test) and its distribution according to sex are presented in Table I.

Cardiac ulcers show a greater percentage among the female sex (14 per cent.) than the male sex (6 per cent.). The reverse is found in duodenal ulcers,

\* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Einhorn, Max: A New Method of Estimating the Permeability of the Pylorus. *New York M. J.* 87: 1179-1182 (June 20) 1908; A New Method of Recognizing Ulcers of the Upper Digestive Tract and Localizing Them. *M. Rec.* 75: 549-552 (April 3) 1909; The Importance of the Thread Impregnation Test for the Recognition of Ulcers of the Upper Digestive Tract. *M. Rec.* March 18, 1911.

namely, greater frequency among men (37 per cent.) than among women (22 per cent.).

TABLE 1.—LOCATION OF THE ULCER AND ITS DISTRIBUTION AMONG THE SEXES

	Curl-in (36.1%)		Lesser Curvature (43.5%)		Pylorus (64.5%)		Duodenum (Beyond 5.5)	
	No.	%	No.	%	No.	%	No.	%
Males	20	6	140	40	58	17	120	37
Females	20	14	69	47	26	17	82	22

Among 399 patients whose gastric juice had been examined and analyzed and a classification made into hyperacidity (60 and above) and subacidity (below 60), we find the results given in Table 2.

TABLE 2.—RELATION OF GASTRIC ACIDITY TO ULCER (POSITIVE STRING TEST) AMONG THREE HUNDRED AND NINETY NINE PATIENTS WITH POSSIBLE ULCERS

	Hyperacidity String Test				Subacidity String Test			
	Total No.	Positive %	Negative No.	%	Total No.	Positive %	Negative No.	%
Males	181	153	76	46	24	80	40	50
Females	81	64	77	17	23	63	33	62

It is easily seen from this table that in both sexes among ulcer suspects with hyperacidity, the presence of ulcer is found more frequently than in those with subacidity.

What proofs have we that a positive string test indicates some form of ulceration?

From the figures given in the tables it is evident that among ulcer suspects we find the frequency and location of the blood stain harmonizing with the distribution of ulcer encountered in necropsies and in operations. The greater frequency of duodenal ulcer among men than women is, likewise, demonstrated by the string test. From a considerable experience I can say that, in the greatest majority of instances, patients with probable ulcer and a positive blood stain on the string do well when subjected to an ulcer cure. In a great many instances the roentgen-ray findings of a peptic ulcer tally almost exactly with the results of the string test. The same remark applies to operations on ulcer patients. To be sure, there are instances in which roentgen-ray signs are lacking, and in which, likewise, inspection and palpation of the stomach, at operation, from the outside fail to show anything definite with respect to an ulcer, in which the string test is distinctly positive. Here there are two possibilities: Either the blood stain is due to an extensive inflammatory process of the gastric mucosa, or—which is more probable—to a superficial ulcer.

I am aware of quite a few instances in which an operation failed to reveal any ulceration of the gastrointestinal tract. These patients continued to suffer after the laparotomy just as much as before. The string having been positive for peptic ulcer, they were given duodenal alimentation and were completely relieved of their troubles.

#### CONCLUSIONS

In addition to the foregoing, my experiences with the string test on ward patients in the Lenox Hill and Post-Graduate Hospitals—which will equal if not exceed those of my private patients—justify the following conclusions:

The string test has proved itself extremely useful in the diagnosis of peptic ulcers and their location, also

in demonstrating patency or stenosis of the pylorus. Frequently the existence of a gastroenterostomy opening and its proper functioning can, likewise, be made up by this method (the bile stain on the thread, then, usually beginning at 19 to 20 inches from the lips, instead of 23 to 24).

Of all the tests we employ in our routine examinations of patients afflicted with digestive disturbances the string is certainly of great, if not the greatest, importance. It frequently points the way to a correct diagnosis and a proper plan of treatment.

#### ABSTRACT OF DISCUSSION

DR. SIDNEY K. SIMON, New Orleans: Some years ago I made some tests on individuals in hospitals who had no gastric disturbance at all. I wanted to check up on digestively normal individuals the results that I had observed with the ulcer cases. With the kindness of my confrères I used for that purpose fifty individuals who happened to be in the hospital for some other disturbance, broken legs, and so forth. I made some very interesting observations with the string. Of those fifty individuals, twelve, or about 25 per cent., showed a distinct reaction on the string. The stain varied from a rather deep, blackish discoloration to mere streaks along the string, and the conclusions I came to in regard to these experiments were these: That the tautness of the string before pulling it out made quite a difference as to whether one would find a blood stain or not. If the string were allowed to pass into the intestinal tract, that is, the bucket more than thirty-three inches, it became so taut that on attempting to pull it out trauma was produced along the tract, either at the orifices of the stomach or in the esophagus, and we obtained a streaking of blood. The mere streaking of blood on the string amounts to nothing, practically. If one observes the restriction of not allowing the string to enter into the intestinal canal more than twenty-three inches from the incisor teeth, and will use ordinary precautions in pulling the bucket out with the string, I believe that the test has a great practical value. In another series of cases of demonstrable ulcers I found at least one half with blood stain. But the stain must be at a measured spot on the string that corresponds to the side of the ulcer; that is, with regard to the cardiac end or the pyloric end of the stomach. The stain must be a distinctly deep discoloration, not a mere streak of blood—but a deeply imprinted stain, and usually of a blackish color, and must measure some distance along the string which would correspond to the distance in the gastro-intestinal upper tract where the ulcer is suspected, either the esophagus or the pyloric end. Mere streaks of blood amount to nothing, and particularly if the bucket has been allowed to go into the intestinal tract farther than the thirty-three inches from the incisor teeth.

DR. CLEMENT R. JONES, Pittsburgh: I began to use the Einhorn test string quite a number of years ago, and I have used it routinely ever since that time. I have for a considerable time placed a great deal of confidence in the test. I think that the manner in which the test is used is very important, and I would like Dr. Einhorn, if he will, to tell us the exact character of the string he uses. I have experimented with different types of string and I believe that the character of the string has a good deal to do with some of the tests for blood in otherwise normal individuals. I also some time since ceased to use any weight on the string. The tension of the bucket, or whatever weight may be on the string, seemed to produce a sawing process in some cases which resulted in a stain that would not otherwise have been present, although that stain formed by the sawing is to the experienced observer not often mistaken for the larger stain of the ulcer. I believe that if this test is applied carefully with the string, with simply a knot on the end of the string, that knot being placed in a capsule and passed through the pylorus, we will get a more satisfactory result from the use of this test.

DR. I. O. PALEFSKI, New York: It is generally conceded that in a bleeding gastric or duodenal ulcer the thread may be positive. In many instances, however, the positive thread for ulcer cannot be corroborated by other clinical or roentgenographic evidence. Laparotomy in these cases, as a rule, reveals no ulcer. We observed two conditions which are particularly prone to show a positive thread although no ulcer is present: first, in periduodenal cholecystic adhesions, and, second in low stomachs with high pyloric limb. In the former, the mucosa at the point of the deviation or angulation of the duodenum, as a result of the periduodenal adhesions, is apt to become traumatized by the thread as a result of undue tension caused by the peristaltic waves of the duodenum. In the latter condition the capsule of the string in its passage into the duodenum must assume, first, an upward direction and, second, on reaching the duodenum, a downward course with the point of tension at the pylorus. The conclusions reached by Dr. Einhorn are generally recognized among roentgenologists, although in the experience of Dr. Carman 90 per cent. of duodenal ulcers show a six hour gastric residue. One often finds hypermotility in the course of roentgenographic examination in conditions other than duodenal ulcer or gallbladder disease and, therefore, the phenomenon of hypermotility by itself can hardly be of diagnostic consideration. This is particularly true in gallbladder disease which usually shows no other roentgenographic evidence. It is not usual to find hypermotility in chronic appendicitis. Clinically, however, the predominating features of chronic gallbladder disease and chronic appendicitis are those of gastro-intestinal stasis. I do not believe that motility of the gastro-intestinal tract can be studied accurately with inert salts, such as barium sulphate or bismuth. A mixed meal as a motor test meal is preferable, as it more likely stimulates peristalsis and the digestive secretions. I have had the opportunity to examine a number of patients and was surprised to note the discrepancies occurring between opaque and mixed meals as motor test meals. Our present knowledge of the rate of evacuation of the gastro-intestinal tract under normal and pathologic conditions is still incomplete. The solution of the problem requires team work between the gastro-enterologist and the roentgenologist. It is conceivable, therefore, that in such conditions, the blood-stained thread may be the result of traumatism. In my opinion, a positive thread when unsubstantiated by other definite evidence of ulcer should receive no serious consideration.

DR. JULIUS FRIEDENWALD, Baltimore: I have used the Einhorn string test in many instances in suspected ulcers, and have always found it of considerable aid in diagnosis. The principal fact that I have observed, however, regarding it is that one should not rely on a single examination. Two or three tests should be made, and when the blood stain is precisely at the same distance at every examination I am convinced that it then presents definite evidences of ulceration. This method is also very useful in those instances in which the results of the roentgen-ray examination are indefinite, and yet the symptoms are positive of ulceration; in these instances the string test gives very valuable information as to whether there is an ulcer at hand or not.

DR. WILLIAM VAN V. HAYES, New York: I wish to confirm what has been said. The string test has been under fire from various sources and all sorts of absurd things have been done and wrong interpretations made. For instance, one man condemned it. He said he had found it positive in one or two cases, had operated and had found no ulcer. In my opinion that is an entirely wrong way to use the string. The string should be used to secure one item of evidence, one bit of corroboration of our diagnosis. As Dr. Friedenwald said, we should confirm it by two or three tests. If we get a definite stain at a definite point persistently present it means something. It does not necessarily mean a big indurated ulcer; it may mean a slight erosion; and I am not sure but that in some cases we get a stain where there is simply marked pyloric spasm or a definitely congested state of the mucous membrane. But the stain on the thread does indicate something which is path-

ologic. It may be an ulcer or it may be something that is much milder, but it is something that needs treatment. Personally, I do not feel satisfied in the handling of a case showing a definite stain until I have got rid of that stain. It seems to me that is the way we ought to use the test. One other point: In using this string test I have regularly employed No. 15 surgeon's twisted silk, as being a little softer than the braided silk, and, consequently, a little less apt to produce irritation of the mucous membrane. Also, I have used a little bead about an eighth of an inch in diameter, not having any great weight, and have then taken pains in withdrawing the thread not to use any force. If the bead catches, I simply wait until the spasm relaxes, and then gently withdraw the thread. Under these conditions we will usually get reliable results.

DR. MAX EINHORN, New York: With regard to the string, I usually use English braided silk, No. 5. That is the best although you may use anything else. The string should not be much longer than thirty-three inches from the lips, entering. That is long enough to see whether there is anything or not. I use the bucket on the string. This is important in order to determine the permeability of the pylorus. If a certain length passes through (25 inches or more), and bile is seen on the end of the string, and then white above it, that bucket has entered the pylorus. The bucket is size 23, French, I think. You may use a larger or a smaller one, but it helps you to get an idea as to the permeability. In regard to the pulling: I have frequently seen cases where we encountered resistance. In such cases we should wait and not pull hard; wait a little and then pull again. But in some cases where there was a strong resistance I found that there was no stain at all, indicating that the pulling alone does not give a stain. If trauma were caused by the pulling of the string it would show a stain of fresh blood. But these stains are usually dark, as of something oozing out. There is a great difference between the two. With regard to the localization, I pay more attention to a small stain, especially two tiny little spots than to a big splashing stain. But a big stain does not indicate the size of the ulcer; it is caused by the movement of the string, coming in contact with different parts of that same area. We find that more frequently in malignant conditions than in benign conditions. On the whole, I can only repeat that the method is very useful in diagnosis.

#### CERTAIN LIMITATIONS OF ROENTGEN-RAY DIAGNOSIS OF GASTRO-INTESTINAL DISEASES\*

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The roentgenologic diagnosis of gastro-intestinal diseases has been developed with such marvellous rapidity that a great degree of caution should be observed in directing attention at the present time to its seeming limitations. It must be conceded that roentgenology has put gastro-intestinal diagnosis on a new and sounder basis, changing to a great degree the current conception of the meaning of abdominal complaints and demonstrating some abnormalities with unerring accuracy which on the operating and necropsy table had usually been overlooked. Nevertheless, there are definite limitations to which this method can be stretched, and the very fact that so much reliance is now placed on it makes it desirable that these limitations be admitted and generally understood. The duty are actually coming to believe that a roentgenogram is a diagnosis and not, as we know very well,

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a source of data on which opinions may be expressed with the widest range of values.

The serious practical objection to the general use of the method in gastro-intestinal diagnosis is the expense it entails when properly carried out. Commercial roentgen-ray laboratories are springing up all over the country to meet the demand for work at moderate prices, but it is difficult to conceive how complete and satisfactory work can be offered to the charity patients except in highly endowed institutions. I myself am convinced that much of the time, incomplete and unsatisfactory technical work and inexperienced interpretation simply confuse the issue, and the patient would be far better off if reliance were placed on clinical and laboratory data and the results of exploratory laparotomy when apparently indicated.

It is not, however, to these limitations in the practical utility of the method to which we wish to direct attention, but rather to certain more fundamental limitations which depend on the difficulty or impossibility of demonstrating abdominal abnormalities by roentgenographic method.

By roentgenographic examination we can visualize the shape, size, contour and position of the various parts of the gastro-intestinal tract when it is properly filled with opaque substances, and we can with reasonable accuracy roentgenograph the outlines of the liver, kidneys and urinary tract. The development of soft part detail work has progressed rapidly, but it must be admitted that we cannot visualize the changes in the structure of the abdominal organs. In recent years, attention has been largely centered on the recognition and treatment of the gross lesions of the abdominal viscera. Comparatively little progress has been made in the study of those visceral changes of a structural nature which are so obvious on the post-mortem table and would seem to be of such great importance. The gastro-enterology of a decade or two ago has gone. We now appreciate the frequency and varied clinical pictures associated with gross organic lesions of the abdominal viscera. With the exclusion of these lesions made possible in the great majority of cases by systematic roentgenographic examination, we should be in a far better position to push the study of those disturbances of function and changes in structure on which this method can throw no direct light. *A negative roentgen-ray diagnosis of a gastro-intestinal lesion should never be regarded as final in the exclusion of gastro-intestinal disease.*

In the recognition of the gross abdominal lesions by roentgenographic methods there are also many difficulties and some impossibilities. In large part, it is true, these are failures or imperfections in technic and extensible fallibility in roentgenographic interpretation.

The study of the esophagus by the fluoroscopic and roentgenographic method has been an important step in the clinical study of its abnormalities, but we must admit that the passage of the meal through the unobstructed esophagus is rapid and the filling too incomplete to make for satisfactory examination. Unfortunately, clinical symptoms are seldom complained of until obstruction takes place; but it is just as well that we bear in mind the danger of a negative diagnosis of esophageal lesion by roentgenographic methods. A negative examination calls for the use of all other methods when any symptoms are present. The differentiation of spasm from annular growth in the

cardia is sometimes made with disastrous results. On the whole we should regard the roentgen ray as more distinctly an aid to other methods of diagnosis in esophageal work than in the diagnosis of disturbances in other parts of the gastro-intestinal tract, because it can be examined so directly with the esophagoscope.

The stomach is in many respects the most easily roentgenographed of all parts of the alimentary tube, and I believe that in only a small majority of cases will adequate fluoroscopic and plate studies fail to show a gross lesion. There are, however, certain stumbling blocks which must be reckoned with in every examination.

The cardiac end of the stomach with an ordinary opaque meal fills out poorly; and unless a suspicion is entertained of the infrequent lesion in this area, it will probably be overlooked. I feel that here is a definite place for the gastroscope in diagnosis when symptoms and findings suggest a lesion in this region.

Ulcer and cancer of the posterior wall of the stomach, unless large and encroaching on the curvatures, fail on the immediate plate to give definite filling defects. We have seen on two occasions symptoms of cancer which we later proved by operation to be of the posterior wall but which gave an absolutely normal series of plates taken immediately after the ingestion of the opaque meal. It is possible that the lesion might have shown on the two or four hour series.

Early annular growths in the pylorus are compatible with normal roentgenographic appearances, as has been demonstrated twice in my experience. Almost always by the time symptoms are present the presence of the growth is obvious on the plates.

There is a definite group of cases that resemble ulcer in history and laboratory findings while the roentgenographic examination is absolutely negative. While it is probable that some of these cases are not true gastric cases, there is a small number that I believe are unquestionably florid or mucosal ulcers of the stomach. Sometimes even these shallow superficial craters can be caught on the lesser curvature. We have seen such craters show at the first examination, then disappear with medical treatment, and later fail to show with a definite recurrence of symptoms. Positive roentgenographic evidence of ulcerative or indurative lesion of the stomach may contradict all other evidence, and negative evidence of a gastric lesion has some weight; but I feel that we should hesitate to accept a negative roentgenographic diagnosis of gastric lesion with a positive history and suggestive laboratory findings unless some other lesion is discovered as a possible cause of the clinical disability.

The roentgenographic determination as to whether a visualized lesion is active or healed is possible in many cases, particularly in the gastric side of the pylorus. Frequently we are left in much uncertainty as to the condition of the ulcer when the roentgenographic examination is repeated after the completion of the ulcer cure.

The differentiation between ulcer, cancer and syphilis may be made with a reasonable degree of certainty, particularly in the advanced case. Differentiation is by no means always easy, even on direct examination of the ulcer or mass. We have seen syphilis of the stomach cured by treatment give the same roentgenographic picture as cancer, and we do not believe it is ever safe to reach a differentiation solely on roentgenographic evidence.

With the development of technic, it is now possible to visualize gallstones in a large majority of cases; and frequently the chronic thickened gallbladder is definitely shown. All stones and all chronic gallbladders cannot at present be demonstrated. I cannot agree with those who contend that the gallbladder that can be visualized is a pathologic gallbladder, as we have seen such removed and found them normal. In view of the commonness of a pathologic condition of the gallbladder among those in middle life and beyond, a failure to show the condition even in 20 per cent. of cases is an important consideration, and shows the folly of making an absolutely negative diagnosis of a pathologic condition of the upper abdomen on roentgenographic examination.

The terminal ileum and cecum offer diagnostic difficulties of the most varied kinds. Persistent deformities are found to be of little consequence; anatomic peculiarities are mistaken for pathologic conditions. There are cases in which the evidence of a pathologic condition is too definite to be questioned; but, on the whole, I have come to regard the roentgenographic diagnosis of conditions in the right iliac fossa with considerable suspicion, insisting that a definite opinion should be expressed only when there is the most unmistakable, persistent evidence in support of the clinical picture.

The diagnosis of incompetency of the ileocecal valve can, of course, be made with certainty with the barium enema; but whether under such artificial conditions the phenomenon has clinical significance is extremely doubtful. The weak spot in the results from repair work on the valve is the fact that usually the chronic appendix is removed at the same time, and often definite constricting bands are freed.

The roentgenographic diagnosis of appendix has become popular in recent years, although it rests on a very insecure foundation of established fact. It may be made with reasonable certainty in the case showing definite evidence of deforming adhesions. The failure to fill or to empty when filled, even after several days, is entirely compatible with a normal appendix, as has been observed in my experience repeatedly. We have seen the appendix filled, curved, somewhat angulated and remain filled for ten days, and yet prove normal on removal. I cannot see that we are justified in accepting the statement so frequently heard that the appendix that fails to empty promptly or that is retrocecal is a dangerous appendix per se. As clinicians, we are not so much interested in whether the appendix is somewhat abnormal, but whether it is responsible for disability or is a source of danger from acute disease. The roentgenographic decision on these points is made difficult by the superficial opinions on the condition of the appendix expressed by the surgeon, and the failure to study after-results from the removal of the supposed chronic appendix. I am convinced that the after-results are very poor in those cases giving no history of definite acute attacks, and I believe that a positive or negative opinion of appendix disease on roentgenographic evidence should not to any great degree influence our judgment as to the desirability of appendectomy reached on clinical grounds.

The study of the colon is, on the whole, satisfactory, as it can so well be visualized by opaque meals in I enemas and stereoscoped so accurately. We cannot expect the visualization of mucosal changes or the

demonstration of growths projecting into the lumen without affecting the wall. The sigmoid and rectum are more difficult to study because of anatomic arrangements, the variations in the normal course and fixation. Small lesions can readily be missed, and a negative opinion of low ulcerative lesion should be guardedly made on roentgenographic examination.

The ideal form of roentgenographic examination of the gastro-intestinal tract resembles the complete necropsy which the pathologist approaches without bias in the effort to discover the exact condition of each part, and later perhaps correlate his findings with the disabilities observed during life. With a reasonable degree of positiveness, conclusions may be reached as to gross lesions of the abdominal organs by roentgenographic examination; but it must not be forgotten that the accuracy of these conclusions depends entirely on the pathologic knowledge, the experience and the scientific honesty of the interpreter, and due allowance must always be made for the limitations of the roentgenographic method of diagnosis.

270 Park Avenue.

#### THE OPERABILITY OF CANCER OF THE STOMACH AS DETERMINED BY THE ROENTGEN RAY\*

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An important diagnostic aid which can give much operative information with regard to operability of lesions of the stomach is the roentgen ray. It can demonstrate the size, the shape and the position of the stomach, important factors with which the surgeon has to reckon, as well as the size, the location and the extent of the lesion. It can show whether a stomach suspected of disease is normal, whether a tumor is present, and whether the tumor is intrinsic or extrinsic. The roentgenologist, by basing his judgment on the sum of knowledge gained from the roentgen ray, can point out whether a cancer or lesion of the stomach is operable or not, so far as the stomach is concerned; but it remains for the internist and the surgeon to advise operation and for the surgeon to decide on the kind of operation. The earlier the lesion is discovered, the less will be their quandary.

Without the use of the roentgen ray, a positive diagnosis of cancer of the stomach is often not made until cachexia, loss of weight, achlorhydria, obstruction, Oppler-Boas bacilli, and a palpable tumor are noted; these are all signs of advanced gastric cancer. The patient's fate depends too much on his physician's personal opinion and too little on the true but hidden conditions of the case. As many physicians have believed, and still believe, that the presence of a palpable tumor precludes operative relief, some patients whose lives might be prolonged by operation are not operated on. Others are subjected to useless exploratory laparotomies which roentgen-ray examination can prevent.

The roentgenologist does not look on this method of examination as independent or ultimate, as it is only one part of a thorough clinical examination, and the verdict of operability based on his findings is only of

\* From the Section of Roentgenology, Mayo Clinic.

\* Read before the Section on Gastro-Enterology and Proctology at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

relative value except in cases that are indisputably inoperable. The syndrome of early cases of cancer of the stomach is not sufficiently characteristic to differentiate it from that of other gastric diseases. Nor can a cellular diagnosis be made by the roentgen ray; but a filling defect may be shown which enables the roentgenologist to make a gross pathologic diagnosis in the majority of cases. An indication for operation should be recognized in the location and extent of the filling defect in the gastric contour, especially when we consider that 95 per cent. of all tumors of the stomach are cancerous. As metastasis and an extended lesion prevent operation in many more cases than does the location of the primary lesion, early diagnosis seems the surest preventive of a high gastric cancer mortality; the roentgen ray has often proved to be a means of diagnosis and of forecasting the operability of carcinoma of the stomach at a time when clinical symptoms are so slight as merely to hint at malignancy.

The eliminative value of the roentgen ray in gastric diagnosis applies to the healthy as well as to the diseased stomach. A roentgen-ray examination of patients who complain of such symptoms as indigestion and dyspepsia, conditions which are often manifestations of other gastric and extragastric disorders, may result in negative findings. The outline, size, shape and position of the stomach prove that the stomach is normal and only the victim of reflex disturbances which the roentgen ray may aid in finding. If the roentgen-ray examination reveals a tumor of the stomach, however, screen and plate findings should be studied with one purpose in mind—possible cure by operation. The chances for cure which the particular case possesses place it, according to the roentgen-ray evidence of operability, in one of three groups: operable, borderline or inoperable. The limits of each group are roughly marked by the roentgen divisions of the stomach: Group 1, tumors of the pars pylorica, the operable zone; Group 2, tumors of the pars media, the questionable or borderline zone, and Group 3, tumors of the pars cardiaca, the definitely inoperable zone.

#### OPERABLE TUMORS

In Group 1 are those tumors which are located in the pyloric end of the stomach; these are shown by the roentgen ray to be operable so far as the stomach is concerned. In this type are included those cases in which the lesion has not spread far on the stomach wall to the danger zone, the pars media (Fig. 1). As approximately 70 per cent. of all gastric cancers occur in the pyloric end of the stomach, and as about 95 per cent. of all lesions which encroach on the gastric lumen are carcinomatous, a lesion in the pyloric end should always make one strongly suspicious of malignancy. The character and size of the filling defect may also give some hint as to malignancy; but the question of malignancy which is of importance in considering the advisability of operation is of no importance from the standpoint of the possibility of operation; that depends on the amount of healthy stomach wall remaining. Often cases which present such severe symptoms clinically as to seem inoperable prove operable on roentgen-ray examination, for even a very large palpable tumor may be resected if it is confined to the lower half of the stomach. While a palpable tumor does not, therefore, prevent surgical intervention, it does mean that the lesion has existed for some time and that metastasis may be present. Free motility of the cancerous stomach favors resectability, but the signs which point to

it may also be misleading. The filling defect may be atypical of cancer and the clinical symptoms alone may offer little explanation; but if the patient who has indefinite gastric symptoms has any filling defect in the contour of the stomach, whether typical or atypical of cancer, the chances are that a malignant growth is present (Fig. 2).

According to Deaver,<sup>1</sup> the importance of the roentgen ray rests on the demonstration of a surgical condition in the stomach, not on the power of differentiating the condition. It is true that it cannot in 100 per cent. of the cases differentiate between cancer and ulcer, and in the doubtful cases all other methods of differentiation must yield to exploratory incision and pathologic examination. This exploratory method of diagnosis was advocated by W. J. Mayo<sup>2</sup> twenty-one years ago. We know now, however, that the roentgen ray can detect the primary lesion in a very early stage, and if, as Deaver has stated in a recent article, almost half of the gastric cancers seem to have followed on ulcers, a lesion of the stomach cannot be too early discovered and looked on as potentially malignant. When the roentgen-ray examination shows a tumor in the pyloric third, the most accessible portion of the stomach, it is considered operable.

A lesion of the stomach can be pronounced operable, however, only with respect to the stomach, as perforation and metastasis almost invariably remain undiscovered until after incision. The clinician can prevent useless operations in some cases which are indicated as operable by the roentgen ray, as he can find metastasis to the rectal shelf, supraclavicular glands, umbilicus and the skin; ascites, when associated with a history of malignancy, is a fairly reliable index of inoperability. Gross metastasis to the lungs and bones is roentgenologically demonstrable, but it is so rare in cases of cancer of the stomach as to merit no more than mention in this brief discussion. Abdominal metastasis, the most frequent form, is a condition which neither the roentgen ray nor any other method of preoperative examination can discover and which the surgeon is unable to cope with, even when the tumor is in the most favorable location for resection (Fig. 3).

#### BORDERLINE TUMORS

The tumors of the second group are those which extend so far up on the stomach wall, into the questionable zone, that their resection becomes uncertain; they are classed as the borderline cases. These cases present the most puzzling problems of operability from a roentgenologic standpoint. Their removal depends, as in the cases of Group 1, on the possibility of metastasis, plus the judgment and skill of the surgeon. The position and size of the stomach may be a surgical drawback; the small high-lying stomach of the robust person offers much greater difficulty to the operator than does the relaxed stomach of the asthenic person. Therefore, if the roentgenologist is familiar with the surgeon's technic he can better form his decision as to the operability of the particular case than if he knows nothing of the operator's dexterity and willingness to attempt resection when the tumor lies in the borderline zone of the stomach. The nearer the lesion approaches the cardiac zone, the more adept must be the surgeon in order to work high up under the costal

1. Deaver, J. B.: *Early Recognition of Carcinoma of the Stomach*, New York M. J. **109**: 749-751, 1919.

2. Mayo, W. J.: *Observations upon the Diagnosis and Surgical Treatment of Certain Diseases of the Stomach, Based upon Personal Experience*, M. Rec. **53**: 836-838, 1898.

arch and to remove just enough of the stomach as to leave it free from neoplasia (Fig. 4).

Tumors of the fundus which do not produce pyloric or cardiac obstruction, and which are not palpable



Fig. 1 (263349).—Filling defect and obstruction due to tumor of the pyloric end of the stomach. The irregularity corresponds to a palpable mass. The lesion is operable "so far as the stomach is concerned."

because of their high location, may exist for some time without causing much inconvenience; by the time clinical diagnosis is definite, they are usually inoperable. Also, when a tumor is in a questionable position with regard to operability, allowance must be made for the type of tumor and consequent type of invasion of the stomach wall. The fungoid carcinomas produce multiple irregular filling defects, and the real extent of the cancer is quite closely simulated by the roentgen shadow; while the scirrhus cancer produces a filling defect less gross which may gradually shade off and not picture the true limits of the disease. Even after allowing for an excess of involvement of a scirrhus cancer beyond that indicated, exploration may reveal inoperable conditions (Fig. 5). As free mobility of a cancerous stomach favors resectability, as fixation resulting from extension to adjacent organs makes successful intervention less probable, as cancer roentgenologically demonstrated as small may at operation be found to have invaded or become adherent to adjacent abdominal organs, and as metastasis may exist without detection by the roentgen ray, the roentgenologist is forced to make such a relative diagnosis of operability in the borderline group of cases that it might be called the exploratory group, for on the surgeon devolves the operative decision.

#### INOPERABLE TUMORS

In Group 3 are the cases of gastric tumors which are pointed out with finality by the roentgen ray as inoperable. The tumors of this group are located in the cardiac end of the stomach, or they have spread

from a pyloric or fundal carcinoma to within this inoperable zone. Surgery can bring no relief to the patient when the cardiac end of the stomach is cancerous. The tumors in this region of the stomach are easily recognized by the roentgen ray as inoperable (Figs. 6 and 7).

Statistics of cancer of the stomach show an appalling number of inoperable cases, especially when it is considered that surgery may bring cure early in the course of the disease. The high fatality rate of cancer of the stomach may be largely attributed to too-late diagnosis.

#### VALUE OF THE ROENTGEN RAY

Of recent methods which have so far been adapted to discover the cancerous growth and to prophesy the chances for its removal, the roentgen-ray signs when correlated with clinical findings seem to be the most promising means by which operability may be increased through earlier diagnosis. So many seemingly benign lesions of the stomach prove to be malignant that the advisability of medical treatment instead of operation seems very questionable or even homicidal. Periodic roentgen-ray examinations in a suspected case can, of course, be made; but if instead of retrograde changes a filling defect typical of carcinoma is noted in time, attempted operation may be too late because of metastasis; the watchful waiting policy often proves not to have averted operation and perhaps to have been the only cause of the patient's early death from a malignant gastric tumor. Even though a growth may be very extensive, if it has not invaded the cardiac end of the stomach the patient should be given the chance of its successful removal through exploratory laparotomy, as some cancers evidently metastasize later than others. The exploratory incision is of little danger and it may be the means of finding a growth which has not quite reached the dividing line between operability



Fig. 2 (134942).—A small filling defect immediately prepyloric, with obstruction. No corresponding palpable mass. Lesion favorable for operation.

and inoperability, that is, when the dividing line represents metastasis.

When the testimony in favor of the roentgen ray is collected, we find, then, that its only decisive value in predicting the operability of carcinoma of the stomach

is its prevention of operation in inoperable cases. Its value in the borderline cases is limited to preoperative information with regard to the location and extent of the growth, and their significance for malignancy. In the first group, which includes the highest percentage

of the symptoms, a roentgen-ray examination should be included. The roentgen ray can now discover 95 per cent. of all gastric tumors, of which only about 50 per cent. are still in the operable stage. When routine examinations of persons presenting gastric symptoms have become a reality, the roentgen ray should be able to raise that percentage encouragingly, for the inoperable tumors should be practically only those which cannot be resected because of cardiac location, and carcinomas of the cardia represent a small percentage of gastric cancers.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROBERTS AND CARMAN

DR. GEORGE E. PFÄHLER, Philadelphia: I wish to emphasize the point that we must not depend on the roentgen ray alone for these diagnoses. I do not think that any first class roentgenologist ever asks that or expects that. I want all the evidence I can get in making the interpretations and in making the investigations, because if I have the evidence presented from the clinical standpoint I will investigate more thoroughly the part of the gastro-intestinal tract that is under suspicion, so as either to prove it normal or abnormal, and I do not like to make any report merely "negative." When I say normal, that only means normal from my roentgenologic standpoint; it does not mean that the organ is absolutely normal. I do not wish to convey any such impression. The next point that I want to emphasize is that an incomplete or careless examination by the roentgen ray is worse than none at all. An examination made by an incompetent roentgenologist, technician or commercial employee is frequently worse than nothing, especially in gastro-intestinal diseases. A man may make an interpretation of a fracture in almost any position and may show the line of fracture in the obvious cases, but in gastro-intestinal diseases we have movable organs to deal with; we have varying conditions present continually, so that a wide experience in interpretation is necessary if we want to avoid mis-



Fig. 3 (147635).—Filling defect with obstruction in the operable zone. The lesion was operable so far as the stomach was concerned, but proved to be inoperable because of metastasis found at operation.

of operable cases, the roentgen-ray diagnosis of operable so far as the stomach is concerned can be almost 100 per cent. diagnostically correct, while operability determined by metastatic conditions dwindles to about 50 per cent. As the likelihood of metastasis and the spread of the disease seem to increase with the age of the disease, it is an obvious corollary that many more patients could be successfully operated on if a diagnosis were made early.

Until all medical men and laymen realize the necessity of early examinations of all persons with any gastric complaint, the death rate from gastric cancer will remain high while the successful operability rate of carcinoma remains discouragingly low. Propaganda which will direct the public's attention to the dangers of disregarding gastric symptoms seems as justifiable and perhaps as necessary as the campaigns which have decreased the death rate of tuberculosis. In 1900 the mortality statistics<sup>3</sup> for all forms of tuberculosis were 201.9 for 100,000 population; in 1916 they had dropped to 141.6, more than 60 per cent. The death rate from cancer, of which gastric cancer is the most common form, rose in that time from 63 to 81.8 for 100,000 population, more than 18 per cent. These statistics have only a relative value, of course, but they do surely mean that the death rate from tuberculosis is lower than eight years ago, while the death rate from cancer is no lower despite the advance in surgical technic. Publicity through national and state public health departments which will lead persons who are suffering from chronic indigestion or dyspepsia, which are not diseases but only symptoms, to consult a physician, who will conduct a thorough examination, should be one of the means of raising the operability of cancer. In every such routine examination, no matter how slight



Fig. 4 (106837).—Gross filling defect extending into the questionable zone. Operability of tumors of this extent can be determined accurately only by an exploratory incision. The tumor was found to be inoperable because of posterior attachment.

takes. We know that it is the most valuable method we have of studying the gastro-intestinal tract. That does not mean that we must discard other methods. We must make investigations roentgenographically and fluoroscopically and then by careful interpretation we will make few mistakes.

<sup>3</sup> United States Mortality Statistics, 1916, p. 20.

With regard to the diagnosis of carcinoma of the stomach, if those cases are studied thoroughly few carcinomas will be overlooked. The fact that some men will try to diagnose all these lesions as carcinoma does not condemn the method. We cannot differentiate in the early cases between indurated ulcer and carcinoma. The microscope can

want to commend Dr. Roberts for his note of conservatism and to assure him that roentgenologists who take pride in their work and who are doing successful work will most heartily agree with him that the roentgen method is only one method of diagnosis and should by no means be set up as a unique method to be depended on by itself alone. As to Dr. Carman's excellent paper, I want to suggest just one thing—that perhaps the use of the word "resectable" might be more appropriate than the use of the word "operable."

DR. R. WALTER MILLS, St. Louis: It is difficult to discuss the papers of Dr. Carman and of Dr. Roberts; they are in keeping with the views of those of us who have been interested in this work. I may call attention to the stabilizing of gastro-intestinal roentgenology and certain things that Dr. Carman mentioned that forecast the future. Roentgenologist and clinician are met now for the first time on a common basis of efficiency. There is no question of the value of the roentgen ray. The trend of the meeting is along the line of the limitations of the roentgen ray, our own psychologic reaction to the overwhelming value of the thing. I should like to ask how many cases of nonobstructive operable cancer of the stomach medical men have diagnosed by clinical means. The roentgen ray has its limitations. We make mistakes but these mistakes diminish in direct proportion to the skill of the examiner. Gastro-intestinal roentgenology is not easy. One must become sensitized to it. Dr. Carman hits a strong blow in his education of the public to the symptoms of gastric cancer, and of course with the obvious outcome of routine complete roentgen-ray examination in all suspicious gastro-intestinal pictures. The real keynote is the education of the public in the same way we educate them in the matter of tuberculosis and carcinoma of the uterus. There is one sinister note against the success of the curing of the cancer of the stomach surgically. Many persons do not have symptoms sufficient to drive them to the physician until it is too late, and this we can never control. The difference in surgical skill is a tremendous factor in the treatment of gastric cancer.

DR. LOUIS J. HIRSCHMAN, Detroit: Speaking as a clinician, I wish to offer this: We must remember we are calling on



Fig. 5 (123017).—Filling defect of greater curvature involving the operable and questionable zones. Operability questionable so far as the stomach is concerned. Operation: sleeve-resection.

scarcely do it. The surgeon cannot do it when he gets it out on the table.

DR. JAMES T. CASE, Battle Creek, Mich.: Dr. Roberts will not find fault with me for disagreeing with him in some small details. I do not quite agree with him regarding the negative value or uselessness of the roentgen method in the study of the esophagus. With the esophagoscope, it is impossible to see deeper than the mucosa, and many of the early malignant lesions in the lower end of the esophagus are not first seen from the mucosal side. I have often found a spasm of the cardiac orifice in what later proved to be a carcinoma of the cardia, where the early roentgen sign was cardiac spasm. I am convinced that spasm of the esophagus is often an early sign of carcinoma, a finding which can be determined by means of the roentgen rays long before the esophagoscope can see the lesion. In regard to incompetency of the ileocecal valve, I think one of the doctor's statements is susceptible of criticism. He mentioned that the enema test of ileocecal valve incompetency is made under very abnormal conditions. Incompetency of the ileocecal valve as such is a matter of minor consequence. Cases which are pathologically significant are those in which there is a retrograde movement of ingested food from the cecum back into the ileum. This has been demonstrated in many of the severe cases where there were clinical symptoms which might be ascribed to the condition. The mere fact of ileocecal valve incompetency is not significant. It is an end-result, not an entity, not a primary thing, and there is just about as little justification for operating on the ileocecal valve alone as there is in removing the appendix in so-called chronic appendicitis and expecting this operation to cure the patient. Both ileocecal valve incompetency and the so-called chronic appendix are end-results of more far-reaching causes. We cannot shut our eyes to the fact that there are a large number of cases characterized by distention and distress in the lower abdomen accompanied by occasional cramps, with clinical evidence of ileac stasis, with nausea and the rest of the symptoms which we have felt were indicative of ileac stasis. In my experience, the more marked these symptoms, the more marked the incompetency of the ileocecal valve. I

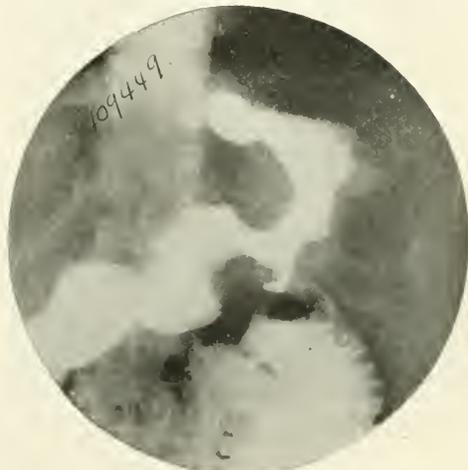


Fig. 6 (109449).—Tumor involving questionable and inoperable zones. A tumor in this location is indisputably inoperable.

the roentgenologist as a consultant, not as a man to take pictures, not as a man to give us a report as to examinations, but as a consultant, and we must consult with him in every sense of the word. The surgeon who does not spend a good part of his time in the roentgen laboratory with the roentgenologist, seeing, feeling and studying, is not going to be

of best service to his patient, no matter how much credence he places on the reports of the roentgenologist when he gets them. A man connected with a hospital or clinic who is fortunate to have a good roentgenologist associated with him does not need any advice along this line; but a great many



Fig. 7.—Tumor located in the inoperable zone. Operation is contra-indicated in cases of this type.

men who are treating cases solely on the report they receive on paper as given by the roentgenologist are often led astray. It is not fair to the roentgenologist to expect him to give advice as a consultant as to the desirability of operation in a given case, and as to the operability of a given case. But if more team work were indulged in you will be a better surgeon and you are going to be better able to interpret his reports when he does give them to you. The point Dr. Roberts brings out about not placing too much credence on roentgen-ray examination is all very well. There are some operative procedures, particularly in the intestinal tract, where by the use of the roentgen ray we are able not only to decide whether or not a case is operable, but in a large measure to plan the operation. We must correlate our own clinical findings from every point of view with the result of our consultation with the roentgenologist, and we will be better able to plan our operations than we could do before.

Dr. THOMAS R. BROWN, Baltimore: Quite a few years ago it was said that no one could expect to make an early diagnosis of carcinoma; that we should be satisfied to make a late correct diagnosis. I want to call attention to a point I think is of fundamental importance. There are three clinical types, the one that develops the type of ulcer which should be of great importance; the second group in which the picture is so thick and aggravated in the late chronic dyspeptic, so that it is almost impossible to tell the transition and where generally it is too late; third, the classical type, with absolutely no preventive symptom as far as we know, where suddenly without warning there is a development in the digestive system. This group I am firmly convinced should be suspected as carcinoma. Clinical study plus the most careful roentgenologic study should give us results in most cases. I remember a great European physician once said that the careful, well trained clinician should make his diagnosis from the history; that the rest of his examination should be simply confirmatory, and this is the type of cases in which it is peculiarly applicable.

Dr. ANTHONY BASSLER, New York: You cannot diagnose all abdominal conditions by the roentgen ray. So far as disturbances of sensation are concerned you cannot do anything with the roentgen ray, nor with catarrhal conditions, nor with toxic conditions. My experience has been this:

In esophageal conditions it is most helpful. As soon as one gets down in the stomach, depending on the roentgen ray alone, then there is an element of danger. This is increased in the small intestine and slightly only less so in the colon, and I think we should think of these as important in the matter of proportion of failures. In ethmoidal disease, and pretty nearly everything osseous the roentgen ray is of use. In soft tissue diagnosis it must be taken more in a confirmatory sense. But when it comes to early carcinoma of the stomach the only way you can diagnose it is with the roentgen ray.

Dr. BYRON C. DARLING, New York: The propaganda that Dr. Carman advocates brings up one sinister cloud, as suggested by Dr. Mills, and also by Dr. Roberts. The commercial laboratory is practicing medicine. Twenty-two different laboratories have opened up in New York City where you can get a written or oral diagnosis of stomach lesions and all sorts of other conditions. This is practicing medicine, because anybody who treats and diagnoses, and so forth, is practicing medicine. To take another point of view, the surgeons and physicians who are sending their patients to laymen are in a rather paradoxical position. The public appreciates the value of this method, and the physician submits a case to a layman for final, or at least, a help in his diagnosis. The patient presumably pays for those services either in a commercial laboratory or in a lay technician's office, or in a specialist's office; and if he pays for those services may he not be entitled to those services—to the judgment, to the experience of a trained medical man instead of a layman? Is it not compatible with fair and square dealing to submit your pertinent findings to the review of another medical man? Why not collaborate? Why not corroborate? This is a violation of the Medical Practice Act. This is a violation of caution and of safety.

## THE ORTHOPEDIC SURGEON AND INDUSTRIAL ACCIDENTS\*

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My work during the past two years has served to bring into marked contrast the unusually expert care given by our military authorities to the treatment of gunshot injuries and the comparative lack of care bestowed on similar injuries occurring in the ordinary course of industry. The Surgeon-General's Office took



Fig. 1.—Contracture of the fourth and the fifth fingers, due to paralysis of the ulnar nerve. This deformity could have been prevented by the use of the small splints holding the fingers extended.

pains to give special courses, training men in orthopedic and surgical principles applicable to war injuries; a special commission has devoted itself exclusively to the perfection of splints; pamphlets have been issued, and a special department of education by means of photographs and moving pictures has been efficiently organized. As a result, the American wounded soldier

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has had far less to suffer than his comrade in arms, either of the allied or of the hostile armies.

Contrasted with this excellent organization, dealing with the complicated gunshot injuries, the treatment of which is peculiarly difficult owing to the suddenness with which military hospitals are inundated with huge numbers of injured, is the general lack of care and organization accorded the employee who suffers a comparatively simple type of injury. True, there are exceptional instances in which certain firms and insurance companies have organized their work in a systematic and effective way; but on the whole, and here I speak from my personal experience, I gain the impression that the care of those injured in industrial accidents, particularly in the early stages, is haphazard and is left to men of insufficient experience.

I shall confine my paper entirely to the orthopedic aspect of the situation. I shall deal, first, with the most usual mistakes in splinting; secondly, with some of the simpler types of appliance applicable to injuries of the upper extremity and thirdly, with some of the operations on nerve, tendon and bone, particularly useful in the operative treatment of industrial injuries.

#### COMMON MISTAKES IN SPLINTING

Ischemic gangrene following the application of a tight splint is a frequent source of trouble. The novice



Fig. 2.—Marked contracture of the thumb due to a wound of the thenar eminence. The contracture could have been prevented by splinting the thumb in the abducted position.

fails to realize that a plaster dressing, or in fact any firm dressing applied shortly after the accident, although a perfect fit at the time, rapidly becomes too tight, owing to the swelling of the extremity. Ischemia may occur within twenty-four hours, and when once present is extremely difficult to cure. A second mistake is the application of an unnecessarily large splint, which immobilizes joints unnecessarily. Patients with fractured clavicles are usually brought into the clinic with the entire extremity enveloped in the classical Velpeau dressing. Within two weeks, the metacarpophalangeal joints of a workman or workwoman over 50 are so stiffened by this unnecessary immobilization that weeks are required before they can be limbered up—a much longer time than it takes for the fractured bone to heal. The Colles fracture, too, is almost universally splinted with immobilization of the fingers. The surgeon seems oblivious of the fact that two short arm splints properly adjusted, with a little felt pad placed posteriorly over the inferior fragment and anteriorly over the proximal fragment, is amply sufficient to hold them in position.

A third group of mistakes includes even a larger number of cases; those in which no splint whatever is applied, although its use is more urgently indicated

than in a fracture. To this group belong the numerous nerve injuries. Musculospiral paralysis is frequently treated by applying a sling in such a way as to increase the wrist drop. No attempt whatever is made to hold the hand in the "cock-up" position. Figure 1 illustrates the deformity subsequent to an injury of the ulnar nerve. The contraction of the fourth and fifth fingers could easily have been avoided by the use of appropriate measures. Figure 2 illustrates another type of



Fig. 3.—Contracture of the fourth and the fifth fingers due to a wound of the flexor sublimis digitorum muscle. At the right is shown the result of three weeks' intensive treatment in overcoming the contracture. This treatment would have been unnecessary had the fingers been properly splinted from the outset.

injury, a marked contracture of the thumb, due to neglect to splint the finger in the abducted position, and Figure 3, contracture of the fourth and fifth fingers due to an injury of the forearm, involving the flexor sublimis digitorum muscle. In each case, deformity could have been avoided and weeks of extensive treatment saved the patient and the insurance company, if sensible orthopedic measures had been instituted from the outset.

I want also to emphasize the danger of retaining any splint too long a time. No matter how good the splint, it will do damage if the joints are immobilized over an excessive period. This is well illustrated in Figure 4, showing an injury received in a railroad accident (multiple compound fractures of the lower arm) in which complete functional disability ensued, because of immobilization extending over a period of four months.

Equally to be condemned is the use of injudicious early forced motion. This applies particularly to the fractures around the elbow joint. The lesson in this connection, taught by Sir Robert Jones, cannot be learned too thoroughly: Motion at this joint should



Fig. 4.—Complete functional disability due to excessively long immobilization. A useful hand could have been secured had the motion of the fingers been begun three weeks after the accident.

never be forced; after primary immobilization at an acute angle the arm should be allowed to extend from its own weight. Briskness forced invariably produces excessive callus and increased stiffness.

#### SIMPLE TYPES OF APPLIANCES

Thus far I have dealt chiefly with mistakes in splinting. Now a few words as to simple methods of fixation applicable to injuries of the upper extremity:

For injuries of the musculospiral nerve, I use the little brace shown in Figure 5. It is better than any other I know, because in addition to holding the hand in the cock-up position, it holds the thumb abducted. For ulnar paralysis, a light splint should be made of two tongue depressors or of cigar box wood, and the fourth and fifth fingers held extended. For Colles' fracture, the rounded metal splints used by Sir Robert Jones are unquestionably the best. For any form of injury, in which there is danger of contracture, a little splint should be molded by running a plaster-of-Paris bandage backward and forward to form a layer sufficiently thick to hold the parts in the appropriate position. Injuries of the circumflex nerve or of the deltoid muscle, in which the abducted position of the arm is indicated, can be splinted by a corresponding plaster-of-Paris mold, reinforced by a small iron or steel band. This band is incorporated between the layers of the plaster-of-Paris, while these are setting, and should form an integral part of the splint. This plaster-of-Paris abduction splint I find lighter and very much cheaper than the aeroplane splint frequently used during the war.

In the after-treatment of contractures and stiff joints,

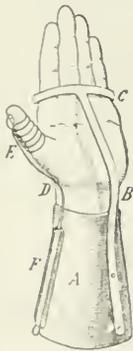


Fig. 5.—Light brace for musculospiral paralysis, holding the hand in the cock-up position and the thumb abducted.

the form of apparatus most generally used, the Zander pendulum devices, usually defeat their own purpose. A steady force constantly applied to the joint is far more efficacious than the sudden impacts produced by the pendulum apparatus. Of particular value are the splints shown in Figure 6. They are simply constructed, reasonable, and are so made that the same device can be used to extend as well as to flex the joint. Similar contrivances can readily be made out of plaster of Paris.

#### USEFUL OPERATIONS

In the operative treatment I wish to touch on three new phases in the treatment of tendon, nerve and bone injuries. The problem of the suture of tendons has been before the surgeon for many years, and numerous answers have been given. To my knowledge, there are at least fifteen different tendon sutures advocated by well known surgeons. Whenever there

is such a marked variety, one may be certain that there is no preeminently satisfactory method. During the last year, however, a technic for end-to-end suture of tendons has been devised by Dr. Bunnell of San Francisco which to my mind represents a radical surgical advance. Bunnell, basing his investigations on researches which Biesalski and I had conducted, applied the principles set forth by us for the transplantation of tendons in paralytic conditions to the suture of tendons divided by trauma. He showed that the usual method of tendon manipulation in these cases disrupts the tendon fibers and destroys those delicate gliding cells on the surface of the tendon whose significance my previous publications have emphasized. To overcome these difficulties he devised the tendon clamp, illustrated in Figure 7, so constructed as to hold the tendon fibers firmly together during the insertion of the suture, and at the same time to avoid traumatism to the gliding surface of the tendon. The

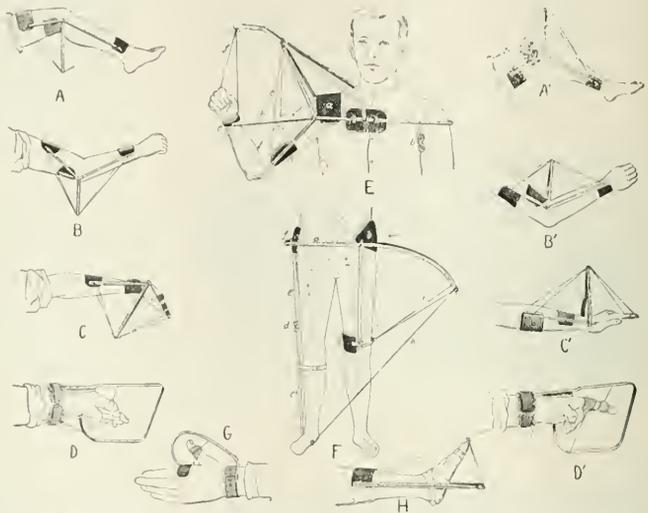


Fig. 6.—Schede-splints for the treatment of contractures and stiff joints. The same splint which is used to produce flexion of the knee can, by being inverted, cause extension. This also applies to the elbow, hand and finger splints.

method of inserting the suture is well illustrated and requires no further explanation. The results obtained by this method have, in my hands, been unusually good. It is applicable not only to the immediate suture of divided tendons, but also to the free transplantation of tendons to fill in the defect when the tendon ends have retracted excessively. Figure 8 illustrates a case in point: one of traumatic division of the flexor longus pollicis tendon, which came to operation two months after the accident. The gap of 2½ inches between the tendon ends was bridged by a free transplant of the flexor carpi radialis tendon. The resultant motion is shown in the illustration.

In nerve suture there is little question relative to the technic when an end-to-end suture of the neurilemma is feasible. When, however, loss of nerve substance has been so great that end-to-end apposition is impossible, then some form of bridging operation is required. I strongly favor the free transplantation

of a sensory nerve taken from the same individual to fill in the gap between the ends of the injured nerve. Since the sensory nerve at our disposal is invariably smaller in diameter than the injured, several segments must be used to construct a kind of nerve cable. For this purpose, a modification of the Bunnell clamp is of great service, as is seen by reference to the diagrammatic Figure 9. The results of this method of nerve bridging are shown in Figure 10.

In cases of loss of bone substance, the inlay graft method as developed by Dr. Fred Albee is of the utmost service. Figure 11 shows a case of injury to the radius with 2 inches of substance and consequent marked deformity of the hand. As the first stage of the operation, a wedge osteotomy of the ulna was performed, so as to permit correction of the deformity. The defect in the radius was then bridged by a solid graft taken from the tibia, wedged in

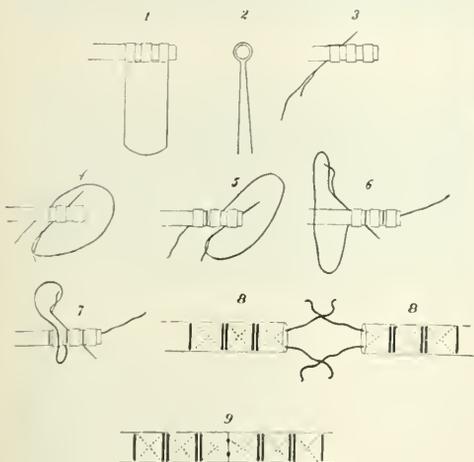


Fig. 7.—Bunnell clamp for end-to-end suture of tendons (courtesy of Tiemann & Co.); 1, side view of clamp applied to tendon; 2, cross section (end-on) view; 3, first insertion of needle; 4, second insertion of needle; 5, third insertion of needle—suture pulled tight in first interspace; 6, other end of Pagenstecher linen thread, armed with needle—first insertion of this second needle; 7, second insertion of second needle (third insertion is identical with that shown in 5, but is naturally in the opposite direction); 8, diagrammatic representation of sutures in place, indicating which threads are knotted together (tendon is relaxed so that both ends come together without tension, and knots are tied); 9, completed suture. Passive and active motion should begin on the fourteenth day.

between the fragments of the radius in such a way as to hold them apart. The functional result was excellent.

ABSTRACT OF DISCUSSION

DR. ARTHUR H. CILLEY, New York: There is one point to be considered in connection with the type of "cock-up" splint that Dr. Mayer described. One must be careful not to have the patient wear it too long, because it tends to flatten the metacarpophalangeal arch, and also to hyperextend these joints. We who served in the British hospitals saw many of these hands, and they were very hard ones to restore to usefulness. In order to grasp, one must be able to hollow the palm, and the metacarpophalangeal joints are the most necessary of all in this action. For this reason we gave up the full palm splint and have used the short palm splint, making this part somewhat like a ball. We also try not to have the splint interfere with adduction of the thumb,

Restoration of the function of the hand is frequently very difficult, and interference with the arches makes it just so much more so. With reference to the abduction shoulder splint, at U. S. Army General Hospital No. 9, at Lakewood, N. J., we used a splint which I had never seen before. Whether Dr. Cleary devised it or not I do not know. He



Fig. 8.—Traumatic division of the flexor longus pollicis tendon, with a gap of 2½ inches between the retracted tendon ends. The gap was filled in by a free transplant of the flexor carpi radialis tendon, the Bunnell clamp being used. The photographs illustrate the resultant range of motion three months after the operation.

was responsible for its use there, at any rate. Instead of having the entire splint on the affected side of the body, the bars along the body from the pelvis to the axilla were on the opposite side, the weight being carried by the webbing belt across the affected side of the pelvis instead of on the steel bar on this side. It has the added advantage of leaving the shoulder on the affected side entirely exposed, and also supported, instead of having the weight slung onto it. Through its use, also, I have not seen the deformities of the spine which I have seen when the weight was all on one side of the body, of course, only when the splint was required for a very long time. I hope some time to see a plaster-of-Paris splint that weighs as little as a steel or wire one. I have seen and made a good many, and one strong enough to be efficient has always been very heavy.

DR. JOHN RIBLON, Chicago: I should be glad to have the others who are to discuss the paper and Dr. Mayer say

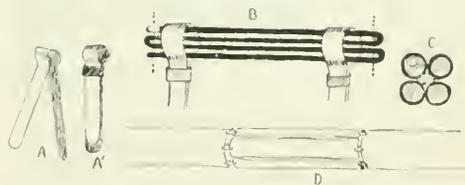


Fig. 9.—The author's method of constructing a nerve cable of a sensory nerve, to be used as a graft, bridging the gap between the ends of the severed nerve; A, modified Bunnell clamp open; B, closed, with the cuff in place; C, manner of doubling the sensory nerve backward and forward, so as to form a nerve cable; the clamps hold the nerve segments together; the dotted lines indicate the point at which the nerve is cut across by scissors or a razor; C, semidiagrammatic sketch illustrating the end of the nerve cable, a single stitch has been inserted holding the four nerve segments together; note that the neuroma present a sharp cross section, and can thus be brought into intimate contact with those of the injured nerve; D, semidiagrammatic sketch, illustrating the implantation of the nerve cable between the ends of the injured nerve. It is held in place by fine percutaneous sutures, one at each end of each nerve segment.

whether it is better to splint with the rigid cock-up splint or with a spring cock-up splint which will, when the muscles are relaxed, cock the hand up, but by which, when the patient wishes, he can flex the hand. Is it an advantage, or

a disadvantage, in the treatment of these cases, where a nerve suture has been done?

DR. SAMUEL W. BOORSTEIN, New York: The principles of Dr. Mayer are commendable and should be emphasized at lectures before insurance companies. The insurance companies do not refer cases to the orthopedic surgeon till marked deformity has occurred. For instance they think that any one is qualified to treat a fracture or burn, the result being that even in the slight cases bad deformities are allowed to develop. I had recently under my observation a patient with marked flexion deformity of the knee and hip and dislocation of the tibia on the femur as a result of a burn. That patient was discharged as cured because the wound was healed. The companies forget that the cost of such neglect is more than the few dollars they save by not having a specialist attend to their fracture cases or any other injuries leading to deformity. As far as the difference between a solid or a spring splint for the cases of peripheral nerve injury, my experience, while working in cooperation with Drs. Byrne and Taylor, was that the solid one is better as it does not permit any stretching of the weakened muscles.

DR. LEO MAYER, New York: I thoroughly agree with what Dr. Boorstein said, and I hope that my remarks will come to the ears of the insurance companies and that they will profit by the opinion of this assembly. I certainly think it necessary that all cases should, from the outset, have the benefit of orthopedic advice; just as every single military accident and injury had the orthopedic advice of the army surgeon. Relative to the type of splint to be used, I think that the rigid type is better than the spring appliance;

of the external popliteal nerve, a splint to keep the foot dorsiflexed. As between the short and the long cock up splint, there is much difference of opinion. In some cases, it is easy to flex the metacarpophalangeal joints, even in the long splint. If it prevents this action, use the shorter splint.



Fig. 11.—Marked deformity due to a 2 inch loss of bone in the radius.



Fig. 12.—Same arm as in Figure 11, subsequent to osteotomy of the ulna and bone graft of the tibia. The graft is shown inserted between the fragments of the radius.



Fig. 13.—Hand with injury to the ulnar nerve, 5 inches above the wrist, one and a half years, subsequent to the implantation of the dorsal sensory branch of the ulnar nerve to bridge a 2-inch gap of the injured nerve. Note the absence of atrophy of the hypotenar muscles, the ability of the patient to spread his fingers apart and the comparatively slight atrophy of the interosseous muscles. This atrophy was distinctly more marked before the operation, and gradually diminished subsequent to it.

because I believe in the principle of Sir Robert Jones that we must have complete relaxation of the muscle fibers. If they are stretched, more or less damage is done. Therefore, I use a permanent cock-up splint; or, in the case of injury

It is important to drive the point of the proper treatment home to the minds of the medical profession at large, so that we shall not get these miserable drop wrists. So far as the airplane splint is concerned, I wish that Dr. Cilley would come and see the splint Dr. Ogilvy uses. He would find that it is lighter than any other. I saw an illustration of a splint used by Dr. Frazier that impressed me as being very efficacious, in which the bar started on the opposite shoulder and the longitudinal bar ran down the opposite side of the body. I think that this will be an improvement on anything we have seen thus far.

**The Plague Menace.**—The first case of pneumonic plague reported in Manchuria, occurred in Manchouli on Oct. 12, 1910. The last case was reported Dec. 25, 1910, two and one-half months after the outbreak. Owing to the energetic action of the Russian authorities only about 400 died. (Officially registered 392, p. 28.) In Harbin (or Fuchratein) the first cases were reported on Nov. 7, 1910. They were two tarbagan hunters, who had come from Manchouli. From both the Russian and Chinese records, small epidemics of pneumonic plague had occurred here before, but this time, within three months, over 5,000 persons in a population of 30,000 were killed by this disease. Harbin is closely packed and built on a low-lying swampy plain. It has narrow streets, and is inhabited principally by coolies. The majority of the houses are low, dark, dirty and overcrowded. On the other hand, Shuangchengiu, which is situated on the railroad line, 30 miles south of Harbin, is a finely planned city with wide streets and is famed for its large, well constructed houses. The population consists chiefly of families who have settled there. Half of the families are Manchus. There are wealthy land owners and leading Chinese merchants, people clean in their habits and homes. Yet, within seven weeks, there were 1,500 deaths in this city of 60,000 inhabitants.

## RADIUM IN DERMATOLOGY\*

HOWARD MORROW, M.D.

AND

A. W. LEE, M.D.

SAN FRANCISCO

This is a summary of three years' experience with radium as one of the factors in the nonoperative treatment of certain forms of cutaneous pathologic processes.

The first amount of radium placed at our disposal was received in 1916. As this was small in quantity we were obliged to confine our use of it to minor lesions. Since 1916, radium has been given to the University of California Hospital in steadily increasing quantities, and the good resulting from its use has increased correspondingly.

At the present time, the total amount of radium available for our use is 250 mg. This is distributed in varying quantities and in different forms of containers, ranging from a 5 mg. disk container to a 50 mg. tube container.

Obviously the different types of container, along with their varying content of radium, have different uses. For example, a rodent nodule the size of a pea would call for the application of a container, the periphery of which should only slightly overlap that of the area being treated. More extensive lesions would require a greater surface contact of radium. The needle form of container has some special points of value, such as in treating diseased conditions of the nasal cavity, tumors and deep seated growths.

Excision is seldom employed in basal-cell growths, usually on account of the location, which is frequently on the nose or at or near one of the canthi. Curetting followed by cauterization is painful, the resulting crust is unsightly, and the scar is often rough and depressed. The application of arsenic paste is still more painful, and the scar following its use may be very pronounced. Roentgen-ray treatment for this type of growth is usually satisfactory, but we frequently find cases that resist this form of therapy and which clear under the



Fig. 2.—Basal-cell epithelioma (before).



Fig. 3.—Basal-cell epithelioma (after).



Fig. 1.—Basal-cell epithelioma before radium treatment.

### RESULTS OF RADIUM TREATMENT

It has been our practice, up to the present time, to bring the radium more or less into direct juxtaposition to the lesions subject to its action, with intervening screens of several types. The method of employing radium at varying distances from the parts to be influenced by it has, as yet, not been practiced by us.

Radium has been employed by us in a variety of

skin diseases, but we feel that our best results have been in treating true basal-cell epitheliomas. In fact, radium therapy appears to be the ideal treatment for this class of slowly malignant neoplasm. There is very little if any pain attendant on the treatment, recurrences are rare, and the resultant scars are almost unnoticeable.

exhibition of radium. On the other hand, basal-cell carcinomas that do not improve under radium emanations are not affected by roentgen therapy. Furthermore, when such growths are located on the lids, or on or within the nose, they are more easily handled with radium plaques than with the Coolidge tube. In a former paper, before enough radium was at our disposal to be of sufficient value in treatment, we remarked that the so-called Bowen's type of epithelioma might be cured by its use. Since then we have had enough experience with radium to convince us that this view was correct. In all, we have treated five patients with the unmistakable signs of Bowen's form of epithelioma, and the condition, in each instance, has been cleared up.

**Basal-Cell Epithelioma.**—We have treated 112 cases of basal-cell epithelioma with radium. Of this group, the site of affection, in forty-four cases, was on the nose; in twenty-four, on the cheeks; in fourteen, at the canthi; in nine, on the temple; in seven, on the neck; in four, on the upper lip; in three, on the forehead; in one, on the abdomen; in one, on the chin, and in one, over the mastoid region. Of this number, three cases were so far advanced that treatment was futile, and they terminated fatally. In eighty-nine the condition cleared up, and so far has shown no recurrence. In fifteen instances there were recurrences, which cleared again with further radium treatment.

**Squamous-Cell Carcinoma.**—Our experience with this type of neoplasm has been quite limited, as we have advised the patients in nearly all such cases to consult a surgeon for treatment. We have assumed this attitude because of the uncertain action of radium on squamous-cell carcinomas, and on account of the early involvement of the neighboring lymph glands in this type of cancer. It therefore impresses itself on our minds that such cases should have the advantage of judicious surgery. Those cases of squamous-cell carcinoma which we have exposed to the action of radium

\* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

have been instances of recurrence, inoperable on account of the age of the patient or the location of the growth. Of these, fourteen resisted treatment, but five were healed and possibly cured. We have had some good results with radium therapy in cases of carcinoma of the floor of the mouth; these were considered inoperable by consulting surgeons. We have had similar experience with extensive squamous-cell



Fig. 4.—Basal-cell epithelioma (before).



Fig. 5.—Basal-cell epithelioma (after).

carcinomas of the face and neck, in which operations were considered inadvisable because of the age of the patients.

**Sarcoma.**—The number of sarcomas subjected to radium emanation has been so small that any attempt to give a detailed statistical report would be of little value. Still, the results obtained in our small series were more satisfactory than in any other type of malignant disease, omitting the basal-cell epitheliomas. With the exception of melanotic sarcoma, all of the several varieties appear to be favorably influenced by radium treatment. These cases demand a heavy dosage, thick screening, and the burying of needle containers of radium in the tumor masses.

**Nevi.**—The large group of congenital cutaneous malformations should be spoken of in some detail, as radium has revolutionized the treatment of these conditions. The nevus which shows the most startling improvement after treatment with radium is the so-called strawberry mark, or cavernous angioma. In these cases the growths disappear entirely after a few applications, and the resulting scar is almost like the normal skin; this is particularly so if the radium has been sufficiently screened to cut off the superficial reaction, which so often leaves telangiectases. This variety of treatment is superior to that with carbon dioxide, as it is painless, and as the final results are generally more satisfactory. Horny or warty linear nevi are also successfully removed by radium. In previous years, we were in the habit of attacking such conditions with the galvanocautery or Paquelin cautery; but that practice necessitated the administration of an anesthetic, and was occasionally followed by keloid formation. Pigmentary nevi can be nicely removed by radium. Here, long exposures with heavy screening have given us the best results. The most unsatisfactory type of nevus for radium therapy is the angioma simplex, or port wine mark. Of the nevi handled by us in this manner, forty-two were of the strawberry mark type; seven, of the cavernous variety, consisting of large and hard vessels, and two, of the linear variety. All of the strawberry marks disap-

peared after from two to five treatments with radium, and the large cavernous growths were greatly improved. One linear nevus was quickly cured, and a very extensive one is now slowly yielding to treatment.

**Warts.**—All varieties of warts can be satisfactorily removed by subjecting them to the use of radium. But, as they are amenable to so many other and more available forms of treatment, it seems advisable to restrict radium therapy to certain types of verrucae. The most important are the warty growths which occur at the sides of, or under, the finger nail. If radium is employed in such conditions, and screened with proper precautions, the results will be satisfactory in most instances, both as regards the relief of pain and the large percentage of nonrecurrence. Second, perhaps, in importance come plantar warts. It is a common experience, however, that their identity is not recognized, because they are confounded with callosities and corns. In this type of case a chiropodist has usually been called on for relief, and all he does is to remove the horny covering, thus failing entirely to effect a permanent cure. On the other hand, the results of treatment of plantar warts with radium are all that can be desired.

**Keloid.**—In the majority of our cases of keloid, the application of radium gave excellent results. Considerable improvement can be predicted, especially when the keloid is of recent origin and appearing in young subjects. These forms are best treated by the tube or needle type of radium container, with 1 mm. of silver screening, and from four to six hours' exposure. This exposure should be repeated in at least six weeks. Additional treatments, of course, may be necessary.



Fig. 6.—Bowen's type of epithelioma.

**Lupus Erythematosus.**—This is probably one of the most harassing diseases with which the dermatologist is confronted. In consequence, anything added to our therapeutic armamentarium in this field should be given our most thorough consideration. For the discoid, and the red, scaly, thickened areas of erythematosus lupus,

radium is of value. Many short exposures are indicated in these conditions. In all, we have treated ten cases of erythematous lupus, and in some of them we have obtained more satisfying results than any we have secured in the past with other methods. We have found that this type of the disease reacts more favor-

elaboration of details as to screens, but this is very frequently done. It is a source of confusion and the exact measurement of the thickness of screens is a matter of no practical importance. If you use a rubber finger cot, for example, you cut out the alpha rays. It does not make any difference whether this cot is one-fifth, one-half or one millimeter thick. The same is true of a thin aluminum screen, or a thin silver screen. Each cuts out the rays of a certain penetration, and the variation of a few tenths of a millimeter in thickness practically makes no difference.



Fig. 7.—Basal-cell epithelioma (before).



Fig. 8.—Cavernous hemangioma (before).

ably to radium treatment than to that with carbon dioxide snow or with the various types of heliotherapy.

*Myxomatous Cysts.*—Occasionally, we see small myxomatous cysts on the dorsal and lateral aspects of the distal phalanges. In our hands, radium seemed to have a beneficial effect on these growths when it was applied in small plaques for an hour at each period, and with 0.5 mm. of brass screening.

*Other Conditions.*—In addition to the conditions mentioned above, other varieties of cutaneous lesions have been treated by us with success by the use of radium, such as lupus vulgaris, leukoplakia and pruritus ani; but with each the number of cases has been so small that we do not feel like discussing them at this time.

#### ABSTRACT OF DISCUSSION

DR. WILLIAM ALLEN PUSEY, Chicago: In general I agree entirely with the experience of Dr. Morrow. A few points which he brings up are of interest to me; with some I agree and with some I disagree. First, as to the relative value of radium and roentgen rays. I have been using radium for many years and I have been using roentgen rays for many years. From my experience I am entirely convinced that there is no essential difference between the two in their effects on living tissues. We can do with one just what we can do with the other. It is a question of the amount of energy we have available with either agent, and a question of convenience of application. Sometimes we get results with roentgen rays and not with radium; on the other hand, sometimes we get good results with radium and not with roentgen rays. I am firmly of the opinion that these variations in results are due to variations in the amount of energy which we apply or to some other variation in technique. As to screens: Dr. Morrow did not set up any confusing

has not, in my opinion, changed much in fifteen years. Early in my experience with the use of roentgen rays I formulated from an analysis of their effects on tissues the indications for their therapeutic use. The generalizations then arrived at have guided me ever since and I have not seen any reason to change them. As an argument for the fact that roentgen rays and radium produce the same effects, Dr. Simpson, of Chicago, in an article on radium which he read two years ago, practically adopted verbatim my thera-



Fig. 9.—Squamous-cell carcinoma (before)



Fig. 10.—Linear nevus (before).

peutic indications for the use of roentgen rays as those to be followed in the use of radium.

DR. EVERETT S. LAIN, Oklahoma City: Dr. Morrow's experience has been very similar to that of most other men who have been using radium for several years. I have been using the roentgen rays for sixteen or seventeen years, having been a close follower of Dr. Pusey and other pioneer men in roentgen-ray therapy. Therefore, I was slow in tak-

ing up radium. But after visiting Dr. Sutton and Dr. Simpson about three years ago I was persuaded that I also needed radium. My experience has been similar to that of Dr. Pusey and Dr. Morrow. I was glad to hear Dr. Morrow say that radium was more effective than roentgen rays in sarcoma. I have found this especially true in cases of sarcoma of the antrum. Again, in cases involving the cartilages of the nose and ears, the roentgen ray had not been so satisfactory, nor had it been in cases of lesions on the surfaces with thin underlying tissues. There is a greater predilection to telangiectasis with roentgen rays than with radium, perhaps because we did not screen roentgen rays in the early days as we did radium. I am sure that radium



Fig. 11.—Linear nevus (before).

has come to stay and it is only a matter of time before all dermatologists will be using it. I have used it, as has Dr. Pusey, in the squamous cell types of epithelioma and have noted almost equally as good results as in the basal cell type. However, I still do not rely on radium alone in any of the malignancies in which there is a suspicion of metastases. I still use deep roentgen-ray therapy over all the adjacent glands. This routine in connection with radium has given me more successful results.

DR. WILLIAM H. GAY, Pittsburgh: I wish to bear testimony to the same results that Dr. Morrow reports and also speak of the relationship between roentgen rays and radium filtered and unfiltered. In the use of filters, particularly, it seems to me, it is important for us to understand that roentgen rays are heterogeneous gamma rays and that in filtered radium we again use the gamma ray, but of more homogeneous composition and also of greater penetration. I am inclined to disagree with Dr. Pusey. We do get some results in the chronic thickened patches of lupus erythematosus with unfiltered radium. One should produce a fairly sharp reaction, taking care to overlap thoroughly the edge of the lesion. I think that in vascular nevi of the port wine mark variety radium is of little service. The point made by Dr. Lain regarding telangiectasis as a result of radium depends to some extent on whether unfiltered rays are used or not. Quantity for quantity unfiltered rays will produce a good deal more reaction in the skin than filtered rays. When working with Dr. McKee I used an unfiltered plaque of radium on my forearm and later used the filtered plaque on a different spot. The place where the unfiltered ray was used is still on my arm, but where the beta ray was cut out by the filter the mark has practically disappeared and I have nothing to show as the result of it. So that I feel that we have a definite therapeutic indication for the use of radium and definite indications for the filtering or unfiltering. When it is filtered we use the gamma rays altogether and I agree with the previous speakers that the result will be almost the same where gamma rays of radium or roentgen rays are used, if they are used in the same quantity. Some results may be attributed to lack of penetration. Roentgen rays are the choice in many cases on account of the enormous output of energy and ease of application in extensive dermatoses. Radium is at times chosen on account of the difficulty in treating certain parts with roentgen rays, and in some cases because it gives therapeutic results when roentgen rays fail.

DR. HOWARD MORROW, San Francisco: I think Dr. Pusey will admit that the cases of erythematous lupus which are

localized and scaling and rather thickened will improve a great deal under radium therapy. Certainly, generalized cases or diffuse areas over the face should not be treated by radium or any other type of radical treatment. In regard to the screening, when we first used radium we screened very little. I remember treating a plantar wart in a nurse with about one-tenth mm. aluminum screen for two hours, as recommended by the people who sold the radium to us, and about a week afterward the patient developed a very severe reaction. There was erythema for a few days and then a deep, big blister; this was followed by sloughing and this lasted about two or three weeks. To be sure, it cured the wart. I think the longer we use radium the more screening we are inclined to use. If we can use radium and get the results without well marked reaction, it is our desire to do so, and the greater the amount of screening the less apt are we to get the reaction. Of course, this means a great increase in the time of exposure.

## Clinical Notes, Suggestions, and New Instruments

### REPORT OF CASE OF CONGENITAL ABSENCE OF BOTH CLAVICLES

WALTER G. STERN, M.D., CLEVELAND  
Orthopedic Surgeon, Mount Sinai Hospital

L. C., a boy, aged 6 years, was admitted to the wards of Mount Sinai Hospital for the purpose of having his tonsils removed on account of chronic infection.

In the course of the usual routine examination, the house officer noted the absence of both clavicles and the fact that the shoulders could passively be brought together to an even farther degree than that shown in the accompanying illustration. There were no other anomalies and no pathologic findings outside of the enlarged tonsils. Palpation showed both clavicles to be entirely absent, with the exception of small rudiments one-half inch in length, articulating with the sternum and bearing the origin of the clavicular portion of the sternocleidomastoid muscle. While these rudiments articulate with the sternum, they can be moved in all directions, except anteriorly, by hooking the finger under them. The absence of the clavicles does not seem to interfere materially with the use of the arms or to diminish the strength of the muscles in this region. The boy's deltoid muscles are as strong as those of other children of his age, and the pectoralis minor muscles stand out firmly when actively contracted.

On inquiry into the child's family history, it was found that the father is suffering from a similar condition. In the father's immediate family are three brothers, all of whom lack clavicles, and one sister, who is blessed with the usual and normal number. The boy has two brothers, both of whom have this anomaly, and three sisters, who are normal in every respect.

Thus, in this family there are seven males, all of whom present the condition of congenital absence of both clavicles, and four females, none of whom are afflicted.



Boy with congenital absence of clavicles.

GUNSHOT INJURY OF THORAX WITH EXTRUSION OF THE ENTIRE STOMACH AND LACERATION OF SPLEEN\*

CHESTER H. WATERS, M.D., OMAHA

The reports of many interesting and remarkable instances of thoracic and diaphragmatic war injuries will, no doubt, shortly appear in the literature; but the case to be reported will illustrate what can happen in ordinary civil existence. This fact alone offers my excuse for reporting it at this time.

REPORT OF CASE

**History.**—H. M., a boy, aged 15. Oct. 30, 1918, with several companions, was out hunting with a shotgun. The lad had climbed a steep embankment, and while he was on his knees, in the act of drawing up the gun, the muzzle toward him, with his left hand, it was discharged. A great hole was torn in the anterolateral aspect of the left side of the thorax. With assistance, the boy managed to walk about 600 feet to the nearest house, where he was seen by me about twenty minutes later.

**Examination.**—The lad was in considerable shock. The entire stomach, much distended, was found extruded through the enormous hole in the lower part of the left chest. It occupied much the same position as a football when properly carried in the angle of the elbow, and was about the size of an adult head. The stomach seemed to be intact and was covered with a varied debris—dirt, grass and fragments of clothing—and was prevented from retracting by the jagged ends of the ribs. The patient was at once given 0.5 grain of morphin and transported to the hospital, at which everything had been ordered to be in readiness.

**Operation.**—Only the upper clothing was removed, and, under light ether anesthesia, the stomach was thoroughly irrigated with saline solution; then, as no perforations or lacerations were found, it was replaced in the abdomen, its size having first been reduced by compression.

The laceration of the diaphragm was linear, 3 inches long, and involved only the muscular portion. Exploration of the thoracic cavity disclosed that there was complete retraction of the lung, a portion of the lower lobe margin shot away, and considerable clotted and fluid blood. The heart, readily palpated, had retracted to the right and was lying under the sternum. The inner extent of the thoracic wound, however, was probably not more than one-half inch below and to the outer side of the normal situation of the apex. The chest cavity was carefully cleared of clots, fragments of ribs and clothing, and attention was directed to the diaphragmatic rent.

Suture had been started at the inner angle, No. 2 chromic gut being used, when considerable blood was observed issuing from the abdominal cavity. Investigation revealed that the spleen was almost completely torn in two and its diaphragmatic surface extensively lacerated as well. An attempt to deliver the organ through the diaphragmatic opening failed to offer comfortable access to its pedicle, largely because the costal margin was intact. The suture of the diaphragm was hastily completed, and the abdomen opened through a left rectus incision. A liter (quart) or more of free blood was found in the peritoneal cavity. The spleen was rapidly removed, after double ligation of its pedicle *en masse*, and a yard roll of 3-inch gauze was packed firmly in the subdiaphragmatic space to control oozing and to serve

as drainage. No further injury was noted; the abdomen was then closed with through and through silk-worm-gut sutures.

Then arose the problem of closing the thoracic wounded, which was 8 inches long and 2 inches wide. The seventh, eighth and ninth ribs having been shot away, an inch or more of the fragmented ends was removed, thus permitting further collapse of the chest wall and facilitating closure. Interrupted silk-worm-gut sutures were used and the wound closed, but under considerable tension. Tube drainage was maintained for forty-eight hours.

The operation consumed about one hour, and the patient was in fair condition, with a pulse of 150. Proctoclysis and hypodermoclysis, with the usual stimulation, were given, and the patient rallied well. The gauze pack was removed at the end of thirty-six hours, under light anesthesia, and the thoracic drainage the day following.

**Postoperative Course.**—The course was satisfactory for ten days, and then the patient began to have a daily rise in temperature, which would reach 100 or 102. A suspicious area of dullness in the left chest was aspirated, and only old blood obtained. Several days later the attempt was made again, and a thick, mucopurulent exudate was found. Rib resection under local anesthesia resulted in the opening of a small pocket containing about 2 ounces of pus, in which one buck-shot was found. Dense adhesions of visceral and parietal pleura were separated as widely as possible. The visceral pleura was greatly thickened and almost cartilaginous in character over the lacerated area of the lower lobe of the lung. Tubes were inserted to drain the abscess cavity.

Considerable superficial sloughing of the chest wound prolonged its healing. In anticipation of a scoliosis which was already quite marked, the patient was early given appropriate exercises to correct this inevitable tendency. Deep breathing, while the patient was hanging with the left hand from a height which just permitted touching the toes to the floor, met the requirement perfectly. In a comparatively short time the left chest had filled out, the heart returned to its normal position, and the spine became perfectly straight. The patient gained rapidly in weight and strength and was back in school two and one-half months following the injury. He is now a robust boy and apparently no worse for his experience.

A roentgen-ray examination made at the end of two months revealed almost complete expansion of the lung, with free action of the diaphragm. Numerous shot, evidently in the chest wall, were also showing, but have caused no trouble.

In the hope of noting the blood changes resulting from splenectomy, daily blood counts were made for a period of two weeks. A persistent average of 16,000 white cells with a polymorphonuclear percentage of from 80 to 85 was noticed. In the interpretation of the blood changes in this instance, one should consider the probable influence of moderate infection, as the patient was slightly febrile during the observation. July 19, 1919, nine months later, a blood examination gave a count of 5,500,000 red cells; the white blood count was 12,500, and polymorphonuclears, 78 per cent.

COMMENT

The literature reveals a number of cases of hernia of the stomach in injuries of the abdominal wall and in diaphragmatic trauma, but I do not find record of an instance which parallels the one just reported. The surprising feature of this case, to my mind, is that with the nature of the injury even more damage was not sustained.



Fig. 1.—End-result, showing extent of injury.



Fig. 2.—Site of rib resection for localized empyema. Note lack of deformity of the spine and thorax.

\* From the Department of Surgery, University of Nebraska College of Medicine.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY.  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1492)

#### THE OIL ENEMA

While the oral administration of oil is conditioned on the absence of certain contraindications, its rectal injection is almost free from these; and, provided it can be retained, a much more direct method of softening the feces and favoring their evacuation than having it pass all the way through mouth, stomach and small intestine. For, it must be remembered, the contents of the cecum and ascending colon are liquid; if we can get the oil to these parts, which can be done by proper technique, it will keep the feces soft because it cannot be absorbed. Furthermore, the softening of the feces is also due to interference with the absorption of water, probably in a purely physical manner, the oil preventing diffusion of water into the mucosa. Lipowski<sup>1</sup> considers this effect of the oil enema of special significance, as he believes that a common form of constipation is due to excessive absorption of fluid from the colon, which results in abnormally hard fecal masses. According to him, the excessive fluid resorption is due to congestion of the colonic mucosa, which in turn is maintained by irritation from the resulting hard fecal masses. He bases his contention on abnormal redness of the mucous membrane, shown by these cases on sigmoidoscopic examination, and on the demonstration that, in such patients, a larger proportion of a physiologic soft enema is absorbed than in the normal. The oil enema breaks in on this vicious circle by keeping the feces soft, and soothing the mucosa.

The keeping of the feces soft by the oil enema must not be confused with the dissolving of hard fecal masses. Hertz<sup>2</sup> has shown that oil is a great deal less effective than water in breaking down hard scybala. He found, by actual tests, that water produced a greater softening effect on hard feces in fifteen minutes

than could be achieved by oil in twelve hours. The only manner in which oil enemas are of use in dealing with hard scybala is to facilitate their expulsion by lubrication.

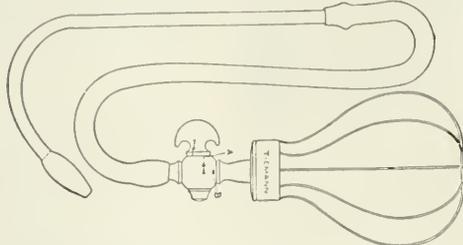
It is easy to understand, therefore, why, after the first oil enema, patients usually pass hard fecal masses, together with soft, mushy material and some of the oil. It is to be noted that some of the injected oil is retained, exerting its effect on the bowel movement of the next day, and even of succeeding days. Fleiner speaks of oil's having been found in evacuations as long as a week after discontinuance of its injection. When a daily injection is employed, scybala presently disappear, and soft, mushy stools are passed. This Fleiner considers an indication that the maximum effect has been obtained, and that the quantity and frequency of the oil injections may be reduced.

The evacuant action of injections of petrolatum, liquid or soft, is entirely due to the physical effects just described. The saponifiable oils have a chemical action, in addition, which is due to decomposition of the oil by lipase present in the colon. In this manner,

some of the oil is changed to glycerin and fatty acids, a portion of the latter combining with bases to form soaps. All of these products are irritant; and, to the effect of these, a large part of the evacuant action of such enemas must be ascribed. The feces passed contain more free fatty acid than the oil did that was introduced, and the fecal odor becomes more offensive by admixture of the odor of rancid oil. Indeed, this decomposition and the irritation resulting therefrom may become excessive, leading to peristaltic unrest, even colic or rectal tenesmus. To minimize the occurrence of such disturbances, it is of greater importance that the oil be pure and free from rancidity (of an acidity not exceeding 40 to 55 [Fleiner]), than that it come from a certain source. Thus poppyseed oil, oil of sesame, or cottonseed oil, when pure, are just as good for this purpose as olive oil. It would seem that petrolatum would be preferable to all of these, as it can never become irritant.

Lipowski advocates the injection of petrolatum of a melting point of 38 C., that is, slightly above rectal temperature (37.5 C.). He claims not only absence of irritation and of offensive products of oil decomposition in favor of such enemas, but also lack of liability of leakage from the anus, which is at times most annoying when liquid oil is used. He also asserts that petrolatum enemas are less expensive.

The proper melting point is of importance in connection with Lipowski's petrolatum injections, for the material is introduced in melted condition and is intended to congeal to a salve after it has spread itself over the rectal mucosa. This consistency is obtained



The enemator consists in a curved rectal tube of hard rubber, the end of which is olivary shaped to make it self-retaining. This tube is made curved so that it comes up in front of the pubis; to this end is attached a 10-ounce Politzer bag, the connecting soft rubber tube being of a convenient length for the patient. The rectal tube is made with such a curve that it is readily passed from the front of the body to the anal opening; here by a slight traction movement it enters the anus in the proper direction, pointing toward the umbilicus. It has been demonstrated that this new form of tube is much less awkwardly introduced than by reaching around behind the buttocks. The Politzer bag is fitted with a stopcock having a small hole in one side, which permits the bag to fill with air when the cock is closed. The method of taking the injection is simple; the bag is allowed to fill itself, and is then placed in warm water to warm the oil. The patient lies on the back with the hips somewhat elevated and introduces the rectal tube with soft rubber tubing attached. The bag is then attached and the stopcock turned to permit the oil to be forced slowly into the rectum. The bag being emptied, the stopcock is turned and air dilates it so that all oil may be forced from the tubing; by shutting off the stopcock we prevent the return of any oil into the tube and obviate the danger of soiling the clothing and bedding.

\* This is the fifth of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

1. Lipowski, I.: Eine neue Grundlage zur Beurteilung und Behandlung der chronischen Obstipation. *Berlin klin. Wochenschr.* 46:1359 (July 19) 1919; Die Behandlung der chronischen Obstipation durch Paraffinöle. *München, med. Wochenschr.* 57:2635 (Dec. 13) 1910.  
2. Hertz, A. F. Constipation and Allied Intestinal Disorders, New York, Oxford University Press, 1909, p. 293.

by melting together paraffin of a melting point of 78 C. with liquid petrolatum in the proportion of 1:8. The difference between administration of these petrolatum injections and of those of other oil lies in the somewhat higher temperature at which the material is injected and the necessity of having the injecting apparatus warm, so as to avoid congealing within it. To make certain that the injection is not too hot, the patient might dip his finger in the fluid. A colon tube and funnel suffice for the self-administration of these enemas, as the patient need not lie down during or after the injection. The patient might, after having passed the colon tube, seat himself at the edge of a chair and, bringing the tube up between his thighs, conveniently pour the melted petrolatum into the funnel. The quantity injected does not need to be more than 200 c.c. to obtain satisfactory results, as a rule. It would seem that enemas thus given might suffice and be preferred for the treatment of affections of the rectum and pelvic colon; while, for affections higher up in the colon, the technic presently to be described should be employed.

The indications for oil enemas might be thus summarized:

1. To soften feces, in constipation characterized by formation of hard scybala and that due to partial obstruction of the colon.

2. For evacuant action, in so-called "spastic" constipation, in pelvic rectal constipation, and in any other form of constipation in which oral administration of cathartics is contraindicated by gastric disturbance.

3. For soothing action, in excessive colonic and rectal irritability. Herschell and Abrahams<sup>3</sup> consider oil enemas, next to appropriate diet, the single most important method of treatment in colitis. They are also useful in proctitis.

4. It has been suggested that oil enemas might inhibit the absorption of toxic products. That the oil has the power of removing substances soluble in it is shown by the fact that it is passed dark yellow or olive green and of offensive odor. We have no definite knowledge, however, of the degree to which this property might be of clinical value.

The chief contraindication to oil enemas is diarrhea, mainly because, in this condition, the oil would not be retained for a sufficient length of time to be of use; although another objection against the introduction of saponifiable oils would be the possibility that excessive peristalsis might carry unusual amounts of intestinal juices far down the colon, the results of the excessive oil digestion being liable still further to increase the irritation.

**Technic.**—For self administration, the patient should have everything prepared before going to bed, so that he does not have to get up after having taken the injection. The bottle of oil is placed in a basin of hot water until it has acquired blood heat (100 F.). An ordinary fountain syringe might be used, provided the nozzle has a sufficiently large bore to permit the oil to pass readily. Though it is intended that the oil shall be introduced slowly, the bag usually has to be hung from 2 to 3 feet high owing to the viscosity of the oil, which makes it run rather slowly. The clip should be placed within easy reach of the patient. Having poured the warmed oil into the bag, the patient lies on the left side with a folded towel and a firm pillow underneath the buttocks. The nozzle is inserted into the anus, and

the oil permitted to flow. Should the patient experience distress or desire to move the bowel, the flow of the oil is checked and the patient remains quiet until the desire has passed. It might then be possible to introduce an additional quantity of oil. It is usually best, however, to be satisfied with the introduction of an amount that can easily be retained. After a while the patient turns on the back and finally on his right side, in which position it is recommended he should remain over night. A piece of absorbent cotton or a woman's sanitary towel or both may be applied to prevent accidental soiling of the bed, for the passage of flatus may be accompanied by a spurt of oil.

If the injection produces discomfort and interferes with sleep, it may be taken early in the morning and the patient might lie in bed for three or four hours afterward. It should be understood that, unless the oil remains in the intestine for several hours at least, satisfactory results cannot be expected.

The total quantity to be injected depends on the patient's ability to retain it. This is so variable that no definite figure can be stated for any one person. The principle to be followed is to have the patient gradually increase the amount injected on successive nights, until a satisfactory amount can be introduced and retained. The patient may not be able to retain more than 70 c.c. at first, but is likely to be able to take, in course of time, as much as 250 and even 500 c.c. When satisfactory results have been attained, the quantity introduced as well as the frequency of injections is gradually diminished. The injections may then be given on alternate nights, unless resumption of daily administration is necessitated by the patient's condition. Later on, enemas are given every third night, and finally only on the evening of the day on which the bowels were not opened. A single injection may cause daily evacuations for several days.

For children, the quantity injected may range from 50 to 150 c.c. For infants, 15 c.c. may suffice.

When the injection acts well, it is followed by a very soft stool in the morning. If the morning evacuation is not obtained, an enema of physiologic sodium chlorid solution should be taken after breakfast.

In bed patients, administration in the morning would be preferable. When an attendant gives the injection, a colon tube and funnel is all the apparatus required.

In spite of its excellent theoretical foundation and the enthusiastic recommendation of numerous clinicians, this treatment is not very popular, probably because of the troublesomeness of the procedure, the annoyance, and the expense. An enemator was described by Dudley Roberts,<sup>4</sup> by the use of which the procedure may be simplified.

(To be continued)

4. Roberts, Dudley: A New Rectal Enemator, *J. A. M. A.* 47: 273 (July 28) 1906.

3. Herschell, G., and Abrahams, A.: *Chronic Colitis*, London, Longmans, Green & Co., 1914.

**Diet and Health.**—A well selected diet is one of the key-notes to health. Unfortunately, we are not able to regulate the diet through legislation; it must be done through education. In many cases education may be done through pamphlets sent to the homes and through lectures to groups of people, but there are hundreds and thousands of families where the mother has too many children to get away from home, or where she needs more help for her own personal problem than a pamphlet can give. To help just such families as these the Dietetic Bureau has been established in Boston.—L. L. Gillett, *The Commonwealth* 6:110 (May-June), 1919.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 15, 1919

## THE QUESTION OF LOW PROTEIN DIETS

There are many lessons taught by the experience of war time that should not be lost, even if the recurrence of its restrictions and hardships is an unlikely event. The shortage of food is an accompaniment of conditions that may arise quite apart from war. Famine may make its appearance in the midst of peace; harvests sometimes fail even when there is no clash of arms among nations. It is therefore the part of wisdom to learn how to live in times of food stringency so as to avoid as far as possible any detriment to human health and impairment of human efficiency.

The reports circulated with respect to the food restrictions enforced in many localities by the exigencies of war are more or less conflicting. We are assured by certain enthusiasts that the more economical modes of nutrition have frequently been attended with beneficial results. One heard the remark, earlier in the war, that the necessity of a lowered protein intake among the population of the Central Empires had on the whole been without detriment. The advocates of the so-called low protein standard welcomed such statements as evidence of the wisdom of their long heralded claim that most of us among civilized races tend to overeat. According to Friedrich Müller of Munich, the average German lost 10 per cent. in weight in the early years of the war. Surplus tissue must have been at a premium. Are we to look on such a state of nutrition as adequate if not advantageous?

In order to test some of the questions that arise from such considerations, Benedict and his collaborators at the Carnegie Nutrition Laboratory in Boston conducted an elaborate investigation on human vitality and efficiency under prolonged restricted diet.<sup>1</sup> Some of the results have already been referred to in THE JOURNAL.<sup>2</sup> As a result of the diminished food intake with a resulting decrease in body weight, amounting to more than 10 per cent., there was no pronounced decrease in physical endurance or capacity

for work. The depression in the total metabolism was the most prominent feature in the research, particularly as it was accompanied by a depression in other physiologic factors, such as blood pressure and pulse rate. The changes were accompanied by a large loss of nitrogen from the body, amounting to 175 grams or more per person. Benedict argues that this loss is the most probable cause for the lowering of the plane of metabolism; for the withdrawal of a large amount of nitrogenous material from the fluids bathing the tissue cells is conceived by him to remove a potent stimulus to cellular activity. The picture presented by the men on reduced diet is similar to that noted with diabetics, who have been undergoing the Allen fasting treatment. Loss of nitrogen and loss of flesh bring about a lowered metabolism.

The Carnegie report states that "judging superficially from the appearance of these men at the end of their long period of restricted diet and from the amount of their intellectual and physical activity, one could assert almost with certainty that a reduction of total caloric intake of one-third was an assured possibility." We must not, however, overlook the occasional secondary anemia indicated by the blood findings in Benedict's subjects, the marked repression of all normal sex expression, to which earlier reference was made,<sup>3</sup> and a certain degree of mental unrest and dissatisfaction expressed by the men. Perhaps Benedict and his collaborators are justified in asserting that "to instil into the world at large a belief that a pronounced lowering of rations is not necessarily accompanied by a complete disintegration of the organism and collapse of mental and physical powers may, after all, be of real service."

The report to which we have referred in some detail goes a step farther, however. Experimental evidence has accumulated in sufficient amounts, we are assured, to justify a serious consideration of a material reduction in the intake of protein, which is one of the most expensive factors in human food. We are told that it is not clear that a low protein diet is harmful, and that much of the available evidence suggests a lack of any danger therein. At this juncture we may pause to listen to some of the European experiences bearing on the problem. Von Hoesslin<sup>4</sup> has studied the re-alimentation of a considerable number of undernourished persons in Germany. They had been reduced to an average of from 44 to 55 kilograms in body weight on enforced diets poor in protein and low in calories. In many cases, edemas so characteristic of war-time dietary restrictions of the severer sort had made their appearance, though these signs of insufficient diet were by no means regularly present. The unexpected outcome was the demonstration of great difficulty in securing gains of weight, despite a considerable sup-

1. Benedict, F. G.; Miles, W. R.; Roth, P., and Smith, H. M.: Human Vitality and Efficiency under Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1919.

2. The Reduction of Body Weight in War Time, editorial, J. A. M. A. 71: 1580 (Nov. 9) 1918; The Limitations of War Time Diets, *ibid.*, 72: 374 (Feb. 22) 1919.

3. Nutrition and Sex Expression, editorial, J. A. M. A. 73: 612 (Aug. 23) 1919.

4. Von Hoesslin, H.: Klinische Eigenthümlichkeiten und Ernährung bei schwerer Inanition, Arch. f. Hyg. 88: 147, 1919.

ply of calories, unless protein was liberally furnished. In other words, the supply of protein was the determining factor of real restitution. Under ordinary conditions of nutrition, fats and carbohydrates may have a marked protein-sparing action; but when the rock-bottom level of nitrogenous exchange is reached, no gains can be made by large increments of nonprotein foods alone in the diet.

So long as the limit of protein reduction without detriment is not understood, and untoward results of protein starvation can be cited along with the less conspicuously unfavorable experimental findings with the laboratory groups, we may hesitate to accept Benedict's conclusion that for all practical purposes the low protein diet is "perfectly justifiable as a war measure and in all probability is a logical procedure that cannot be accompanied with any untoward effects, even by long-continued practice." We may, indeed, be forced to accept it as a war measure; but let us hesitate to condemn nitrogen storage in the body until more is known regarding its real physiologic meaning and function. Science and human welfare alike are most concerned, not with the minimum in times of stress, but with the optimum in an era of plenty.

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#### CHANGES IN MOTHER'S MILK UNDER WAR CONDITIONS

The lactating human mother is responsive to her own nutritive conditions, as are the milk-producing females of other species. Poor food, underfeeding and bodily hardships are likely to decrease the flow of milk whenever these instigators of unsatisfactory nutrition arise. Hence an inability to nurse their young adequately has been noted in the case of many mothers of warring peoples ever since statistics of this sort have been deemed worthy of record in medical literature. The countries of Europe have not escaped the consequences of an unsatisfactory milk supply as it affects nursing mothers, who have been compelled to endure unusual dietary restrictions both in quantity and in quality of available nutrients during the past four or five years. Actual inability to nurse the young has been reported from centers where the food stringency was the greatest; and since the best substitute for human milk, namely, cow's milk, has also been extremely scarce at a time when it was needed more than ever, the penalty paid by the innocent young for the combats of their fathers became doubly severe.

An unexpected deficiency in the nutrition of the very young has been admitted of late by a number of German pediatricians.<sup>1</sup> This involves authentic instances in which infants failed to make adequate gains during the war despite the absence of any signs of organic inability to utilize nourishment or of pathologic condi-

tions that would warrant the expectation of a failure to thrive. In a considerable group of such cases, Kaupé<sup>2</sup> has determined the amounts of milk consumed by the sucklings at the breast and found them to be sufficient according to conventional standards. The composition of the mother's milk has likewise not revealed any deficiency in fat, the component most likely to be decreased, as has heretofore been believed, when the quality of the milk suffers.<sup>3</sup>

In the face of failure of infants to grow properly despite a reasonable food intake of breast milk of seemingly normal fuel value, it has become necessary to postulate some as yet inexplicable cause for the unexpected phenomenon; for these cases have a history of feeding with mother's milk, presumably the ideal mode of infant nutrition. Kaupé vaguely ascribes the situation to an undefined psychic factor that seems to affect all persons in war time. We recall, however, that in not a few instances human milk that was of normal composition, judged by the conventional standards of its content of protein, fat and sugar, has failed to furnish all the needed food factors. This is true of the milk of mothers suffering from beriberi. The mammary secretion lacks essential vitamins. It has also been shown that the young of animals maintained on rations deficient in vitamins fail to grow adequately, presumably because the milk lacks these accessory food factors that the maternal organism cannot produce *de novo*. The reports of unsuccessful growth in infants under dietary conditions hitherto regarded as suitable for proper development warn us to have some concern, in the future, for food properties heretofore not adequately evaluated. To determine them, chemical analysis is as yet without resources. The biologic method of investigation by actual animal feeding, which has furnished so many important contributions of late to the science of nutrition in the hands of American research workers, must for the present remain the first recourse of the investigator.

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#### PHYSICIANS AND STATISTICS

While there have always been those who have cast discredit on the scientific value of statistics, it remains a fact that some medical knowledge must be derived from statistical investigation. Statistics may, of course, be juggled, and it is also fair to assume that statistics are often prepared by persons not skilled in the fundamental principles underlying their preparation. It is probably true that the bulk of medical statistics of the past has been prepared by medical men not trained as expert statisticians.

Recently Mr. Raymond Pearl,<sup>4</sup> professor of biometry and vital statistics in the Johns Hopkins School of Public Health, has analyzed, from the point of

<sup>1</sup> Momm and Kramer, *München, med. Wchnschr.*, 1917, No. 44.  
<sup>2</sup> Pearl, Raymond, A Statistical Discussion of the Relative Efficacy of Different Methods of Treating Pneumonia, *Arch. Int. Med.* **24**: 398 (Oct.) 1919.

<sup>3</sup> I. Kaupé, W. Muttermilch und Krieg, *Monatsschr. f. Kinderh.* **15**: 83, 1918.

view of a trained statistician, certain figures in a paper published by Head<sup>4</sup> concerning the efficiency of various methods of treatment in pneumonia. In this paper Dr. Head himself suggested that the lowered mortality shown in favor of closed ward treatment might be merely a coincidence. In his analysis of the figures, Pearl shows that while Head's conclusions are qualitatively correct, they are quantitatively out of the way on account of the neglect to take into account the factor of random sampling. Another neglected factor, frequently overlooked by medical writers, is the natural history of the disease under investigation. It has been asserted by numerous observers that the mortality from influenza pneumonia at the end of an epidemic is usually much lower than it is at the beginning of the outbreak. Pearl shows that this is the case, and that Head, although recognizing the possibility, did not take it into account in evaluating his figures.

If the statistical method, first extensively introduced into clinical medicine by Louis and the French school, is of value, it goes without saying that the statistics which are used must be based on the well-recognized principles utilized by professional statisticians. So far as mortality statistics are concerned, it may be assumed that the correct methods are usually employed; but it is certain that this is not the case when ordinary clinical statistics are concerned. In any textbook on medicine or surgery, one may find numerous statements covering statistically such matters as the age at which certain diseases occur, the relative proportion of the sexes involved, the frequency of complications, and the relative frequency of different diseases in a given organ or system. It is quite certain from the figures presented that these statistics would be regarded as valueless by a professional statistician, and that while they are perhaps not valueless to the clinician, they are not nearly as valuable or as correct as properly prepared statistics would be. In differential diagnosis, as Southard has pointed out, it is desirable that the physician should know the possibilities. In 10,000 patients with convulsions, what proportion is likely to be due to epilepsy; what proportion to uremia; what proportion to general paresis, etc.? With correct knowledge on such a point, the physician knows when he encounters a case of convulsions that there are certain chances in favor of a given disease, and he can make what Southard calls a diagnosis by orderly exclusion, which is more satisfactory than the old-fashioned diagnosis by exclusion in which the probabilities were ignored. In the matter of treatment, too, the application of correct statistical principles would prevent the flooding of medical periodicals with the views of therapeutic optimists based on uncontrolled observations. The checking of medical statistics by trained statisticians will doubtless serve as a stimulus to more accurate statistical methods.

### THE HABITS OF LICE

The rôle of insects in the transmission of disease is becoming more prominent each year. The fly, the mosquito, the flea and the louse have come to represent not merely irritating and offensive nuisances which interfere with the comfort of man but also positive menaces to his very existence in a state of unimpaired health. Features of insect life, such as the habits, migration, reproduction and distribution of these lowly forms of animals, are no longer the concern of the scientific entomologist alone; they also inevitably interest the medical investigator and the sanitary expert. It almost seems as if no item respecting the behavior of insects can be neglected in microbe-bearing species.

Lice are sensitive to temperatures that approach the body temperature of man. Nuttall<sup>1</sup> has observed that a rise to 35 C. (95 F.) may be distinctly inimical to these insects. Owing to the high temperature near the body in summer, they tend to wander out on ordinary garments. For the same reason they wander away from persons in fever. It is recorded<sup>1</sup> that persons leaving temperate climates for the tropics may become freed from body lice. Nuttall<sup>2</sup> has more recently found that black clothing may repel lice. This is not due, as has been conjectured, to the reaction of the insects to color, but rather to the fact that black cloth, in contrast with lighter colors, absorbs the maximum of heat rays. Consequently, under favorable conditions in warm weather, black clothing may prove inimical to lice and cause them to wander away where it is cooler. Perspiration induced by warm clothing will hasten the exodus, because lice do not tolerate excessive moisture.

Having observed that lice examined from various parts of the world possess different degrees of pigmentation, Nuttall<sup>2</sup> ascertained that the most darkly pigmented specimens of *Pediculus capitis* are derived from dark-skinned black-haired peoples. Head lice tend to grow paler on yellow or moderately pale races possessing black hair. The palest head lice are found on white races whose hair is often light. Experiments conducted in his laboratory at the University of Cambridge, England, have convinced Nuttall<sup>2</sup> that pigmentation in *Pediculus* is not a hereditarily transmitted character, but depends on the nature of the background on which the insect lives. Eggs hatched and allowed to develop on white surfaces will appear pale; those raised on black cloth will remain pigmented at all stages. The occurrence of pale body lice on dark-skinned races is, according to Nuttall, doubtless attributable to the white or light-colored clothing worn in hot countries. It has been suggested that the change in pigmentation of lice, in harmony with the color of their background, may afford a measure of protection to these parasites in nature when the hosts use their eyes in the search for the insects.

4. Head, G. D.: The Treatment of Pneumonia, J. A. M. A. 72:1268 (May 31) 1919.

1. Nuttall, G. H. F.: Parasitology 10: 89, 132, 1918.

2. Nuttall, G. H. F.: The Biology of *Pediculus Humanus*, Parasitology 11: 201 (Feb.) 1919.

## Current Comment

### WORK AND INCOME: A PHYSIOLOGIC PROBLEM

In the ideal division of income usually proposed by economists, the expenditure for food has been placed at approximately 30 per cent., or one third of the total funds available. Prior to the war, Miss Gibbs<sup>1</sup> showed the expenditures for food to be far larger than this proportion among the less well-to-do classes, the percentage of the total income devoted to food commonly exceeding 50. She concluded that the income must evidently go beyond \$1,200 per annum—in prewar values—before a reasonable decrease in the percentage spent for food may be expected. The data collected by the English Board of Trade in 1904 showed that for families in receipt of less than 25s. weekly, 67 per cent. of total outgoings were expended for food, the proportion falling as low as 57 per cent. only in families earning 40s. or more weekly. Data collected by the Working Classes Cost of Living Committee in England in 1918 indicated that skilled and unskilled workers alike spent for food 60 per cent. or more of their income, in contrast with about 55 per cent. as determined in 1914. These facts may serve at this time as a text for the discussion of the actual food needs of workers. The high cost of living is everywhere in the public mind. Consequently it is important to review anew the evidence regarding the physiologic demands made by physical work on the food purse. The war has for the first time made considerable demands on women to expend their energies in toil of an exacting sort. Hence the need of including them in the newer calculations of food requirement in relation to industry. The Food (War) Committee of the Royal Society has just published the results of investigations by Greenwood, Hodson and Tebb<sup>2</sup> dealing with the metabolism of female munition workers. Grouping the operations of these persons in the sequence of severity of the labor involved, it is concluded that light turning and forging need about 100 calories per square meter per hour. The data for other operations are as follows: for tool setting, heavy turning, stamping, finishing and shell hoisting, 125 calories; for gaging, walking and carrying, 160 calories; for more arduous labor, 180 calories. Translating these findings into food fuel requirements for the entire day, after allowance is made for culinary and alimentary waste, etc., the needs amount to 2,800, 3,100, 3,500 and 3,800 calories, respectively, per day. The figures cited show that the energy requirement of the lightest class of workers may be only about three-quarters that of the heaviest. Nevertheless, the remuneration of the kind of work conducted by the latter is often much less than that of several operations calling for many fewer calories. Even after making allowance for one and a half nonworking days, the weekly calory requirement of the two most unlike groups ranges from 17,000 at

one extreme to 21,500 at the other. Any scheme of remuneration that aims to make returns adequate to keep the cost of food at a reasonably low proportion of the total income must take into account the decidedly greater food needs of those who often represent the least well recompensed group. Thus, a food allowance of \$10 a week which just suffices for the less active worker must be augmented to \$13 in case the greater effort is expended. As the English experts now remind us, in any scientific appraisal of the income needed to maintain an accepted standard of living, it is essential to determine the minimal expenditure necessitated by the occupation of the wage earner. Variations in physiologic demand translated into terms of money may nowadays be not inconsiderable.

### COLLEGE HEALTH ADMINISTRATION

Many of our colleges and universities maintain supervision, varying in extent and effectiveness, over the physical welfare of their students. In a considerable proportion, attention is paid to defects observed in a physical examination and to the care of patients who apply for medical treatment. But health supervision should not stop here. Howe<sup>3</sup> has again pointed out that the sanitation of the college plant as a whole has received altogether too slight notice, and in only exceptional cases is any really systematic attempt made to control hygienic conditions. Failure seems to be due largely to the lack of properly constituted health organizations. It makes little difference what department of the college is responsible for the health administration, so long as it is in the hands of qualified experts, with power to utilize all the facilities of the institution, who will cooperate with municipal authorities. In some instances the physical education department would be the natural center, in others the department of public health or of bacteriology; local conditions must determine this. Some specialist must be available—perhaps he may actually have the title of health officer—who as a part of his regular duties will be responsible for the general hygienic condition of the college. Besides directly affecting the health of the college community, a health administration will serve as a means of educating the students to the need of supervision of city, town and rural sanitation; thus, when they leave college, their influence will be with the movement for a more active health administration.

### THE ANTISEPTIC POWER OF THE GASTRIC JUICE

The antiseptic properties of the gastric juice have been recognized for more than a century. The advantage of the existence, near the beginning of the alimentary tract, of a reservoir within which fermentation and other microbial changes in the food ingested can be checked became apparent early in the days of modern physiology. It was not until comparatively recent times, however, that the role of the free acid of the

1. Gibb, Winifred S.: *The Minimum Cost of Living*. New York, The Macmillan Company, 1917.

2. Greenwood, M., Hodson, C., and Tebb, A. K.: *Report on the Metabolism of Female Munition Workers*, Proc. Roy. Soc. Section B, 65, 67 (Aug. 6) 1919.

3. Howe, Am. J. Pub. Health 9:749, 1919. *Anderson, Am. Phys. Ed. Rev.*, April, 1917, p. 30. Winslow, *Schulz and Sato's J. Dent.*, 1916, p. 997.

gastric contents in relation to its antiseptic behavior began to be understood. The gastric hydrochloric acid has proved to be of immense advantage in many ways. Not only does it facilitate the normal cleavage of protein foodstuffs by enzymatic means and retard other modes of their disintegration by micro-organisms, but it undoubtedly checks the development of bacteria that are more directly inimical to the body. We are now taught to appreciate that a copious, acid gastric juice is destructive to the cholera and typhoid germs; hence the physiologic duty of maintaining a healthy stomach function as one of the safety devices of the organism against dangerous invaders. How vigorous the antiseptic power of normal gastric juice may be has lately been demonstrated anew by Scheer<sup>1</sup> at Strasbourg. Facilli of the typhoid, paratyphoid, Flexner and Shiga groups were killed thereby in two minutes; the colion bacilli are somewhat more resistant. These striking facts must not, however, be transferred directly to the interpretation of conditions as they exist in the body itself. When bacteria are enclosed in larger food masses they are reached only slowly by the penetration of the gastric secretion; in fact, they may occasionally escape into the small intestine without destruction. This is particularly true when the gastric functions are repressed or inadequate. Hence it is no mere chance that dysenteric bacterial disease is most likely to arise when the activities of the stomach are below par.

#### THE NEW QUACKERY

There are fashions in quackery. The 1919 Model is that which commercializes the trend of the public toward the so-called drugless methods of healing. A mail-order course on "How to Cure What Ails You, Without Drugs; in Six Easy Lessons," by Dr. Quack or Professor Fake, is the lure. It proves a veritable gold mine for those who promote the scheme and for the magazines whose advertising pages furnish the point of contact between seller and purchaser—the spider and the fly. The theories so solemnly pronounced by the exponents of the new quackery are usually made up of about 5 per cent. banalities of elementary science and 95 per cent. of pseudoscientific hodgepodge. The occasional rational, if obvious, things that quacks of this type say mislead intelligent people into accepting the ridiculous theories that are thus commercialized. Because the product sold is not put up in a bottle, the public assumes that it is free from quackery; therein it is mistaken.

#### FRIEDMANN IN A NEW RÔLE

To those who recall the punctilious care with which appointments to posts of importance in the German universities were made during prewar times, an incidental announcement of a recent addition to the Berlin medical faculty will come as a great surprise. Through ministerial orders and without the cognizance of the faculty, Dr. Friedrich Franz Friedmann was appointed assistant professor of tuberculosis. This is probably the same Friedmann who appeared in this country a

few years ago with preposterous claims for the therapeutic virtues of products prepared by the use of tubercle bacilli obtained from turtles. His story has been told in THE JOURNAL, which at the same time exposed the untenability of his claims. The consternation of the German medical profession at this unheralded academic preferment is voiced by the *Deutsche medizinische Wochenschrift*<sup>1</sup> which says: "This is, as far as we are aware, the first time that an investigator has, without cognizance of the medical faculty, been assigned to a teaching post for a single chapter in medicine, despite the fact that his qualifications have not hitherto been tested in any way. Just as today Friedmann has been made professor of tuberculosis, so tomorrow," the *Wochenschrift* proceeds to lament, "a call may be issued to an incumbent for diabetes, for treatment of syphilis without arsenamin, for non-surgical therapy of cancer, or for drugless therapy." Such is the new regimen in Germany. It will be interesting to watch the reaction of the Berlin medical faculty to such developments in the educational procedure of the new German state.

### Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

#### ALABAMA

**Hospital Notes.**—The new Jackson Infirmary which has just been opened is a building of brick and hollow tile with concrete finish. The cost of the building and equipment exceeds \$30,000.—The hospital erected at Fairfield by the Tennessee Coal, Iron and Railroad Company was opened to the public for inspection, October 29. The hospital occupies a site overlooking the Fairfield and Ensley industrial district.

**Health Department Appointments.**—The committee of public health at a meeting, held October 22, in Montgomery, confirmed the appointments of Dr. Paschal P. Salter, Good Water, director of the state laboratory, and appointed Dr. James L. Bowman, Union Springs, director of the department of communicable diseases, and Dr. G. L. Reynolds as first assistant director of the state laboratory, and continued W. C. Blasingame in his duties as director of the department of social control.

#### ARKANSAS

**Medical Society Organized.**—The physicians of Blytheville organized a society for Blytheville and Mississippi County, electing Dr. Joseph A. Saliba, president; Flem D. Smith, vice president, and Isaac R. Johnson, secretary-treasurer, all of Blytheville.

**New Society Officers.**—The council of the Arkansas Medical Society at its meeting in Little Rock, November 7, elected Dr. William R. Bathurst, Little Rock, to fill the vacancy caused by the death of Dr. Clinton P. Meriwether. Dr. Robert L. Saxon, Little Rock, was elected treasurer, succeeding Dr. Bathurst.

#### FLORIDA

**State Board Office Moves.**—The offices of the state board of health which have been located in San Carlos Hotel, Pensacola, have been transferred to the State Laboratory Building.

**Personal.**—Dr. Lorin A. Greene, Greenville, has been appointed chief of the bureau of venereal diseases of the state board of health.—Dr. J. W. Bueck has been appointed assistant state health officer.

**Resolution on Leper Colony.**—The Duval County Medical Society at its meeting in Jacksonville, November 4, adopted

1. Schrer, K.: Ueber die keimtödtende Wirkung des Magensaftes auf die Bazillen der Typhus, Kolik und der Ruhrgruppe, Arch. f. Hyg., 8: 130, 1919.

1. Deutsch. med. Wchnschr., July 10, 1919, p. 725.

a resolution setting forth that the opposition to the establishment of a leper colony by the United States Public Health Service on an island off the coast of Florida is unfortunate; that from a medical standpoint there should be no opposition to it, and that the arguments advanced against it should be met by the medical profession with an educational propaganda for the purpose of showing that a leper colony controlled, will be of no disadvantage to the state, and will be of advantage in taking care of Florida's lepers, now at large. It was further resolved that copies of these resolutions should be sent to the daily press and the Surgeon-General of the United States Public Health Service.

### ILLINOIS

**Cook County Civil Examinations.**—The Cook County Civil Service Commission will hold examinations for the attending staff of the hospital in the various subjects, beginning December 4 and continuing to December 19. In these examinations knowledge of the special subject is rated at 9 points and experience at 4.

**Southern Illinois Physicians Meet.**—At the forty-sixth annual meeting of the Southern Illinois Medical Association, held in East St. Louis, November 6 and 7, the following officers were elected: president, Dr. Henry H. Roth, Murphysboro; vice presidents, Drs. Charles E. Eisele, East St. Louis, and H. M. Ross, Carbondale; secretary-treasurer, Dr. Alonzo B. Capel, Shawneetown, and assistant secretary, Dr. Charles W. Lillie, East St. Louis. The next meeting will be held in Carbondale.

### LOUISIANA

**Sanatorium Notes.**—Providence Sanatorium, an institution for negroes at Delachaise and Robertson streets, New Orleans, is almost completed. The building is already being equipped. —It has been definitely decided by the Lincoln Parish Memorial Association to erect, in memory of the men who went to war from that parish, a sanatorium, for which a site has been donated by the town council of Ruston on condition that the Memorial Association spend \$50,000 on the building. Half of this amount has already been secured.

**Child Welfare Lectures.**—Four lectures on the care of young children are being given in New Orleans, under the auspices of the Child Welfare Association. The first lecture was delivered by Dr. John P. Leake, New Orleans, November 3, on "The Care of the Eye, Ear, Nose and Throat of the Growing Child." November 10, Dr. C. Jeff Miller, New Orleans, delivered a lecture on the subject of "Frenatal Care"; November 17, Dr. William H. Harris, New Orleans, is to speak on "Germ Producing Diseases in Children," and November 24, Dr. Maude Loebner, New Orleans, will deliver an address on "Nervous Diseases Common to Children." In addition to this course the committee has organized a series of addresses by specialists on the feeding and care of babies.

### MARYLAND

**Personal.**—Dr. C. Hampson Jones, health commissioner of Baltimore, has appointed Dr. T. C. Buck to be third assistant in the bacteriologic laboratory, to fill a vacancy.—Dr. George F. Sargent, head of the men's department of the Sheppard and Enoch Pratt Hospital, Towson, for ten years, has resigned. His resignation will take effect next month.

**Queen Visits Hospitals.**—During her short visit to Baltimore, Queen Elizabeth of Belgium, because of her great interest in hospital work, made a hurried trip to the Johns Hopkins Hospital, where she and her party were received by Dr. Winford H. Smith, Baltimore, the superintendent, and conducted through all the departments of the hospital. —The Red Cross Vocational School for Blinded Soldiers at Evergreen Junior, Roland Park, was also visited by the queen, who was much impressed by the splendid work being done there by the blinded soldiers.

**Funds for Hospital Pass Goal.**—In the campaign which has just been brought to a successful finish in Baltimore, to secure \$750,000 for the proposed Union Memorial Hospital, which will replace the old Union Protestant Infirmary, the subscriptions aggregated \$769,018.47. Dr. John M. T. Finney, Baltimore, was chairman of the drive and as a special honor to him and also to inspire other young men who may enter the medical profession to emulate the virtues and habits which have made Dr. Finney one of the foremost surgeons in this country, the "Committee of Nine," in charge of the drive, with about sixty others, gave to the hospital on the

final day of the campaign an operating room, to be known as the John M. T. Finney operating room, to be constructed at a cost of \$35,000.

### MASSACHUSETTS

**Professor Strong Sails for Europe.**—Dr. Richard P. Strong, professor of tropical medicine in Harvard Medical School, Boston, sailed, October 2, for Europe, where he is to be chief medical director of the League of Red Cross Societies, with headquarters in Geneva, Switzerland.

**Hygiene Lecturers.**—The Massachusetts Society for Social Hygiene announces that it is prepared to send lecturers, both men and women, who thoroughly understand the vital relation social hygiene bears to the home and public health. The subjects of especial interest in this work are "The Instruction of Children Regarding Life and Birth," "Problems of Adolescence," "The Menace of Venereal Diseases to the Community," "The Girl Problem," "Feeble-Mindedness," "Juvenile Delinquency," and "Alcoholism." Arrangements for lectures or personal consultations may be made by writing to the office, 50 Beacon Street, Boston.

**Benefactor Announced.**—In the obituary notices of this week, appears the notice of the death of Dr. Henry K. Oliver, Boston. Several years ago, when Dr. Oliver's health began to fail, he made over to Harvard University, practically his entire fortune, arranging for a reservation sufficient for his living and personal needs, and stipulating that his gifts be received as from an anonymous friend, the name of the donor to be disclosed only on his death. This gift was to found a department of hygiene at Harvard, through which the general welfare and health of undergraduates could be carefully considered, and receive proper attention and oversight. Dr. Roger Irving Lee, Cambridge, has been serving as the first occupant of this professorship. Hereafter this department will be known as the Dr. Henry K. Oliver Foundation.

**Medical Examiners Appointed.**—Dr. Winthrop Adams, Cambridge, has been appointed associate medical examiner (coroner for the first Middlesex District. The following reappointments of medical examiners have been announced: Dr. William P. Stutson, Cummington, associate, first Hampshire district; Dr. Johnson R. Woodward, Oxford, associate, eighth Worcester district; Dr. Richmond B. Root, Georgetown, associate, sixth Essex district; Dr. Samuel C. Tucker, Peabody, associate, eighth Essex district; Dr. Nathaniel K. Noyes, Duxbury, third Plymouth district; Dr. Andrew J. McGraw, Taunton, associate, second Bristol district; Dr. Charles A. Atwood, Taunton, associate, first Bristol district; Dr. A. Elliot Paine, Brockton, associate, first Plymouth district; Dr. Gary de N. Hough, New Bedford, associate, fourth Bristol district; Dr. Frederick V. Murphy, Attleboro, associate, first Bristol district, and William J. Clarke, Milford, associate, sixth Worcester district.—Dr. Henry M. Pollock, Boston, has been renominated as a member of the commission on mental diseases.

### MICHIGAN

**Michigan Practitioner Arrested in Indiana.**—Dr. A. W. Van Bysterveld, Grand Rapids, is said to have been arrested at Milford, Ind., October 20, charged with practicing medicine in Indiana without a license. The defendant claims that he is not a physician but a chemist.

**Given Prison Term.**—Dr. George A. Fritch, Detroit, who it is said has previously been in prison for manslaughter, is reported to have been found guilty on three charges, of performing illegal operations and to have been sentenced, October 28, to serve from one to fifteen years in Marquette Prison.

### MINNESOTA

**Personal.**—Dr. Charles E. Smith, Jr., St. Paul, was elected executive officer and secretary of the state board of health, October 14, succeeding Dr. Henry M. Bracken, resigned.

**Mayo Properties Association Formed.**—The formation of the Mayo Properties Association was recently announced at Rochester. Drs. William J. and Charles H. Mayo have turned over through gift, all the clinic properties, real and personal, and all funds and endowments to the association, which is to be a holding corporation to perpetuate for all time the Mayo Institution. The management of the clinic will be unchanged, and Drs. William J. and Charles H. Mayo, Henry S. Plummer, Edward S. Judd, and Donald C. Balfour, and their assistants, will continue to devote their entire time to the clinic.

**Failure to Report Venereal Disease.**—The Minnesota State board of Health is following up all cases of failure to report venereal diseases. When an omission to make such a report is discovered, a letter is addressed to the physician responsible in order to give him an opportunity to make the necessary report. In a recent instance a complaint was filed against a physician treating many cases of this class and who ignored letters from the board urging him to report them. The physician was found guilty and fined. This case is a precedent establishing the validity of the regulations requiring these reports.

### MISSISSIPPI

**Personal.**—Dr. W. E. Nollm, Yazoo City, has been appointed health officer of Yazoo City to fill the unexpired term of Dr. James B. Anderson, resigned.—Dr. Thomas E. Royals, Meridian, has succeeded Dr. James Bennett as county jail physician of Lauderdale County.

**New Officers.**—At the annual meeting of the Mississippi State Public Health Association, held in Jackson, October 22 and 23, the following officers were elected: president, Dr. William H. Friell, Brook Haven; vice presidents, Drs. Thomas E. Hewitt, Amite County, Paul G. Cope, Columbia, and Thomas L. Underwood, Monroe County, and secretary-treasurer and executive officer, Dr. Waller S. Leathers, University. The meeting for 1920 will be held in Jackson. —At the semiannual meeting of the Homochitto Valley Medical Association, whose membership is composed of physicians from Adams, Amite, Jefferson and Wilkinson counties, held in Natchez, October 9, the following officers were elected: president, Dr. Charles E. Catchings, Woodville; vice presidents, Adams County, Dr. J. W. Dix; Amite County, Dr. H. K. Ritter; Franklin County, Dr. C. G. Mullins; Jefferson County, Dr. J. M. Barrier, and Wilkinson County, Dr. Charles E. Catchings, Woodville.

### MISSOURI

**New Board Appointments.**—Governor Gardner has appointed Judge J. G. Greensfelder of Kirkwood, Rev. E. F. Leake of Springfield and Col. J. A. Corby of St. Joseph, members of the board of charities and corrections. The board recently inspected the eleemosynary institutions of the state. Mr. J. L. Wagner, secretary of the board, announces that nearly all the circuit judges have appointed probation officers for the counties to meet the provisions of the law recently enacted for the protection of children.

**Changes in Washington University Faculty.**—Dr. Eli Kennerly Marshall, Jr., Washington, D. C., formerly associate professor of pharmacology in Johns Hopkins University, has been appointed head of the department of pharmacology at Washington University Medical School; Dr. Everts A. Graham has assumed his duties as professor of surgery; Dr. Ernest Sachs has been promoted to professor of clinical neurological surgery; Dr. Leland B. Alford has been promoted to associate in clinical neurology, and Drs. Drew W. Luten and William H. Olmstead, St. Louis, to instructors in clinical medicine. In addition to these changes, the following appointments have been made: A. W. L. Bray, associate in anatomy; Alfred C. Kolls, associate in pharmacology; Edgar Allen, instructor in anatomy; Edward A. Dossy, instructor in biological chemistry; Frederick Ebersson, assistant in dermatology; Dr. Arthur E. Strauss, assistant in clinical medicine; Dr. Lionel S. Luten, assistant in clinical medicine; Dr. Isaac D. Kelly, Jr., assistant in clinical ology, and Drs. Frederick O. Schwartz, Harvey D. Lamb and Lawrence T. Post, assistants in clinical ophthalmology.

### NEW JERSEY

**Physician's License Revoked.**—The New Jersey State Board of Medical Examiners, Oct. 20, 1919, it is reported, revoked the license of Dr. I. Alfred Lawrence, Elizabeth, to practice medicine and surgery in the state of New Jersey, on a charge of criminal abortion.

**New Officers.**—Camden County Medical Society held its annual meeting at Camden, October 14, and the following officers were elected: president, Dr. Edward B. Rogers, Collingswood; vice president, Dr. Joseph E. Roberts, Camden; secretary, Dr. Daniel Strook, Camden; assistant secretary, Dr. William H. Pratt, Camden, and treasurer, Dr. Milton M. Osmun, Camden.—The centennial meeting of the Cumberland County Medical Society was held at the Cohansick Country Club, October 6. The following officers were elected: president, Dr. Leonard F. Hatch, Vineland; vice

president, Dr. Charles E. Sharp, Port Norris; secretary, Dr. H. Garrett Miller, Millville, and treasurer, Dr. W. Leslie Cornwall, Bridgeton.

### NEW YORK

**Rochester Districted.**—In a communication addressed to the Commissioner of Public Safety, Health Officer George W. Goler Rochester, suggests a tentative program for curbing an outbreak of any epidemic disease which may occur in the city. The plan contemplates the organization of an emergency corps (of twenty-five or more physicians, and of a group of more than twenty-five nurses who will constitute an emergency reserve corps). The central organization will be at the health bureau where there will be a twenty-four-hour telephone service. The city has been divided into twelve districts in which there is a health physician, and in which an emergency health station has been located either in the police station or fire house. At the central station of the health office a list of all vacant beds in the hospitals for men, women and children will be filled each day.

### New York City

**Health Department Provides New Positions.**—The 1920 city budget provides for the following: for new positions in the drug addict bureau an appropriation of \$43,030; ten positions at Bellevue Hospital, including a medical superintendent at \$2,520, a dietitian at \$2,500, and an investigator at \$1,800.

**Semicentennial Anniversary of Dermatologic Society.**—The New York Dermatological Society, which is said to be the oldest dermatologic society in existence, celebrated its fiftieth anniversary with a dinner at the Yale Club, November 8, at which Dr. George Henry Fox, one of the oldest members of the society, delivered an address.

**Personal.**—Dr. William Lintz, Brooklyn, has been appointed chief of the medical staff of the Bikur-Cholim Koshers Hospital, Brooklyn, succeeding Dr. Henry Joachim, resigned.—Dr. Alexis Carrel, who has completed four years' service with the French army hospitals, has returned to this country to resume his work with the Rockefeller Institute.

**To Improve Nutrition of Schoolchildren.**—Arrangements have been made for cooperation between the bureau of child hygiene of the department of health and the department of education for the working out of plans designed to improve the nutrition of schoolchildren. In general it is expected that a campaign of health education will be started throughout the city with particular reference to the undernourishment of schoolchildren. Lectures on dietetics will be given and the physicians and nurses of the department of health will examine the undernourished children and take measures necessary to correct physical defects when found. School lunches will be started as soon as possible, and general systematic weighing of the children will be part of the program. Surveys are now being made in thirty-five schools in Manhattan for the purpose of ascertaining the percentage of children attending these schools at the present time who are suffering from malnutrition.

### NORTH CAROLINA

**Personal.**—Dr. John Hey Williams, Asheville, one of the oldest and most esteemed practitioners of North Carolina, suffered a cerebral hemorrhage, October 23, and is still in a serious condition.

**Health Inspectors Named.**—The bureau of sanitary engineering and inspection of the state board of health has announced the selection of L. A. Allen, High Point; H. M. Fowlkes, Rockingham; Claude Hussey, High Point; H. G. Blackwell, Wake Forest; T. J. Moseley, Raleigh; W. J. Steele, Salisbury; A. M. Surratt, Denton; L. G. Whitley, Elm City, and G. E. Hapgood, Fall River, Mass., as sanitary inspectors to administer the state sanitary law. The state has been districted and one inspector will be placed in charge of each district of approximately ten counties.

**Hospital Items.**—Waynesville Hospital has been incorporated with \$25,000 capital authorized and \$2,000 subscribed by Thomas Stringfield and others.—Wilmington is to have a new hospital to be known as St. John's Sanitarium, and to be conducted under the direction of Dr. John F. Miller, Ashboro, and John T. Hoggard, Atkinson. A campaign is being launched to raise funds for the completion of the Ellen Fitzgerald Hospital, now in course of construction at Monroe.—A movement is on foot at Dunn to raise \$100,000 for the erection and equipment of a modern hospital.

The initial subscription of \$50,000 was given by Mr. J. D. Barnes of Dunn.

### OHIO

**Illegal Practice of Medicine.**—Mrs. Helen Platz, Cleveland, charged with the unlawful practice of medicine, is said to have been released on a suspended sentence on her promise to discontinue practice.

**Hospitals Must Register.**—Of the 300 hospitals of the state more than 200 have already filed the necessary blanks with the health department in obedience to the law recently passed, directing the department of health to define, and classify hospitals and to make a survey of the state hospital facilities.

**Women Physicians Organize.**—Women physicians of Toledo met, October 22, and organized the Women's Medical Club of Toledo with an initial membership of sixteen, and elected the following officers: president, Dr. Lamora Shuey; secretary, Dr. Bertha King Hobart, and treasurer, Dr. Maude L. Marks.

**Examination for District Health Commissioners.**—The new district health commissioners, to be appointed in each county, are to receive their civil service examinations at the hands of an extra state constituted board, consisting of five public health experts. This special examining board, as announced by the state civil service commission, will consist of Dr. Allan J. McLaughlin and Dr. L. L. Lumsdon of the United States Public Health Service; Dr. W. S. Rankin, executive officer of the state board of health of North Carolina; Dr. Otto P. Geier, industrial physician of Cincinnati, and Mr. Sherman Kingsley, secretary of the Cleveland Welfare Federation. Applications for health commissionerships should be addressed to the state civil service commission. Applicants will not be assembled for examination, but each will be required to submit a statement as to experience and a thesis or published article on a public health subject.

### PENNSYLVANIA

**Safety Campaign.**—Other communities are following Philadelphia's lead in connection with the campaign for personal safety. The Bethlehem Chamber of Commerce, which is sponsored by Charles M. Schwab, will conduct a "cross at crossings" campaign similar to the one now being observed in Philadelphia.

**Western Pennsylvania World War Officers Organize.**—The Western Pennsylvania Association of Medical Officers of the World War was organized at Pittsburgh, July 31. Dr. Lawrence Litchfield, Pittsburgh, was elected president, and Dr. Theodore Baker, Pittsburgh, secretary. Any physician who reported for active service in the United States Army, Navy, or Public Health Service or the service of the Allies of the United States is eligible for membership.

### Philadelphia

**Sculpture and Anatomy.**—At the meeting of the Section on Medical History of the College of Physicians of Philadelphia, held November 15, Fielding H. Garrison, Lieut.-Col., M. C., U. S. Army, Washington, D. C., and Dr. Edward C. Streeter, Boston, presented a paper on "Sculpture and Paintings as Modes of Anatomical Expression."

**Personal.**—Dr. R. Randolph Paxson has been appointed by Director Krusen, first assistant resident physician in the Hospital for Contagious Diseases. In the list of officers nominated at the business meeting of the Philadelphia County Medical Society, held October 15, the name of Dr. J. Norman Henry for first vice president was unintentionally omitted by the printer.

**The Gross Prize.**—The Philadelphia Academy of Surgery announces that essays in competition for the Samuel D. Gross Prize of \$1,500 will be received until Jan. 1, 1920. The stipulations are that the prize "shall be awarded every five years to the writer of the best original essay not exceeding 150 printed pages, octavo in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded on original investigation." The candidates for the prize must be American citizens, "the competitor who receives the prize shall publish his essay in book form, shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery and on the title page it shall be stated that the essay was awarded the Samuel D. Gross Prize; the essay must be written by a single author in the English language, must be typewritten, distinguished by a motto, and accompanied by an envelop bearing the same motto, containing the name and address of the writer, and

must be sent to the trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, on or before Jan. 1, 1920."

### TENNESSEE

**Dispensary for Drug Addicts Opens.**—A dispensary has been opened at Memphis, by the city health department, under Dr. James L. Andrews, at which drug addicts may be treated.

**Hospital Item.**—The Jewish people of Memphis are launching a movement to erect a \$350,000 hospital, primarily for Jews in Tennessee, Mississippi and Arkansas, but accepting patients from all denominations. There will be 100 beds, one fourth of which will be for charity patients.

**Office Building for Physicians.**—The Doctors' Building Company has been organized at Memphis by Justin D. Towner and others, and an option has been secured on a site at Court Avenue and Third Street, on which it is proposed to erect a building to cost \$200,000. The building committee consists of Dr. Max Goldman, Elby T. Martin and Charles D. Smith, and the finance committee of Dr. Edwin D. Watkins, John T. Ogden, and Dr. John L. Jelks.

### Texas

**Funds for Public Health Work.**—The executive secretary of the Texas Public Health Association announces that \$180,000 will be available to the association, during 1920, for the fight against tuberculosis and the betterment of the general health conditions in the state. This amount will be realized from the sale of the Red Cross Christmas Seals, which began, November 1.

**Hospital Items.**—The Benevolent War Risk Society has decided that the sanatorium for the Texas soldiers afflicted with tuberculosis shall be located at Carlsbad. The responsibility for raising \$500,000 for building and equipping the sanatorium is placed with the service that had charge of the draft in Texas, with Major John E. Townes of Houston as supervisor. The Mexia Commercial Club has agreed to raise \$2,500 for the purpose of aiding the physicians of the city in their movement to build a sanatorium.

### VIRGINIA

**Personal.**—Dr. William H. Evans, Lynchburg, has been commissioned first lieutenant, M. C., Virginia National Guard, and has been assigned to duty with the local National Guard company. Dr. Charles V. Carrington, Norfolk, was operated on at St. Elizabeth's Hospital, October 24, for duodenal ulcer.—Dr. H. Stuart Smyth, Plasterco, was painfully injured in a collision between his automobile and a wagon, September 25.

**State Association Meeting.**—The Medical Society of Virginia held its fiftieth annual meeting in Richmond, October 28 to 31, under the presidency of Dr. Emmon G. Williams, Richmond. A feature of the opening session was the address on "The Semicentennial History of the Medical Society of Virginia," by Dr. John N. Upshur, Richmond. Petersburg was chosen as the next place of meeting, and the following officers were elected: president, Dr. Paulus A. Irving, Farmville; vice presidents, Drs. Marshall J. Payne, Staunton, George T. Klipstein, Alexandria, and George J. Williams, Newport News. Dr. Irving has served as secretary of the state association continuously since 1910.

**Hospital Notes.**—The G. B. Johnston Memorial Hospital, which was formally dedicated at Abingdon, is a tribute to the memory of the late Dr. George Ben Johnston, who developed a hospital at that place. After his death the people of that section raised money and built this new hospital. The capacity is fifty beds.—The Lynchburg Chamber of Commerce has agreed to contribute \$50,000 for the proposed Baptist Hospital provided the Baptist general convention of Virginia will locate the hospital in Lynchburg. The Providence Hospital Association, Danville, has secured a site on South Main Street on which there is already a two-story brick building. Additions will be made to this building, and it will be remodeled, so that the institution will accommodate thirty patients. The improvements on the building will cost \$10,000, and it is expected that the hospital will be ready to receive patients in January.—The University of Virginia, Charlottesville, has asked the legislature for improvement costing nearly \$300,000, to include a new dormitory for fifty men, a new medical building, and an isolation ward for contagious diseases to the University Hospital.

## GENERAL

**Interprofessional Conference.**—An interprofessional conference is announced to convene at the Hotel Statler, Detroit, at 11 a. m., November 28, and to continue two days. The conference is organized at the invitation of the postwar committee on architectural practice to bring the professions together in order to plan more effective relations to each other and to the social problems of the day.

**Treasury Decision on Alcohol Prescriptions.**—Treasury Decision No. 2940, which has just been issued by Daniel C. Tappan, commissioner of internal revenue, provides that under the new prohibition enforcement act, physicians who make application for intoxicating liquor must make an application for permit in Form No. 737 and must make a statement that the liquor is for use in the course of their professional practice only, and that it is to be used either in the compounding of medicines or for use without charge for non-coverage purposes only. If more than 2 quarts are purchased in any one year, bond will be required.

**Milk Commission Elects Officers.**—At the annual meeting of the American Association of Medical Milk Commissions, which has been holding its meetings concurrently with those of the American Public Health Association, Dr. Laurence R. DeBuis, New Orleans, was elected president; Dr. Ben C. Frazier, Louisville, Ky., secretary-treasurer, and Drs. Arnold F. Farrer, Cleveland, Louis C. Ager, Brooklyn, and Walter S. Haines, Chicago, members of the association council. At this meeting the employment of a field inspector was recommended and a committee was appointed to consider affiliation with the American Public Health Association.

**Meeting of Western Surgical Association.**—The twenty-ninth annual meeting of the Western Surgical Association will be held in Kansas City, December 5 and 6, under the presidency of Dr. Roland Hill of St. Louis. This year's meeting will be held during the same week and at the same place as the association of Rock Island railway surgeons. Thomas S. Cullen, Baltimore, professor of gynecology in Johns Hopkins University, will be the guest of the association. The headquarters will be at the Muehlbach Hotel, where the sessions will also convene. The annual banquet will be held on Friday, December 5. Dr. Howard Hill, State Building, Kansas City, is chairman of the committee on arrangements.

**Investigation of Influenza.**—The Metropolitan Life Insurance Company has provided resources to carry on investigations into the cause, mode of transmission and treatment of influenza and its complications. A commission has been appointed consisting of Dr. George W. McCoy, director of the hygienic laboratory, U. S. Public Health Service, Washington, D. C.; Dr. William H. Park, director of the research laboratory, New York City Department of Health; Lee C. Frankel, third vice president of the Metropolitan Life Insurance Company; Dr. A. S. Knight, medical director of the Metropolitan Life Insurance Company; Dr. Milton J. Rosenau, Boston, chairman, professor of preventive medicine and hygiene, Harvard Medical School. Later, Prof. Edwin D. Jordan, of the University of Chicago, and Dr. Sale H. Frost, of the U. S. Public Health Service, Washington, D. C., were invited to join in the work. Work has already been begun in Washington, New York, Boston, and Chicago and may be extended to other places as occasions arise.

**Outbreaks of Food Poisoning Traced to Ripe Olives.**—Recent outbreaks of food poisoning at a country club near Detroit, in which eight deaths occurred, was traced to an outbreak of the state department of health to the eating of ripe olives. *B. botulinus* was found in the olives, and that all quantities of the olives and of the liquor in which they were contained were extremely toxic to guinea pigs. A recent outbreak of food poisoning in Michigan, causing five deaths, was traced to the same source, and the same bacteria were recorded. Following this last outbreak the state department of health and the dairy and food division of the agricultural commission issued a joint statement, which was given wide publicity, warning against the use of ripe olives and forbidding their sale until further investigations had been made. It is alleged that the authorities in Michigan found *B. botulinus* in samples of ripe olives on the shelves of various stores. An extensive investigation is being made by the state department of health to determine whether ripe olives now on sale in Ohio are safe for consumption.

## FOREIGN

**International Congress of Electrology and Radiology.**—It is announced that the Seventh International Congress is to be held at Paris in August, 1920, with Dr. Oudin to preside.

**Typhus in Siberia.**—A representative of the American Red Cross, who has been in West Siberia for six months, reports that the cases of typhus fever among the Siberian troops, since January 1, have aggregated 120,000, and that since July 1, 40,000 cases have occurred. Near Omsk, 30,000 persons are without shelter, and sanitary conditions are reported as frightful.

**Italian Radiology Congress.**—The first meeting of the Italian Society for Medical Radiology since the beginning of the war was held recently at Genoa, with E. Maragliano, professor and senator, presiding. Professor Ghilarducci of Rome opened the discussion on the biophysical bases of radiotherapy; Professor Ceresole of Venice on the dosimetry in radiology, and Professor Alessandrini of Rome on radiology in pulmonary tuberculosis. An exhibition of electric appliances was held in connection, and the army, the navy and the Red Cross were all officially represented.

**Training of Nurses in France.**—The *Journal de Médecine de Bordeaux* publishes a notice from the Florence Nightingale Training School for Nurses in that city that the American Red Cross and Vassar College have founded some scholarships at the school for the benefit of young women wishing to take the course of training. The preference will be given to daughters of physicians living at home in Bordeaux or living at the school if they come from a distance. The school gives training not only for hospital and dispensary nursing, but for home visiting nurses and supervision of schoolchildren. The stipend allowed is 110 francs per month during the two years of the course.

**German Physicians Oppose Plan to Make Them State Employees.**—The *Niederländisch Tijdschrift* states that at the forty-first annual representative meeting of the medical profession in Germany, the *Arztetat*, to be held at Eisenach, the president of the Leipzig League was to speak on contract practice; Mugdan, member of the National Assembly, on the "socialization" of the practice of medicine; Schwalbe on reform in medical education, and others on measures to repress quackery and on social insurance. The cable has reported since that the delegates voted unanimously against the government's proposal that all physicians should be made state employees. The chief argument presented against the plan is the necessity for physicians to maintain confidential relations with their patients.

**Deaths in the Profession Abroad.**—Dr. A. Rovighi, professor of medical pathology at the University of Bologna, aged 63. He has published numerous works on disease of the spinal cord and of the brain, on the murmur with stenosis of the right branch of the hepatic artery, etc., and he is said to have been the pioneer in demonstrating the cirrhosis-inducing properties of indol and skatol.—Dr. B. Brunacci, instructor in physiology at the University of Rome, aged 39.—Dr. V. Tedeschi, professor of pediatrics at the University of Padua and a leading organizer in various fields of welfare work for children, aged 65.—Dr. U. Gosselin, professor of physiology at the University of Caen.—Dr. G. Marchesi, professor of pathology at the University of Rome.—Dr. M. Gangolphe, formerly professor at the University of Lyons, aged 61.

## LATIN AMERICA

**Yellow Fever in Nicaragua.**—The sanitary authorities of Guatemala have established a quarantine against ships arriving from Corinto, Nicaragua, on account of the occurrence of several cases of yellow fever in the latter place.

**Foot and Mouth Disease in Uruguay and Argentina.**—On account of an epidemic of aphthous fever among the cattle of some of the ranches of Uruguay and Argentina, the packing houses have been compelled to reduce their operations.

**Cyclone Damages Hospital in Chile.**—The *Revista de Beneficencia Pública* of Santiago, Chile, reports that a recent cyclone destroyed one of the wards of the hospital at Chimirango, besides damaging some of the other parts of the building.

**New Hospital for Panama.**—Plans are being prepared for the new Santo Tomas Hospital, which was commenced by the republic of Panama, November 1. This institution is to be located on the leach in the suburbs of the city of Panama in the center of a tract of about 20 acres. The main building will be four stories in height and will be of concrete construction. The estimated cost of the hospital is \$600,000.

**Medical Society Meeting.**—The 174th meeting of the Ancon Medical Society was held in the administration building, Ancon Hospital, October 18. A program largely devoted to problems arising in the laboratory service of the American Expeditionary Forces was presented. Col. H. C. Clark, who was actively engaged with the Chemical Warfare Service during two years, presented a very interesting summary of his experiences.

**Deaths in the Profession.**—Dr. L. Felipe Mujica, physician in chief of the Hospital de Salvador, Santiago, Chile. He succumbed suddenly to pulmonary edema while making his rounds.—Dr. J. M. Espín of Santiago, Cuba, recently serving in the national laboratory of the public health service.—A cablegram from Rio de Janeiro announces the death of Dr. Jaime Campello, one of the most prominent Brazilian physicians.

**Municipal Drug Store.**—The officials of the Asistencia Pública de Santiago, Chile, are now considering the feasibility of founding a pharmacy to be open to the public day and night to sell drugs and fill prescriptions at cost price plus a percentage to cover costs of operating and 10 per cent. for deterioration and losses. The *Revista de Beneficencia Pública* declares that something of the kind is indispensable on account of the high prices of drugs and the increasing difficulty in controlling the practices of the present proprietors of the pharmacies.

**Smallpox in Havana.**—Although the smallpox epidemic seemed to be decreasing and the total number of cases is very small, five new cases were reported, November 5 and 6. Eighty-two blocks of the city have been quarantined. Among the several measures adopted to eradicate the epidemic, are the vaccination of all steerage passengers coming from the United States, the establishment of a quarantine against ships from New Orleans, the enforcement of compulsory vaccination in Havana, and the closing of public schools. It seems that smallpox was introduced by the merchant ship *Venezia* from Spain, one of the passengers being taken sick with smallpox thirty-six hours after landing.

## Government Services

### Personnel of the Medical Department

Up to Nov. 7, 1919, 28,269 officers had been discharged from the Medical Corps of the Army, from a total of 30,591 on active duty Nov. 15, 1918. There were 3,737 officers in the reserve corps, an increase of sixty over the previous week.

### Legislation to Increase Pay of Medical Officers

An increase of 10 per cent. in the base pay of all members of the Army and Navy Medical Corps, for both commissioned officers and enlisted men, and also for members of the U. S. Public Health Service is provided for in Senate Bill No. 3383, introduced by Senator James W. Wadsworth of New York, chairman of the Senate Committee on Military Affairs. The same measure provides for an increase in pay for the members of the Female Nurse Corps of the Army and Navy to the extent of 50 per cent. The compensation for officers on the retired lists would be computed with this increase included in their basic pay. The measure has been referred to the Senate Committee on Military Affairs for action.

### Surgeon-General Braisted Elected Fellow of the Royal College of Surgeons of Edinburgh

On October 15 Surgeon-General William C. Braisted of the U. S. Navy Medical Corps was elected an honorary fellow of the Royal College of Surgeons of Edinburgh. At the same time the Director-Generals of the British Medical Services and of the Belgian, French, Italian and Japanese medical services were honored with membership.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

<p>NEW YORK Brooklyn—Brahdy, L. Little Falls—Drake, N. I.</p>	<p>PENNSYLVANIA Masontown—Johnson, S. L. WASHINGTON Manette—LaMotte, H.</p>
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## Foreign Correspondence

### PARIS LETTER

PARIS, Oct. 16, 1919.

#### Appropriations for French Universities

The minister of public instruction has introduced in parliament a bill covering an appropriation of 12,120,000 francs for the benefit of the universities, to be used in the construction of new buildings, for repairs to old buildings, and for the installing of scientific equipment. This demand for an appropriation is in connection with work which has already been begun but which was interrupted by the war. The institutions mainly concerned are the Universities of Paris, Nancy, Grenoble, Lille and Poitiers. The sum designated for the University of Paris exceeds 10,000,000 francs. The minister of public instruction also demands 900,000 francs in order to complete the construction work at the Institute of Applied Chemistry; 5,243,000 francs for the extension of the work of the departments of chemistry; 800,000 francs for the enlargement of the Radium Institute, and 1,500,000 francs for the construction of a laboratory of physical chemistry, etc.

#### Milk for Infants and for the Sick

The *Journal officiel* publishes the following order:

All hotels, boarding houses, restaurants, cafés, coffee-houses, dairy lunch establishments, lunch counters, canteens, tea rooms, and all other establishments serving food and beverages, are hereby prohibited, as of Oct. 15, 1919, from serving or from using fresh milk or fresh sweet cream in the preparation of any beverage, such as tea, coffee or cocoa.

In the report that precedes the text of the foregoing order, M. Noulens, minister of agriculture and of food control, explains that this measure is justified by the fact that a scarcity of fresh milk is beginning to be felt at the approach of winter, and likewise by the necessity of assuring to infants and the sick an adequate supply, since for these two classes milk is indispensable. The aforementioned establishments will, however, still be privileged to serve condensed milk. As I have already mentioned in previous correspondence, special milk tickets have been brought into use which insure preferential treatment in case there are infants, old persons or the sick to be provided for.

#### Operative Treatment of Cancer of the Cervix of the Uterus

At the first meeting of the Association des gynécologues et obstétriciens, held recently in Brussels, one of the six subjects discussed was operative treatment of cancer of the cervix.

Dr. Fougère, professor of clinical surgery at the Faculté de médecine de Montpellier, recommends, as the operation of choice in this condition the following technic: Along with the whole uterus as much of the parametrium as possible should be removed, the dissection about the uterers having been previously made. Excision of the upper part of the vagina should be done. The advantage lies with hysterectomy by the upper route, abdominal hysterectomy, or, more exactly, vaginal-abdominal hysterectomy, for the operation is begun in the vagina, keeping well away from the cervix, since by this means the vagina is excised beyond the suspected region, the raising of the uterus is facilitated, and, by first opening the vesico-uterine cul-de-sac and Douglas' pouch, the excision of the pericervical region is simplified for the abdominal stage of the operation. One must use every precaution to prevent peritoneal infection originating from the ulcerated cervical neoplasm. The surest guarantee against infection lies in closing the cervical canal by suture before the uterus is removed. The vagina should also be securely roofed over. There are two ways of accomplishing this: (1) by the abdominal route alone, the incision of the vagina being done while the ulcerated lesion is held down firmly by two stout tenaculum forceps, and (2) by the vaginal-abdominal route, the preliminary operation being begun in the vagina, a circular incision of the vagina being made and the vaginal segment of the cervix dissected away from below upward, the cervical canal is cut and securely roofed, so that when the uterus is lifted from the surrounding parts, no danger of spreading infection to the surrounding parts.

As for the matter of recurrence, these recur most frequently during the first year after the operation (more than

half of the cases; during the second year there are recurrences in 25 per cent more of the cases. So, we may say, if the patient goes three years without a recurrence the chances of recovery are good. The recurrences, moreover, appear especially frequent and rapid in cancer of the uterus in young women, in cancer in women having a hereditary taint well established, and in cancer in pregnant women.

### BELGIAN LETTER

LIÈGE, Oct. 19, 1919.

#### Meeting of Gynecologists at Brussels

In my preceding letter (*THE JOURNAL*, Oct. 18, 1919, p. 1228) I stated that Belgian physicians were gradually becoming more active. The communications addressed to the academy and the meetings of the principal medical societies were only a prelude to the activity in medical circles that the month of September was to show. From September 25 to 27, at the time the Belgian Surgical Congress was being held, the first meeting of the Association des gynécologues et obstétriciens de langue française took place in Brussels. It was a special honor conferred on our country that our capital should have been chosen for the first meetings of this pursuant society of learned men of French tongue. The variety and significance of the subjects brought up for discussion helped to give this congress a high degree of importance, for most of the current problems of gynecology and obstetrics were studied into and discussed at length. [Our Paris correspondent, in his reports published this week and last, covered most of the papers at this meeting.]

#### Indications and Technic of Hysterectomy in the Treatment of Adnexal Suppurations

Faure and Bégouin, in a well illustrated report, pointed out the operative indications for hysterectomy. Leaving out of consideration acute infections that may be cured without operation, and chronic infections that can be treated by colpotomy, the uterus should be removed in the case of multiple abscesses, the Douglas pouch filled with pus, or bilateral suppurating adnexa. The authors recommend in very decided terms subtotal hysterectomy except in cases of inflamed cervix combined with suppuration, pain and the menace of carcinoma; however, such cases are rare, and the dangers of the complete removal of the uterus are infinitely greater. Faure and Bégouin believe, than of the subtotal removal. The technic of the operation is based on the fundamental principles of pathologic anatomy. The adhesions are found chiefly above, in front and behind. The operation should be begun, then, with the free part, that is, from below and from within, and proceed in a forward direction. This manner of procedure affords better protection to the ureter. This point decided, there are four ways of proceeding with the operation: (1) hysterectomy by posterior or preferably anterior incision of the cervix; (2) the Kelly procedure, in which the surgeon passes from the adnexa on one side to the uterine body and thence to the adnexa on the other side; (3) the Terrier procedure; (4) bisection of the uterus in case of bilateral adherent adnexa.

The Belgian authors, Mayer, Schockaert and Henrotay, as well as Hartmann and Walther of Paris and Kecasos of Madrid, prefer complete hysterectomy in case of adnexal suppuration. All emphasize the paramount importance to be ascribed to peritonization.

#### The Value of Various Incisions Used in Laparotomies by the Gynecologist and the Obstetrician

M. Puffart of Brussels ended his report with these conclusions:

1. The median longitudinal incision, while it takes account of all the exigencies connected with the act of operation, sometimes results in hernia, and this is especially frequent when the wound heals by second intention.

2. Every median longitudinal incision should be sutured in such a manner as to permit the reinforcement of the cicatrix by the muscular tissue of the recti abdominis.

3. Extramedian longitudinal incisions which sever the muscles and disturb their nutrition through section of the nerves are contraindicated as predisposing to hernia.

4. The superiority of the transverse incision over the longitudinal incision from the anatomic and clinical standpoint will cause it to be chosen in the majority of gynecologic and obstetric laparotomies.

These conclusions provoked considerable discussion and did not receive unqualified approval. The French school especially, headed by Faure, Walther, Brindeau and Bégouin, was inclined to favor the longitudinal incision.

### Protection for Women Workers

M. Keiffer of Belgium, in his report on protection for women workers, gave his hearty support to the protective measures suggested by the Academy of Medicine of Paris at its meeting of March 6, 1917. M. Levy Solal demands, in order that the protective measures may be effective, that pregnancy be made reportable by law. Every woman worker should be compelled to give up her work in the factory, or elsewhere, when pregnancy is six months advanced and while nursing her baby. In compensation she should be allowed a special indemnity by the state. Medical surveillance of the homes should be organized, and deserted women should be given ample protection. In order to carry out these ideas, institutions should be established where mother and child might be hospitalized.

### A Successful First Meeting

This first meeting of the Association des gynécologues et obstétriciens de langue française, held in Brussels, was crowned with success and may doubtless be taken as a harbinger of the rebirth of scientific activity in our country.

### LONDON LETTER

LONDON, Oct. 15, 1919.

#### The Prevention of Venereal Disease

As previous letters to *THE JOURNAL* show, the prevention of venereal disease has been under discussion for some time. The ministry of health has decided that the official recognition of self-disinfection in civilian venereal disease is neither desirable nor practicable, but recommends the establishment of centers for delayed disinfection. This attitude has provoked a protest in the *Times* from a number of leading physicians who have formed themselves into a venereal prevention committee. They point out that provision of centers for delayed disinfection can never be adequate. The London County Council, the greatest urban authority in the country, has rejected the scheme. No method is even suggested that could work in rural districts. The committee maintains that venereal disease is preventable by immediate disinfection; that authoritative teaching on the subject is urgently required, and that the means, together with approved instructions for their use, should be readily accessible to the public. They fail to recognize any moral distinction between the provision for delayed disinfection at centers and the provision for immediate self-disinfection. One of the members of the committee, Sir Archdall Reid, has put forward in the *Times* the proposal that "brief and clear instructions for swift personal disinfection shall be posted in public lavatories." He is also publishing a book on the medical prevention of venereal disease in which he says: "Instructions, of which the really effective part was conveyed by posters, were given to soldiers inhabiting a group of barracks in a large seaport. The force usually present averaged 2,000, and 20,000 passed through these barracks in two years. Not one man who followed instructions acquired disease, and only seven men, all of whom failed to follow instructions, acquired disease. The rate of infection was therefore 1.75 per thousand per annum. In a still larger naval unit not one man who followed instructions acquired disease, and only one man failed to follow instructions. In a large military hospital for venereal diseases not one man of all those who passed through it had acquired disease after immediate disinfection, but nearly every patient had practiced 'early treatment.' In India and South Africa, results equally remarkable have been achieved by the same simple and inexpensive method. I believe there is not on record a single instance of the failure of the method of quick disinfection. The operation is actually about as difficult and dangerous as washing the hands with soap and water." The method referred to is careful sponging with a solution of 1:2,000 potassium permanganate. Sir Archdall Reid considers that more elaborate methods, such as urethral injections and the use of calomel ointment, are unnecessary.

#### Crowded Medical Schools

Students released from army service are flocking to the universities, some of them as freshmen, others to resume studies interrupted by the war. The number of medical students is particularly large, and in some cases in excess of the accommodations. In London the average attendance before the war was between 1,400 and 1,500; this session has begun with 2,000. In addition to men demobilized from the army, freshmen have come from all parts of the world. The accommodations are generally sufficient, but some schools

are unusually crowded. In Edinburgh the session is a record one in point of attendance. The rush of students has been so great that 300 have had to be refused admission. During the war, women students flocked to the university; last year half of the medical students were women. The authorities realize the need for expansion of the buildings, and schemes are in hand for erecting a new chemical department and also for the establishment of a Lister institute for pathologic teaching. In Glasgow the accommodations are taxed to the utmost. New enrolments cannot be accepted for the winter session except in the case of students returning to their studies from active service.

#### Women Physicians

There are now over 2,250 women studying medicine in this country—an enormous increase over the number before the war. There are over 1,000 women physicians in practice, and the prospect is that at the end of five years the number will be doubled, which opens the prospect of overcrowding.

#### Scottish Vital Statistics

The vital statistics of Scotland for the year 1917, which have just been issued, are remarkable. The birth and death rates were the lowest recorded. The births registered numbered 97,441, which was less than in all years since 1856. The birth rate of the year was 20.07 per thousand. Marriages registered 30,482, which number was 2,180 less than the mean of the preceding ten years. The marriage rate of the year was 6.28 per thousand, which was 0.62 below the mean of the preceding ten years, and was the lowest Scottish marriage rate since 1887. Deaths registered numbered 69,483, which was 5,017 less than the mean of the ten preceding years. The death rate of the year was 14.31 per thousand, as already stated, the lowest rate recorded. The infant mortality rate of the year was 107.5 per thousand births, being 3.4 below the mean of the ten preceding years. An endeavor was made to verify the ages of all reputed centenarians whose deaths were registered. There were six deaths during the year, and in two of them satisfactory proof of the attainment of the age of 100 was obtained. The number of deaths attributed to typhoid, diphtheria and tuberculosis was smaller in 1917 than in any previous year. Deaths from malignant diseases were more numerous than in previous years.

#### The Influenza Epidemic in Scotland

The total number of deaths ascribed to influenza during the epidemic in Scotland in the latter part of 1918 and the earlier part of this year was 17,575, a figure which includes not only those deaths of which influenza was the sole named cause, but also those deaths of which influenza was one of two or more named causes, the latter being by far the more numerous. Deaths from influenza and pneumonia in association numbered 11,236 out of the total of 17,575. The mortality from the epidemic greatly exceeded in amount those of epidemics of other infectious diseases, and a large part was among adults, fully 50 per cent. occurring between the ages of 15 and 44, and 23 per cent. between the ages of 25 and 34.

## Marriages

PAUL PERROT, French Army Medical Corps, to Miss Norman Derr of Atlanta, Ga., at Clifton Springs, N. Y., November 3.

REUBEN ANTHONY McBRAVER, Sanatorium, N. C., to Miss Louise Ludlow of Winston-Salem, N. C., November 7.

JAMES A. DUGGAN, South Bend, Ind., to Miss Alma Gehhardt Stevenson of Maplewood, N. J., October 30.

GEORGE J. HERMANN, Newport, Ky., to Miss Catherine Nordwich of Alexandria, Ky., October 22.

SOL BERNARD KOSITCHER, Chicago, to Miss Josephine Kapp, at Battle Creek, Mich., October 30.

WILLIAM PENN VAIL, Philadelphia, to Miss Virginia Moore of San Diego, Calif., October 1.

JOHN LEONARD KANTOR to Miss Ina Duff Downes, both of New York City, October 20.

LOUIS S. DUNN, Chester, Pa., to Miss Sari Rosenberg of New York City, October 28.

FRANK MILAN BARNES, Abilene, Neb., to Miss Ruth Purch, at Landers, Wyo., October 8.

LOUIS SAVITT to Miss Bess Sparberg, both of Chicago, October 26.

## Deaths

John Young Brown \* St. Louis; Bellevue Hospital Medical College, 1887; aged 54; major, M. C. U. S. Army; who served as a member of the General Army Medical Board; city physician of Henderson, Ky., from 1887 to 1891; assistant superintendent of the Central Kentucky Asylum for the Insane from 1891 to 1894; chief surgeon of the Louisville, St. Louis and Texas Railroad; professor of surgery in the St. Louis University; chief surgeon to St. Johns Hospital; surgeon in charge of the St. Louis City Hospital from 1903 to 1907; president of the Mississippi Valley Medical Association of Obstetricians and Gynecologists, Southern Surgical and Gynecological Association and St. Louis Surgical Club; died in Phoenix, Ariz., October 30, from heart disease.

Thomas Barker Eastman \* Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1893; a son of Joseph Eastman, the pioneer gynecologist of the Middle West; died, November 10, from carcinoma; aged 50. He was a member of the American Association of Obstetricians and Gynecologists; professor of abdominal surgery and diseases of women in his alma mater, and later clinical professor of gynecology in the Indiana University School of Medicine, Indianapolis; gynecologist to the Indianapolis City Hospital; surgeon to the Joseph Eastman Hospital; also a member of the staffs of the Methodist and Deaconess hospitals. He was appointed a member of the Indianapolis City Board of Health in 1914.

Clinton Palmer Meriwether \* Little Rock, Ark.; Missouri Medical College, St. Louis, 1893; aged 45; secretary of the Arkansas Medical Society; and a member of the House of Delegates of the American Medical Association from 1916 to 1919, inclusive; professor of operative surgery and rectal diseases in the College of Physicians and Surgeons, Little Rock; major, M. C. U. S. Army, and honorably discharged, Jan. 4, 1919; who had been ill at the Arkansas Tuberculosis Sanatorium, Booneville, for several months; died at his home, Novem<sup>r</sup> 2, from tuberculosis.

Henry Kemble Oliver, Boston; Harvard University Medical School, 1855; aged 89; medical in pector of camps under the United States Sanitary Commission during the Civil War; one of the visiting physicians to the Massachusetts General Hospital, and also a member of the staff of the department of laryngology; at one time lecturer on diseases of the throat in his alma mater; who endowed the Henry K. Oliver Foundation for the department of hygiene of Harvard University; died, October 25.

Francis Valk \* New York City; New York University, 1878; aged 74; a fellow of the New York Academy of Medicine, and a member of the American Academy of Ophthalmology and Oto-Laryngology; a veteran of the Civil War; consulting surgeon to Thrall Hospital, Middletown, N. Y.; surgeon to the Randall's Island Hospital; a consultant surgeon at the Manhattan Eye and Ear Hospital; ophthalmologist to the New York Dispensary; died in St. Luke's Hospital, New York City, November 5.

Michael B. Corrigan, Monticello, Ark.; University of Edinburgh, Scotland, 1871; aged 67; president of the Drew County Medical College; health officer of Drew County; formerly a major, R. A. M. C., with service in India and Africa; for ten years surgeon in the Royal Navy; also a clergyman of the Methodist Episcopal Church; died, October 24, from nephritis.

William Lincoln Shindel \* Sunbury, Pa.; Medico-Chirurgical College of Pennsylvania, Philadelphia, 1893; aged 52; formerly president of the Northumberland County Medical Society; surgeon to the Mary M. Packer Hospital, Sunbury, and physician to the Northumberland County Prison; a specialist in proctology; died, October 26, from kidney disease.

William H. Judd, Janesville, Wis.; Bennett Eclectic Medical College, Chicago, 1883; aged 65; once president of the Rock County, Wis., Medical Society, for five terms a member of the city council, and at one time its president and acting mayor of Janesville; was struck by an automobile, October 25, and died in Mercy Hospital, October 26.

Charles Fremont Taylor, Philadelphia; Central College of Physicians and Surgeons, Indianapolis, 1889; aged 63, a member of the Medical Society of the State of Pennsyl-

\* Indicates "Fellow" of the American Medical Association.

vania; editor of the *Medical World* since 1883; editor and publisher of *Equal*, a quarterly periodical; died at his home, November 4, from disease of the heart and kidney.

**Chauncey W. Courtright** \* Chicago, Cleveland University of Medicine and Surgery, 1877; Northwestern University Medical School, Chicago, 1887; aged 69; a member of the staff of the Englewood, Washington Park, Lakeside and Fort Dearborn hospitals; died, November 9, from carcinoma of the bladder.

**Charles Elbert Woody**, Springfield, Mo.; Kentucky School of Medicine, 1893; aged 58; for several years physician of Green County; for one term health commissioner of Springfield; clerk of the criminal court of Green County from 1910 to 1914; died in a hospital in Nevada, Mo., October 25.

**James Knox Polk Gleason**, Washington, D. C.; George Washington University, Washington, D. C., 1869; aged 75; a member of the Medical Society of the District of Columbia; a veteran of the Civil War; died in the Takoma Park (D. C.) Sanitarium, October 23.

**James Welch** \* Tampa, Kan.; College of Physicians and Surgeons, Kansas City, Kan., 1903; aged 50; a veteran of the Spanish American War; commissioned first lieutenant, M. C., U. S. Army, in recent war; died suddenly in his office, October 16, from heart disease.

**Algernon Sydney Garnett** \* Hot Springs, Ark.; Jefferson Medical College, 1856; aged 80; a pioneer practitioner of Hot Springs; said to have been the last survivor of the crew of the Confederate steamship, *Merrimac*; died, October 30.

**Charles Wilbur Patton** \* Laurel, Iowa; State University of Iowa, Iowa City, 1910; aged 38; who was honorably discharged as first lieutenant, M. R. C., Dec 7, 1918; died, recently, from an overdose of a poisoning drug.

**Joseph A. Richmond**, Bellevue, Ky.; University of Nashville, Tenn., 1908; aged 37; a member of the Kentucky State Medical Association; died at his home, October 21, from tetanus, due to a punctured wound of the foot.

**John Frederick Beiermeister** \* Rochester, N. Y.; Albany (N. Y.) Medical College, 1910; aged 32; who served as first lieutenant, M. C., U. S. Army, during the world war; died in his office, October 24, from angina pectoris.

**Clinton Brotemarkle**, Salisbury, Md.; College of Physicians and Surgeons, Baltimore, 1881; aged 59; a specialist in diseases of the eye, ear, nose and throat; died in a sanatorium in Philadelphia, about October 23.

**Arthur George Patterson** \* Lisbon, N. D.; Trinity Medical College, Toronto, Ont., 1889; aged 54; died in the Heron Memorial Hospital, Chicago, October 22, from pneumonia following cholecystectomy.

**Miller Young**, North Liberty, Iowa; Jefferson Medical College, 1873; aged 74; president of the Farmer's Savings Bank, North Liberty; died at Young's Station, near North Liberty, October 25.

**Robert H. Jenkins**, Hovansville, Ga.; University of Louisville, Ky., 1871; aged 68; also a pharmacist; once representative to the Georgia legislature; died, October 14.

**Charles L. Swimley**, Roll, Okla.; Starling Medical College, Columbus, Ohio, 1895; aged 50; died suddenly, from heart disease in Strong City, Okla., October 14.

**James Alexander Smart**, Fort Covington, N. Y.; New York University, New York City, 1882; aged 61; died, September 24, from chronic nephritis.

**Robert Richard Lawrence** \* Hartford, Mich.; University of Michigan, Ann Arbor, 1875; aged 69; died, September 10, from chronic nephritis.

**Eugene Jackson Smith**, Harlan, Iowa; Rush Medical College, 1872; aged 70; was found dead in bed in a hotel in Harlan, October 21.

**Thomas Primmer** \* Centralia, Wash.; Trinity Medical College, Toronto, Ont., 1886; aged 65; died, September 4, from heart disease.

**Daniel G. Smith**, Arkoe, Mo.; American Medical College, St. Louis, 1877; aged 72; died in a hospital in St. Joseph, Mo., October 14.

**Charles E. Newcomb**, Grantham, N. H.; University of Vermont, Burlington, 1880; aged 63; died, October 1, from heart disease.

**John M. Gass**, Knoxville, Tenn.; University of Tennessee, Nashville, 1882; aged 83; also a clergyman; died, October 16.

**George Vincent Hudson**, Brooklyn; New York University, New York City, 1867; aged 76; died, October 24.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION.

### "PHYLACOGENS"

A physician in Florida writes:

"I am enclosing a copy of a circular letter just received from Parke, Davis & Company, and will call your attention to a marked paragraph in this letter on which I would like to have an expression of your opinion."

The circular letter which the doctor forwards is devoted to singing the praises of "Pneumonia Phylacogen." It opens with the statement: "Influenza, we learn, has appeared in your section." The paragraph marked by our correspondent reads:

"Pneumonia Phylacogen has been found to be a dependable means of preventing and treating pneumonic complications of Influenza. In one large city it became a routine measure to give all persons affected with Influenza an injection of Pneumonia Phylacogen as a prophylactic of pneumonia. The results were remarkable. Not only did the cases improve rapidly, but in a great majority of them the pneumonia did not occur."

The "Phylacogens" were repeatedly discussed in THE JOURNAL during 1913 and 1914 when these products were being pushed with much vigor by the manufacturers. We know of no evidence that calls for a revision of the statements then made regarding them. The injection of phylacogens is simply the administration of a mixture of the filtered products of several bacterial species. The results which follow represent the reaction of the bacterial protein—a reaction for good or evil. There is no scientific evidence to show that they possess any specific prophylactic virtue. To recommend their use in patients with influenza, as a prophylactic against pneumonia, is unwarranted, and the physician who acts on the advice of the manufacturer must assume the responsibility for the results. In case of mishap he cannot fall back on the manufacturer; he will find no scientific evidence to support him.

### ACRIFLAVINE AND PROFLAVINE, N. N. R.

#### Conclusions to Be Drawn from a Study of the Literature\*

REPORT OF THE COUNCIL ON PHARMACY AND CHEMISTRY  
Acriflavine and proflavine have been accepted for New and Nonofficial Remedies. A description of these drugs, with a discussion of the uses and dosage and tests of identity and purity was published in the New and Nonofficial Remedies Department of THE JOURNAL, Nov. 8, 1919, page 1443. The following report briefly summarizes the literature at present available on these drugs. The abstracts themselves occupy too much space to appear in THE JOURNAL, but will be printed in pamphlet form. This pamphlet will be sent to any physician on receipt of a self-addressed, stamped envelop.

W. A. PUCKNER, Secretary.

It has been known for some time that certain dyes possess bactericidal and amebicidal properties, while others have no effect as antiseptics or germicides. After this discovery was made, chemical research was begun in the effort to produce substances which should have higher bactericidal potencies than those already known. In these studies it was found that certain of the acridine derivatives were especially active as amebicides. Acridine is a substance first obtained from coal-tar. Some of its derivatives have been known and used as dyes for many years, certain of them being known as flavines because of the yellow color they impart to fabrics.

\* The matter published in THE JOURNAL is in pamphlet form and will be sent to physicians on receipt of a stamped, addressed envelop.

Most of the acridine derivatives have no amebicidal properties; but, as already stated, there are some marked exceptions. One of these (diamino-methyl acridine chloride) was found by Ehrlich to have notable therapeutic effects in trypanosome infections and, on this account, he called it "Trypallavine." Most of the studies on this substance, both bacteriologic and clinical, have been conducted by English investigators, who call it "Acridiflavine." A closely related substance having similar properties is "Proflavine." Acridiflavine and proflavine are claimed by some to have high anti-septic power, together with freedom from toxic or irritant action and without inhibiting effects on the phagocytic action of the leukocytes or on the healing processes. Acridiflavine and proflavine have been extensively used in the treatment of wounds, and acridiflavine has been highly praised in the treatment of gonorrhoea.

In view of the interest manifested in the therapeutic properties of acridiflavine and related compounds, as evidenced by numerous inquiries from physicians to the Council on Pharmacy and Chemistry, the Council has deemed it worth while to prepare and publish an abstract of the available literature on the subject.<sup>1</sup> Tentative descriptions and standards for acridiflavine and proflavine are published in New and Non-official Remedies for the information of manufacturers, pharmacists and physicians.

It should be borne in mind that the therapy of these dyes is still in the experimental stage. The evidence at present available does not permit a determination of their value in the treatment of wounds, trench fever, or gonorrhoea. A number of papers have been omitted purposely from this abstract of the literature because they presented no additional contribution to the knowledge of the dyes or their therapeutic properties.

SUMMARY

A review of the literature abstracted shows that of the thirty-four reports twenty-five, or 73 per cent., may be considered as favorable. Seven, or 20 per cent., are distinctly unfavorable, and two, or 7 per cent., are in the negative or doubtful class. Of the favorable reports, eight are based for the most part on bacteriologic studies or are of a discursive nature, fourteen are based principally on clinical trials, and three appear to be deduced from a combination of bacteriologic and clinical methods. Of the unfavorable and doubtful reports, five are based on bacteriologic studies and four on clinical trials. Because of the contradictory nature of the reports and the conflicts in the clinical evidence, it would appear that judgment as to the therapeutic value of the flavine dyes should be suspended pending further study.

MEDINAL

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report on Medinal (Schering and Glatz, Inc.).

W. A. PUCKNER, Secretary

Medinal is a proprietary name applied to barbital sodium (sodium diethylbarbiturate) the sodium salt of barbital (diethylbarbituric acid). The latter was first introduced as Veronal.

Medinal was deleted from New and Nonofficial Remedies in 1916 because the advertising issued by Schering and Glatz (who then acted as agents for Chemische Fabrik auf Aelchen vorm. E. Schering, the German manufacturer) contained misleading and unwarranted therapeutic claims. The Council did not publish its report because by the time the report was ready for publication the product was practically off the American market, and it was hoped that when Medinal again became available, Schering and Glatz would revise the claims and thus permit its acceptance.

Medinal, said to be manufactured in the United States, is now marketed by Schering and Glatz, Inc. In October, 1918, the firm sent to the Council a typewritten copy of a

proposed circular for Medinal. The firm was informed that this leaflet was subject to the objections that had been raised when Medinal was deleted from New and Nonofficial Remedies. In April, 1919, the firm submitted a printed circular which it was sending out. This contained numerous misleading statements, among them, these:

"MEDINAL removes its [diethylbarbituric acid] one objectionable feature—insufficient solubility—and thus fulfills the three prerequisites of a truly rational hypnotic: Quick absorption, insuring prompt action, rapid and complete excretion, affording protection from cumulative toxic after effects, and the choice of rectal and subcutaneous administration."

There is no justification for the claim that diethylbarbituric acid (barbital) has only one objectionable feature and that a minor matter of "insufficient solubility." The Council has called the attention of Schering and Glatz, Inc., to the fact that the difference in the time of absorption between Medinal (barbital sodium) and barbital is, at the most, but one of minutes and that there is no evidence that Medinal is excreted more rapidly than barbital. Hence the claims that the danger of toxic side-actions and that cumulative after effects are avoided in this product, are wholly unwarranted.

It is also claimed, and the claim is unsupported by satisfactory evidence, that Medinal is useful in the insomnia of tuberculosis in which condition it is said to have a double advantage owing to its favorable effects on the night-sweats. It is claimed that Medinal is used in the withdrawal treatment of morphin addiction with great success; there is no evidence that Medinal has any special usefulness in this treatment of the morphin habit. It is claimed further that success has been reported with Medinal in the treatment of whooping cough. The Council knows of no satisfactory evidence to show that Medinal is of special value in whooping cough; on the contrary, it is capable of doing a great deal of harm. The recommendations that Medinal be used for the control of labor pains and in acute neuralgic pains that resist other forms of treatment are wholly unwarranted as the value of the drug in such conditions is inherently improbable and until satisfactory evidence in support of them is forthcoming, must be deemed misleading.

Correspondence

"DESENSITIZATION OF PERSONS AGAINST IVY POISONING"

To the Editor:—Under the subject, "Desensitization of Persons Against Ivy Poisoning," THE JOURNAL, Nov. 1, 1919, p. 1382, L. E. Warren of Chicago cites a dosage of a non-volatile resin as "0.001 mg." As printed, that spells one one-thousandth milligram or one one-millionth gram—rather a small dosage to juggle with, but perhaps large enough under the circumstances. But what I started to say was, Did he really mean 0.001 mg. or did he mean 1 milligram (0.001 gm.)? I have noted this apparent (to me) error in different articles and wondered whether or not I was reading comprehensively. Kindly advise me.

A. L. MANN, M.D., Elgin, Ill.

[The foregoing letter was referred to Mr. Warren, who replies.]

To the Editor:—The statement referred to by Dr. Mann, which is due to Dr. Franz Pfaff, formerly of the Harvard Medical School, is quoted correctly as printed. Several years ago I attempted (*Pharm. J.* 83:562, 1909) to verify Dr. Pfaff's experiments, using the purified resin from the poison sumach instead of that from the poison ivy (the two poisons are believed to be identical). These attempts to obtain an exact quantitative limit to the amounts which would produce symptoms were discouraging, probably from want of a sufficiently sensitive subject on which to make the tests. The fact was verified, however, that the substance is poisonous in extremely minute quantities—far less than 0.001 gm. The minute dosage is obtained by suitable dilutions in alcohol.

L. E. WARREN, Chicago.

1. The abstract will be sent to any physician on receipt of a self-addressed, stamped envelope.

## PREPARATION OF DICHLORAMIN-T

To the Editor—I believe I have found a simpler method for preparing dichloramin-T than that described on the packages put out by the pharmaceutical houses. My method is:

Weigh out amount of powdered dichloramin-T, place in mortar and rub up with small amount of chloroform (carbon tetrachlorid may be used) until all is dissolved, then add chloroacetic acid to the dissolved dichloramin-T. The chloroform is easily evaporated and thus leaves the dichloramin in solution in the solvent. By this method can be prepared a fresh solution of dichloramin-T in a few minutes, whereas the heat and cold methods take a much longer time. In the heat method, there is danger of overheating, in which a precipitation is caused, which renders the dichloramin-T useless and very irritating.

V. J. ANDERSON, M.D., Chicago.

[COMMENT—We can see no advantage over the heat method, if the chloroform or carbon tetrachlorid must be removed by evaporation. However, the use of carbon tetrachlorid (10 per cent) has been recommended for lowering the viscosity of the chloroacetic (Dakin and Dunham; Solvents for Dichloramin-T, *Brit. M. J.* 1:51 [Jan. 12] 1918); therefore Dr. Anderson's note suggests the possibility of first dissolving the dichloramin-T in carbon tetrachlorid, and then adding the proper amount of chloroacetic acid to make the solution of the desired strength.—Ed.]

## "THE CAUSE OF INFLUENZA AND ITS BEARING ON TREATMENT"

To the Editor—In the current comment with this title (*THE JOURNAL*, Nov. 1, 1919, p. 1367), the work of Bradford, Bashford and Wilson (*Quart. J. Med.*, 12:259 [April] 1919) is mentioned as the most convincing work on the filtrable virus of influenza. Evidently the writer of this comment had failed to see the paper of Arkwright (*A Criticism of Certain Recent Claims to Have Discovered and Cultivated the Filter-Passing Virus of Trench Fever and of Influenza*, *Brit. M. J.* 2:233 [Aug. 23] 1919) and the notes appended thereto by Sir John Rose Bradford (p. 236) and Capt. J. A. Wilson (p. 237). In these notes Bradford and Wilson withdraw the claim that their work has proved that the filter-passing organisms of the diseases in question have been grown in pure culture. The action of these authors in publicly withdrawing their claim is as commendable as it is unusual in scientific controversy. In fairness to them it would seem that their retraction should receive publicity at least as prominent as the discredited work for which they no longer vouch.

WARD J. MACNEAL, M.D., New York.

## "THE RANGE OF THE GENERAL PRACTITIONER IN PSYCHIATRIC DIAGNOSIS"

To the Editor—I have just read Dr. Southard's article in *THE JOURNAL*, October 25. I like to read and hear psychiatrists and neuropsychiatrists. It reveals stupidity, leads to investigation, and results in humiliation, and then there is hope for regeneration.

Why all this esotericism? Here in this astonishingly informative report made, it was discovered, by one of the best of our former psychopathic hospital interns, is the phrase, "diagnosis of a somatopsychic character." I went to my second dictionary, a good one of recent issue, to find the word "somatopsychic," but it was not there. I consulted the *Century* and Webster, the very latest editions, with the same disappointing result. Now I should like to know just what it is that has a "somatopsychic character." Do these people have a little etymological dictionary that they keep chained to the desk in the inner recesses of some sanctum sanctorum? Again, why this word "disoriented"? Bishop Whately would say confused, and he is not bad authority. This pedantic terminology affected by some writers makes me tired.

If some of these writers would read Professor James a little more and supplement that with a little book not read

much in this country, written by an Englishman under the title of "The New Word," we bungling provincial general practitioners might be benefited a little in our ideation and orientation.

O. I. HESS, M.D., Scottsdale, Pa.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## EFFICACY OF VACCINES IN PREVENTING INFLUENZA

To the Editor—Although there is no vaccine recognized as a real prophylactic against influenza, will you kindly say which, in your opinion, is the best one to try, and where it can be obtained? I presume influenza will probably come to this district again, if one can judge by past epidemics. I shall very greatly appreciate your valuable advice on this matter.

J. A. STANBING, M.D., El Paso, Texas.

Medical Director, Southern Baptist Sanatorium  
for the Treatment of Tuberculosis.

ANSWER.—The efficacy of vaccines in preventing influenza was discussed in an editorial in *THE JOURNAL*, Oct. 4, 1919, p. 1064. It was there pointed out that when the available data on the results attained by prophylactic injections of various combinations of vaccines are carefully analyzed, the conclusion seems unavoidable that their value in the prevention of influenza is unproved. The question may then be raised whether vaccination has any value in preventing respiratory infections either primary or secondary to influenza, or in ameliorating their severity in case they are not prevented. It is understood that there are at present under way in various parts of this country certain investigations which it is hoped will furnish data in answer to this question. One factor in this problem which no doubt will be taken into consideration, but on which there has been thus far but little emphasis laid, is the diversity of the pathogenic organisms which are found in the pneumonias following influenza in different parts of the country. In one region a high percentage of Pfeiffer bacilli is found, and in another a very low one; in other places streptococci predominate and in still others pneumococci, and even in the same community the dominant group of organisms today is often not that of six months ago. It is thus evident that, granting that a vaccine adjusted to one locality should turn out to be effective, it would not necessarily be equally valuable elsewhere. Much has been written, but the number of adequately controlled reports is very small. Thus far hope and imagination have exceeded scientifically controlled facts. Many vaccines come highly recommended by their manufacturers, but very little dependable evidence is submitted to show just how much, if at all, the patient will profit therefrom. If the patient desires to try the experiment knowing it to be such, there is perhaps no serious objection to the trial. Under such circumstances, just which vaccine is "the best one to try" we are not at this time in a position to advise.

## ALCOHOL IN PRESCRIPTIONS

To the Editor—In writing a prescription for alcohol, and placing the patient's name and the purpose for which it is used on the prescription, is the pharmacist compelled to put a little phenol or other poison in it or can he dispense the alcohol pure? Kindly omit name.

J. A. M.

ANSWER.—Whether denatured alcohol is used in filling a prescription depends on whether the prescription is for internal or external use and on what kind of alcohol the prescription specifies. Alcohol can be prescribed like any other drug. The strength and degree of purity is usually indicated on the prescription. Nondruggable alcohol, medicated or denatured so as to be unfit for beverage purposes, may be used for filling prescriptions if so indicated. Physicians' prescriptions calling for alcohol must be in duplicate, must be signed by the physician, and must be for a patient under the constant personal supervision of the physician. The prescription must give the name and address of the patient and the condition for which prescribed, and the name of the pharmacist to whom the prescription is to be presented for filling. The physician must keep a record giving a separate page to each patient and must enter it under the patient's name and address, the date of each prescription, the amount and kind of liquors dispensed, and the name of the pharmacist filling the prescription.

## Medical Education, Registration and Hospital Service

## Book Notices

### COMING EXAMINATIONS

**DELAWARE:** Dover, Dec. 9-11. Sec., Regular Board, Dr. P. S. Downs. Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 824 Washington St., Wilmington. Pres. Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

**FLORIDA:** Jacksonville, Dec. 15-16. Sec., Dr. G. A. Manch, 1306 Franklin St., Tampa.

**FLORIDA:** Tampa, Dec. 1-2. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.

**ILLINOIS:** Chicago, Dec. 1-3. Mr. F. C. Dodds, Supt. of Registration, Springfield.

**IOWA:** Des Moines, Dec. 16-18. Sec., Dr. Guilford H. Sumner, Central Bldg., Des Moines.

**KENTUCKY:** Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.

**LOUISIANA:** New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.

**MARYLAND:** Baltimore, Dec. 9-12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

**OHIO:** Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, State House, Columbus.

**TEXAS:** Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.

**VIRGINIA:** Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McBain Bldg., Roanoke.

### Alabama July Examination

Dr. Samuel W. Welch, chairman of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, July 8-11, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 22 candidates examined, 18 passed, and 4 failed. Ten candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year	Per Cent.
Birmingham Medical College	(1913) 76.3,	(1918)	75.8
University of Alabama	(1919) 85.5,	86.8	
Emory University	(1918)	75.2	
Chicago College of Medicine and Surgery	(1912)	86.6	
Louisiana University	(1915)	83.1	
Tulane University (1918) 81, (1919) 77.1,	78.3, 86.2,		
Johns Hopkins University	(1919)	86.6	
University of Maryland	(1918)	87.7	
Jefferson Medical College	(1903)	91.1	
University of Pennsylvania	(1906)	83.8	
Woman's Medical College of Pennsylvania	(1919)	84.6	
McHenry Medical College	(1918)	75.8	
Vanderbilt University	(1918)	81.2	
FAILED			
University of Arkansas	(1918)	46.3	
Memphis Hospital Medical College (1913) 52.1,	64.9, 69.6,		
LICENSED THROUGH RECIPROCIITY			
College	Year	Reciprocity	
Denver and Gross College of Medicine	(1905)	Illinois	
Alaia College of Physicians and Surgeons	(1903)	Georgia	
University of Louisville	(1903)	Kentucky	
Tulane University	(1916, 3)	Louisiana	
Johns Hopkins University	(1916) Pennsylvania,	(1917) Maryland	
Vanderbilt University	(1912), (1917, 2)	Tennessee	

### Maine July Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration in Medicine, reports the written examination held at Augusta, July 1-2, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 31 candidates examined, 30 passed and 1 failed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year	Per Cent.
Bowdoin Medical School (1919) 80, 81, 81, 83, 83, 84, 84, 85, 85, 85, 87, 87, 88, 88, 89, 89			
University of Maryland	(1917) 80,	(1918) 87	
Harvard University	(1918) 85, (1919) 85, 86, 87, 89, 89		
Tulane College Medical School (1901) 83, (1917) 83, (1918) 87, (1919) 88			
St. Louis University	(1918)	83	
University of Oregon	(1892)	77	
FAILED			
Western University	(1912)	72	
LICENSED THROUGH RECIPROCIITY			
College	Year	Reciprocity	
University of Maryland	(1918)	New Hamp.	
Columbia University	(1890)	Del. C. M.	
Columbia Medical C.	(1890)	Del. C. M.	

**THE STUDENT'S TEXTBOOK OF SURGERY.** By H. Norman Barnett, F.R.C.S., Major, and Officer Commanding 32d South-Western Mounted Brigade Field Ambulance. Cloth. Price, \$7.50. Pp. 794, with 143 illustrations. St. Louis: C. V. Mosby Company, 1919.

It is frequently difficult to give a just appraisal of a book, and there is always danger of doing an injustice to the author by allowing a few minor faults to warp our judgment so that a really meritorious product fails to receive just appreciation. Nevertheless, works that are intended as models for students and as authoritative sources of information for the general profession must maintain a high standard; inaccuracy and dogmatic dismissal of accepted belief cannot be tolerated; and truth must not be sacrificed for the sake of brevity. This book is a British book, and in its failure to appreciate the contributions of American investigators, is a typical expression of the European state of mind. In most sections the work is excellent; in others, we miss much that has seemed of importance. For instance: In the discussion of the treatment of burns, the picric and boric acid methods receive brief attention to the exclusion of all others. In the section of surgical infections, we look in vain for mention of blastomycosis, sporotrichosis and coccidioidal granuloma. Shock is said to be due to exhaustion of the vaso motor center, although physiologists have shown that in experimental shock the vasomotor center is not exhausted. Pancreatitis is described as being always due to infection of the pancreas, this in spite of the fact that at least 50 per cent. of pancreatic abscesses are sterile, and without regard to the work of Flexner, Opie, Archibald and others showing the extreme toxicity of pathologic bile when regurgitated into the pancreas. Cholecystotomy is mentioned as the method of choice in the treatment of the great mass of surgical gallbladders, regardless of the fact that in most of the great American clinics cholecystectomy is the rule. For the man who has sufficient knowledge of surgery to read with discrimination, this book may be of considerable value; for the student, for the man who is just beginning the study of surgery, it were wiser to choose a more catholic guide.

**DYKE'S AUTOMOBILE AND GASOLINE ENGINE ENCYCLOPEDIA.** Containing 532 Charts, Inserts, Dictionary, Index, and Supplements on the Ford, Packard, Airplanes, and Liberty "12" Engine. Treating on the Construction, Operation and Repairing of Automobiles and Gasoline Engines. Also Trucks, Tractors, Airplanes, and Motorcycles. By A. L. Dyke, E.E. Tenth edition. Cloth. Price, \$5. Pp. 940, with 3,262 illustrations. St. Louis: A. L. Dyke, 1919.

This book is what its title expresses, and contains excellent diagrammatic plates of the various automobiles, engines, ignition systems, carburetors, etc. Special attention is devoted to the Ford car. For instance, the book states how to rebuild a Ford so that it will go sixty miles an hour—if one has the courage to make that speed in a Ford. It also illustrates the new electric system of this car. A thorough search, however, fails to reveal any methods for making the back seat comfortable or cutting out the rattle. To the physician whose automobile is as essential in his work as is his stethoscope, sphygmomanometer or thermometer, this book will be found useful.

**PSYCHIATRIC NEUROLOGIC EXAMINATION METHODS WITH SPECIAL REFERENCE TO THE SIGNIFICANCE OF SIGNS AND SYMPTOMS.** By Dr. ARND WIMMER, Director St. Hans Hospital, Roskilde, near Copenhagen. Denmark. Authorized Translation by Andrew W. Hosholt, M.D., Medical Superintendent, Napa State Hospital. Cloth. Price, \$2. Pp. 177, with illustrations. St. Louis: C. V. Mosby Company, 1919.

The author presents a systematic method for examining patients with neurologic or psychiatric disturbances. The book is instructive in that it gives numerous suggestions as to what to look for and how to describe what is seen or found. The language of neurology contains numerous trade terms with which the average general practitioner is usually wholly unfamiliar; e.g., "muscatating delirium," "motor stereotypy," "carphology." Those working in this field must of course familiarize themselves with this terminology. The translation is good, and the book a useful one.

## Medicolegal

### Power to Exclude Defective Child from Schools

*State ex rel. Beattie v. Board of Education of City of Antigo (Wis.), 172 N. W. R. 183*

The Supreme Court of Wisconsin, in this action of mandamus brought to compel the defendant board of education to reinstate and admit the petitioner's son to the public schools of the city, reverses a judgment that was rendered in favor of the petitioner, and remands the cause with instructions to dismiss the petition. The court says that the boy had been a crippled and defective child since his birth, being afflicted with a firm of paralysis which affected his whole physical and nervous make-up. He had not the normal use and control of his voice, hands, feet and body. He was slow and hesitating in speech, and had a peculiarly high, rasping and disturbing tone of voice, accompanied with uncontrollable facial contortions, making it difficult for him to make himself understood. He also had an uncontrollable flow of saliva which dribbled from his mouth on his clothing and books, causing him to present an unclean appearance. He had a nervous and excitable nature. It was claimed, on the part of the school board, that his physical condition and ailment produced a depressing and nauseating effect on the teachers and schoolchildren; that by reason of his physical condition he took up an undue portion of the teacher's time and attention, distracted the attention of other pupils, and interfered generally with the discipline and progress of the school. But it appeared that he was normal mentally, and kept pace with the other pupils in the respective grades. A representative of the state department of public instruction suggested that he be placed in the department for the instruction of deaf persons or persons with defective speech, but the boy refused to attend that department.

The right of a child of school age to attend the public schools of Wisconsin cannot be insisted on when its presence therein is harmful to the best interests of the school. This, like other individual rights, must be subordinated to the general welfare. It will be conceded, the court thinks, that the statement of facts presented a fair question as to the effect of the boy's presence on the school and the individual pupils attending it. The question then arose as to what body or tribunal was vested with the authority of determining the question. The trial court seemed to be of the opinion that, while such authority rested with the school board in the first instance, its action in that behalf was reviewable by a jury and subordinate to the jury's opinion thereon. But the supreme court holds that, the board having acted, its determination should not be interfered with by the courts unless it acted illegally or unreasonably. That it acted legally was without question. That it acted unreasonably could not be said. The duty confronting the board was a delicate one. It was charged with the responsibility of saying whether this boy should be denied a constitutional right because the exercise of that right would be harmful to the school and to the pupils attending it. He should not be excluded from the school except for considerations affecting the general welfare. But if his presence in school was detrimental to the best interests of the school, then the members of the board could not, with due regard to their official oath, refrain from excluding him, even though such exclusion might be displeasing and painful to them.

### Errors of Judgment—Evidence Requirements

*(Parker v. Apple (Kan.), 180 Pa. R. 771)*

The Supreme Court of Kansas, holding that, there being no evidence to justify a judgment against the defendant, it was error to grant the plaintiff a new trial after a verdict had been rendered in favor of the defendant, reverses the order granting a new trial, and remands the cause with directions to render judgment for the defendant. The court says that the action was to recover damages alleged to have resulted from the malpractice of the defendant in the treatment of a fracture of the femur of the plaintiff's right leg,

about three inches above the knee. But, in a city with many able and skillful physicians and surgeons, the only expert called to testify on behalf of the plaintiff was a physician who neither criticized nor condemned the methods employed by the defendant in the treatment of the plaintiff's injury. Non-expert witnesses can testify as to external appearances and manifest conditions observable by any one; but whether a surgical operation has been performed with a reasonable degree of skill, knowledge and care, and whether the patient was thereafter skillfully and properly treated, are questions of science, to be established by the testimony of witnesses of special skill and experience, and not by the testimony of those who are without special learning and skill as to such operations and practice. The burden rested on the plaintiff to show affirmatively that the conditions he complained of were caused by the failure of the defendant to exercise ordinary skill and care in performing the operation of reducing the fracture, or in the subsequent course of treatment for the injury. In a very early case, this court recognized the doctrine that a physician or surgeon is not held to the exercise of the highest degree of skill, or as warranting a cure or the success of an operation.

A physician or surgeon cannot be held liable for the results of an honest error in judgment, if it is shown that he possesses a reasonable degree of skill and learning in medicine and surgery, and that he used ordinary skill and care in the diagnosis, operation and treatment of the plaintiff. It is true that the physician is bound to possess and exercise that degree of skill which is ordinarily possessed by physicians in practice; but when his errors are those only of judgment, if he keeps within recognized and approved methods, he will not be liable for their consequences.

It has never been the rule that a lawyer who is not shown to be unskilled in his profession is liable because a client sustains damages by following his advice, honestly given, but which is subsequently determined by a final decision of a court to be erroneous. A physician stands in the same attitude as to liability for his mistakes as does a lawyer. No reason can be assigned for making a distinction between them, or for holding a physician or surgeon liable in damages for an honest error in judgment. A moment's reflection on the circumstances and emergencies under which physicians are frequently called on to act will demonstrate some of the disastrous results that would follow if the law permitted them to be mulcted in damages on testimony as to the character of their professional services given by nonexpert witnesses. If such were the law, physicians and surgeons might as well be held to guarantee a successful cure or a successful operation in each instance. Negligence of a physician or surgeon cannot be presumed from the mere failure to obtain the best results from an operation or treatment; and in this case, there being no proof of a want of skill or care on the part of the defendant it was error to set aside a verdict rendered in his favor and grant the plaintiff a new trial.

### Statements Made to Physician Long After Accident

*(Boulanger v. McQuestin & Lewis (N. H.), 106 Atl. R. 492)*

The Supreme Court of New Hampshire overrules an exception to the exclusion, in a personal injury case, of a question asked a physician as to what history the plaintiff gave him when he consulted him for treatment more than a year after he was injured. The court says that the history given the physician by the plaintiff over a year after the accident was not admissible as evidence of the accident or in corroboration of the plaintiff's statements at the trial. This was too plain for discussion, and the only ground on which the admissibility of the question was being urged was that the physician's information as to the cause of the injury was competent as explaining and giving weight to his conclusions. If the purpose of the inquiry was under the pretext of offering evidence of the foundation of the physician's opinion to violate the general rule excluding prior statements of the party, the evidence was properly excluded. Whether, if the ground of admission claimed was presented to the trial court, the evidence should be excluded because of lack of good faith in offering it, was necessarily for the trial court, as depending on the determination of a question of fact.

## Society Proceedings

### COMING MEETINGS

Medical Society of Hawaii, Honolulu, Nov. 29-30, Dec. 1.  
Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
Southern Minnesota Medical Assn., Mankato, Dec. 1-2.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Dec. 5-6.

### AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Seventh Annual Meeting, Held in New Orleans, Oct. 27-30, 1919

The president, DR. LEE K. FRANKEL, New York, in the Chair

#### Spread of Typhoid in Massachusetts

DR. GEORGE T. O'DONNELL, Boston: The experience of the Massachusetts State Department of Health shows that flies, food (exclusive of milk), privies and sewage are relatively small factors in the spread of typhoid fever at the present time in the state. Very few cases are due to water, especially in recent years, and in general no municipal supply is considered as a dangerous source of typhoid infection. Milk as a means of spreading typhoid infection was responsible for 8.1 per cent. of the total cases reported in Massachusetts the past ten years. Contact with clinical cases of typhoid is the most frequent known method of the spread of the infection. Contact with noncarriers has been responsible for a few cases in homes and neighborhoods. Carriers were proved to be responsible for 41.6 per cent. of cases of milk-borne typhoid from 1915 to 1918, inclusive. Carriers are a larger factor in the spread of typhoid than at present known, and are the cause probably of an appreciable number of typhoid cases of unknown origin.

#### DISCUSSION

DR. HERMAN BUNDESEN, Chicago: No case of typhoid should be terminated until we have had two negative feces and two negative urine examinations in the case of persons who are not handlers of food. We require more than two negative examinations in food handlers. In Chicago we had eighty-seven cases of typhoid traceable to one carrier.

DR. H. W. HILL, Minneapolis: I should like to ask Dr. O'Donnell whether he attaches any importance to flies as carriers of typhoid infection; also, whether in Massachusetts they have compulsory hospitalization of typhoid patients.

DR. JOHN DILL ROBERTSON, Chicago: We believe in the strict enforcement of the pasteurization ordinance. Our death rate from typhoid is less than 1 per cent. In 1918 it was 1.4 per cent. We hospitalize every case in which proper care cannot be given the patient at home. No nurse is allowed to have anything to do with any other case while attending a typhoid patient; hence we have very few cross infections on that account.

DR. GEORGE T. O'DONNELL, Boston: We have failed to find an instance in which we could prove that secondary infection was due to flies. Hospitalization of typhoid cases is practiced throughout Massachusetts. As to the pasteurization of milk, of more than 8,000,000 quarts of milk, we know positively that more than one third of that amount was pasteurized. Over 90 per cent. of the people in Massachusetts have a pure water supply.

#### Leprosy

MR. JOHN A. VOGELSON, Philadelphia, introduced the following resolution which was unanimously adopted:

Resolved, That the health officers of this section of the American Public Health Association tender to the United States Public Health Service their hearty support and cooperation in carrying out the provisions of the act of Congress providing for the care and treatment of persons afflicted with leprosy, and to prevent the spread of this disease in the United States, and urge that such a provision be carried into effect at as early a date as practicable.

#### DISCUSSION

DR. ARCHIBALD HOYNE, Chicago: Cases of leprosy should be hospitalized the same as cases of tuberculosis. We have had a few lepers in Chicago in the last few years. Chaulmoogra oil, given once or twice a week, intramuscularly, in

increasing doses, has been followed by remarkable improvement.

DR. H. R. CARTER, Baltimore: There is good reason to believe that leprosy is rarely or never communicated to elderly persons. In taking care of lepers I would suggest that elderly nurses be employed, as the risk of such people contracting the disease is absolutely nil.

#### Report of Committee on Venereal Diseases

DR. W. F. SNOW, Washington, D. C.: We cannot do anything in a legislative way unless we have the support of the public. The outstanding points in civil life are the untreated cases of venereal diseases, on which we should concentrate our attention, and on those persons who never seek treatment. They do not know they are infected. Others, almost equally important as spreaders of the disease, are the missed patients who present themselves for treatment. Next come the uncured patients, who must be followed up. Failure to make a diagnosis and institute treatment in suspected cases and carriers is one of the great sources of the spread of these diseases.

#### Administrative Measures Against Influenza

DR. ALLEN W. FREEMAN, Columbus, Ohio: The hypotheses on which we have operated up to this time are that (1) influenza is caused by a specific living virus; (2) the portals of entry of this virus are the nose and the mouth; (3) this virus is contained in the secretions from the nose, mouth and respiratory tract, and (4) the virus is communicated by transference of sputum and nasal secretion through direct or indirect contact, and by droplet infection from coughing and sneezing. No convincing experimental evidence has been advanced in support of any of these hypotheses. On this basis, however, various preventive measures have been proposed, of which the most important are: (1) isolation of patients; (2) prohibition of public gatherings; (3) masking of the general population; (4) general vaccination with anti-streptococcal or mixed vaccines, and (5) general educational propaganda. The practically unanimous verdict of laboratory workers, however, is to the effect that the true virus of influenza has not yet been isolated and that such a vaccine cannot yet be prepared. Until additional evidence is produced regarding existing vaccines or until a truly specific vaccine is developed, general vaccination cannot be considered a sound administrative procedure. Our energies, therefore, must be directed rather to the prevention of fatal complications than to the prevention of influenza itself. For this purpose, adequate medical and nursing service and properly equipped hospitals should be organized and made available for instant use. In these hospitals and in the home care of patients, every effort must be made to prevent secondary and cross infection.

#### American Red Cross Health Crusade Against Influenza in Cincinnati

DR. WILLIAM H. PETERS, Cincinnati: Early in February, all of the institutions caring for dependent persons were crowded. Medical care, nursing service and maternal relief for those whose health and income had been shattered was given through the American Red Cross health crusade organized by the Cincinnati chapter influenza committee, cooperating with the board of health and the existing social agencies of the city. During the first four months of operation, 13,772 influenza subjects were listed, and 5,624 were found to be in need of some kind of medical, surgical or dental aid. Particularly well done was the follow-up of tuberculosis cases, which approached as nearly as is possible 100 per cent. Nearly 50 per cent. of the children under 5 who had influenza gave a positive von Pirquet reaction.

#### What Medical Examination of Influenza Patients Has Shown in Framingham, Mass.

DR. D. B. ARMSTRONG, Framingham, Mass.: Previous to the influenza epidemic, about 12,000 people in Framingham, out of a population of 17,000, had had a medical examination; hence the follow-up system after the influenza epidemic was considerably facilitated. Does influenza increase the tuberculosis incidence? It does not appear that there

has been thus far reported an increased tuberculosis incidence following the influenza epidemic, so far as our experience is concerned. Has the epidemic increased the tuberculosis mortality? Judging by the evidence as regards the incidence of the disease, we are forced to the tentative conclusion that there will probably not be an increase in tuberculosis mortality. What does influenza do to the arrested tuberculosis case? In Framingham, 4 per cent of tuberculosis patients had influenza. The disease stimulates a certain amount of activity, but in most of these arrested cases which have been in some degree lighted up by the influenzal infection, a very satisfactory rearrangement of the disease takes place, and most of these patients are back at work and are living fairly normal lives again. It has been said that influenza attacks husky persons rather than weaker ones. This raises a question which has a bearing on a general health educational problem, namely, is it really a hazard to be healthy? May it not be that the shoe is on the other foot; that it is not so much a hazard to be healthy as it is an advantage to be weak? People who had tuberculosis had very little influenza. In our community the Irish and Irish-Americans had ten times as much tuberculosis as the Italians, and had only one fourth as much influenza.

## DISCUSSION

DR. HAMILTON P. JONES, New Orleans: In my experience at Fort Bliss, Texas, during the recent influenza outbreak, all true cases of influenza were clinically cases of bronchopneumonia. Routine cultures were made from the nasopharynx for pneumococci, hemolytic streptococci, *Streptococcus viridans*, and later, for a new streptococcus which we called a methemoglobin producing streptococcus. We found that certain organisms apparently had a higher percentage of carriers than others; that there was a definite relation between the number of carriers in a given regiment and the number of cases of pneumonia entering the hospital—the higher the number of carriers the greater the number of cases of pneumonia and the greater the number of deaths. We succeeded in having a general order issued for the bacteriologic examination of all the men. They were given some form of nasal treatment—2 per cent solution of the Gramin-T in liquid petrolatum as a nasal spray, and the nostrils were painted with a 10 per cent aqueous solution of copper sulphate. In February, eighty-two cases of bronchopneumonia were admitted to the hospital. In March, nine; in April, none. No vaccines were used in this locality, except in one organization and with apparently no protective effect.

DR. FREDERICK GUEST, London, Ont.: In an overseas hospital in which many cases of influenza were treated, we adopted the plan of opening the windows at the top and bottom and establishing free ventilation, and to this measure we attribute our success in treatment and the low death rate.

DR. H. L. ROCKWOOD, Cleveland: There is no better way of increasing the immunity of individuals than to raise the resistance of the mucous membranes of the respiratory passage, and this measure will do this better than ventilation.

MR. LEWIS I. DUBLIN, New York: The mortality from tuberculosis of all forms was slightly lower in the first nine months of 1918 than in the first nine months of 1917. In the remaining three months of 1917 the mortality increased 1 per cent from tuberculosis, as against an increase of 1 per cent in 1918. The patients with advanced tuberculosis who were attacked by influenza died quickly. In 1918, from the time of the epidemic in the early spring of the year, there was a marked increase in the mortality from tuberculosis, as compared with the preceding five years. The conclusion is that influenza had an effect on tuberculosis, it had a beneficial effect.

DR. CHARLES A. HASTING, Toronto, Ont.: Disinfecting the throat and nose is not an absolutely safe procedure. A preparation that is strong enough to be of any value in that connection irritates the mucous membranes and thus lowers the natural resistance of the individual and makes him more susceptible to the disease. One reason why husky individuals are more frequently attacked with influenza than frail persons is that the latter go to bed, they rest, they

take good care of themselves, while the robust individuals stay up late at night, and if they feel a little indisposed they will not go to bed and take proper care of themselves as they should; hence they lower their resisting powers and become a prey to influenza and its complications.

DR. JOHN DANIEL ROBERTSON, Chicago: Every health officer should utilize to the fullest extent the medical and lay press for public health education. In Chicago we have established a training school for home nursing to meet the needs of the people when an epidemic of influenza is prevailing.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF  
PENNSYLVANIA

Sixty-Ninth Annual Meeting, held in Harrisburg, Sept. 22-25, 1919

(Continued from page 1468)

## Diagnosis of Cholecystitis and Gallstone

DR. DAVID RIESMAN, Philadelphia: There are few conditions in the body that create such confusing pictures as disease of the gallbladder. Gallstone disease appears in two principal forms: (a) in the form of recurrent attacks with intervals of fairly good health, and (b) in the form of ill-defined gastro-intestinal symptoms that may point to gallstone, gastric ulcer, duodenal ulcer, appendicitis and other conditions. As a normal gallbladder can never be felt, a palpable gallbladder is *ipso facto* proof of disease. There are several points of value: A history of acute indigestion or of ptomain poisoning should arouse suspicion. Acute indigestion, so often given as the cause of death or as the cause of very sharp abdominal pain, is generally a misnomer. If it comes on without any warning in an adult in middle life, it is usually either angina pectoris or biliary colic. The presence of gallstones in the feces is not common, but I think if we had our patients look for stones systematically after all sudden attacks of pain in the upper abdomen, they would be found more frequently.

## DISCUSSION

DR. J. J. GILBRIDE, Philadelphia: No part of the body is more neglected than that involved in disease of the gallbladder. Therefore, in these cases one should not wait to find all the symptoms, for in such cases the disease dates back many years. In chronic disease the common symptoms are indigestion, distress and periodic pain. A stone in the gallbladder may not produce any symptoms whatever, except indigestion and pain. If there is an infection, there will be jaundice. In stone in the common duct there is practically always jaundice. Sometimes there is nothing but a history of pain. In the absence of jaundice, a clear history of pain is the most valuable symptom. It may be referred to the right shoulder, to the left shoulder, or to the left side. Occasionally the pain may be referred to the umbilical region. I have seen cases of gallstones in which pressure over the gallbladder did not produce any tenderness whatever.

## Value of Roentgenologic Study of Gastro-Intestinal Tract

DR. HENRY K. PANGCAST, Philadelphia: The roentgen-ray examination of the gastro-intestinal tract is in no way to be regarded as a substitute for a careful and thorough clinical study of a case. It has a well recognized and established place as a method of examination to assist in reaching correct conclusions, just as has the clinical study, and it has well defined limitations with which every one should be conversant. An examination of the gastro-intestinal tract is in a large measure, aside from the observation of filling defects, a physiologic study by an unusual means of watching the mechanism of the progress of an opaque meal for the purpose of detecting interference with normal physiologic action. It therefore requires time and patience on the part of both patient and examiner. A complete study cannot be accomplished in less than three days. The making of three or four roentgenograms without a proper roentgenoscopic study is not the correct or accurate way of making a gastro-intestinal study. Such examinations are usually a waste of

time and also a poor investment, and the conclusions, being without foundation, may be misleading and even dangerous. More men are specializing in roentgenology now than ever before. The new man has usually completed a thorough course of training, but he must continue to read, study, attend meetings and visit others and see their work, because advances in roentgenology are so rapid that one soon falls behind, and the hermit roentgenologist rapidly becomes a useless member. Roentgenology is not a field for fanciful diagnoses unless one is very certain of his premises.

DISCUSSION

DR. JOHN H. GIBBON, Philadelphia: The advancement in the diagnosis of gastro-intestinal lesions has been greatly due to what the roentgenologists have done, but we must avoid the danger of operating on the interpretation of an inexperienced roentgenologist or on the apparent lesion shown in the roentgenograms.

Surgical Treatment of Lesions of the Gastro-Intestinal Tract

DR. ALFRED C. WOOD, Philadelphia: The perforated ulcer is always a surgical condition. Each hour of delay lessens the chance of recovery. On the other hand, chronic ulcers, including those accompanied by hemorrhage, should be treated medically, at least for a time. After medical measures have been given a fair trial without permanent relief, it would be proper to have the surgeon join the physician in the case. After operation for ulcer, the patient should be returned to the internist for a prolonged course of observation, and such dieting and other treatment as may be necessary to promote rapid and complete healing of the ulcer, as well as to restore the normal gastric functions. Patients with carcinoma of the stomach come to the surgeon when only a palliative operation can be done, and in many instances even this is not possible. If a larger measure of benefit is to be offered these patients, operation must be done much earlier in the future than it has been in the past. Every case of carcinoma of the gastro-intestinal tract is a surgical problem from the beginning, yet almost every one of these patients has been under medical observation and treatment for a more or less prolonged period if not throughout its whole course. Pancreatitis is frequently, if not in most instances, the result of infections of the bile tract; the only means known at present to prevent pancreatitis is to deal promptly and radically with cholecystitis and cholangitis. The most important factor in its treatment is efficient biliary drainage.

DISCUSSION

DR. HAROLD L. FOSS, Danville: Errors in diagnosis are due to carelessness rather than to lack of knowledge as to how the diagnosis should be made. A number of years ago I investigated the errors in the diagnosis of abdominal conditions in one of the largest clinics in this country and found that the gross errors as proved at the operating table were about 10 per cent. That is in a clinic where every possible means is exercised in determining the correct diagnosis before the patient is sent to the hospital. There are experts in every particular branch, so the patient receives the benefit of these examinations; and yet in that great clinic they are making about 10 per cent. gross errors in abdominal disease; 65 per cent. had to do with the duodenum, gallbladder and appendix. Roentgenology does not help us in any part of the body to such an extent as it does in early carcinoma of the pylorus.

DR. LAWRENCE LITCHFIELD, Pittsburgh: I have observed a case in which root pains from a growing tumor pressing on the spinal cord had caused several abdominal operations. How many surgeons test the patient who is suffering from acute or chronic abdominal pains for ankle clonus or disturbance of sensations in the lower extremities? How many surgeons have operated on the abdomen in the presence of ankle clonus? Another question for the internist: Patients come with glycosuria, the condition is diagnosed as diabetes, and treatment is begun, when a careful search into the history may give vague symptoms of gallbladder disease which may lead to the diagnosis of pancreatitis, and dram-

age of the gallbladder may clear up the glycosuria. The case may not have been one of true diabetes at all. Many cases of perforative peritonitis do not present the traditional picture as to gravity. The history may strongly suggest perforation, but the physical examination does not seem quite to warrant entering the abdomen. I have seen two deaths in which surgeons had refused to open the abdomen because the patient did not seem ill enough. In cases of suspected malignancy, abdominal section will do no harm and may be an eye opener as well as an abdomen opener.

DR. JOHN A. LICHTY, Pittsburgh: Dr. Pancoast struck the keynote in roentgen-ray work, that is, it has to be coordinated with conditions in general. The roentgenologist who establishes a diagnosis will have to be a pathologist and a clinician. An operation for cholecystitis should not be done without making a Wassermann test to determine whether or not syphilis is present. A colleague opened the abdomen for chronic appendicitis and found a gumma on the ileum.

DR. THOMAS McCRAE, Philadelphia: Mistake in operation is often made on account of careless examination. It is often contributed to by bad palpation. The physician often starts in with what I call the finger-poking method and palpates the abdomen with the tips of the fingers. The first point in abdominal palpation is to use the flat of the hand and palpate gently. A disease responsible for a certain number of wrong diagnoses is prostatitis. Many abdomens have been entered for this with referred pains. Many of the statistics as to gastric ulcer cured by operation are based on observations that do not extend sufficiently long. As regards carcinoma of the stomach, I have seen many cases in which operation was out of the question, except to relieve pyloric stenosis. I feel very doubtful of making a tremendous advance because we do not get the patients early enough. A campaign of education may help in ten, fifteen or twenty years.

DR. ALFRED C. WOOD, Philadelphia: I have one clear recollection of a carcinoma studied in the medical ward because the signs were obscure. The physician said: "He has symptoms that might point to ulcer or carcinoma; his hemoglobin is 60 per cent., his red cells, 3,000,000. He is a little sallow, but we will treat him for ulcer, and, if he improves, we will know that he has ulcer." He was treated *secundum artem* and improved. The red cells increased to 4,500,000. He gained in weight, and the diagnosis was "ulcer." He was sent home. In a short time he came back to the hospital. He was much worse. He was then subjected to operation, when an inoperable carcinoma of the stomach was found. A patient with carcinoma can be built up in regard to blood, weight and so on.

Epidemic Cerebrospinal Meningitis: Diagnosis and Treatment

DR. JOSEPH SAUER, Philadelphia: The two features of importance in the management of meningitis are prophylaxis and serum treatment. Prophylaxis at the present day can be accomplished by the recognition, segregation and treatment of carriers. Chronic carriers may require segregation for a long time, and there is no known certain method of clearing them. Treatment of the disease by serum is specific, and the most important method of administration is intrathecal. The intravenous administration may also be employed, particularly in cases in which there is found general blood infection, or evidence of purpuric eruption or of localization in some of the internal organs. The amount of serum should be the most that can safely be administered, and it should be given from one to three times a day in the early stages and at the earliest possible moment in the case. We are still in doubt regarding the efficacy of vaccines. Other methods of treatment are either useless or of such minor importance that they do not demand consideration. Great care should be taken not to administer serum during serum fever. The latter may be mistaken for a recrudescence.

DISCUSSION

DR. LAWRENCE LITCHFIELD, Pittsburgh: I gave Flexner's serum intravenously as well as intraspinally in all my meningitis cases. It seemed to me that the patients did better.

two men with pneumonia recover! In my meningitis patients who refused water and to whom we could not give a sufficient amount by the bowel I found that the very free use of glucose intravenously was very often decidedly beneficial and in many cases apparently life saving.

Dr. M. HOWARD FUSSELL, Philadelphia: When Flexner first advised the treatment of meningitis with serum, it seems to me our results were better than they are at the present time, and I would ask whether Dr. Sailer has noted any difference in the serums made by different manufacturers.

Dr. B. FRANKLIN RYER, Philadelphia: Much depends on when the serum is used in the epidemic as well as in the disease itself. Certainly, our results were better when treatment was given as early as the second day.

Dr. THOMAS KLEIN, Philadelphia: In 1916 I treated a number of cases of cerebrospinal meningitis in Dr. Sailer's service, giving the antimeingitococcal serum intravenously. In a series of seventy-seven cases the mortality was 18 per cent. Then and at Camp Dix we thought the intravenous administration obviated the necessity of the large dose in the spinal canal, and in that respect I think the intravenous method has the advantage over the intraspinal method alone. Our mortality in cases not treated by the serum was about 40 per cent. The intravenous administration was begun as early as possible, with 30 c.c. of diluted serum, repeated every eight or sixteen hours as demanded.

Dr. JOSEPH SAILER, Philadelphia: I believe the indication is that in all cases of meningitis, isolation of the most careful character should be practiced. That ward infection is rare is no reason why every possible precaution should not be taken.

(To be continued)

#### MINNESOTA STATE MEDICAL ASSOCIATION

Fifty-First Annual Meeting, held in Minneapolis, Oct. 1-3, 1919

(Concluded from p. 1465)

#### A New Operation for Pyothorax: The Trephine Operation

Dr. A. C. STAUBAUER, Minneapolis: This operation consists of trephining a rib. It affords an air-tight joint for the ventilation of the continuous, even, negative pressure suction pump with provision for irrigation with surgical solution of carbated soda. The operation may, and usually has been, performed under local anesthesia. Mutilation deformity, and permanent fixation with fixation of the adjoining ribs, is avoided. All discharges are collected in the receiving bottle, obviating the necessity of repeated dressings. The suction prevents the accumulation and retention of pus in the pleural sac, and the absorption of the contained toxins. The likelihood of introducing secondary infections is less than in open drainage.

#### Rational Treatment of Carcinoma of the Uterus

Dr. J. WARREN LITTLE, Minneapolis: In carcinoma of the body of the uterus, a panhysterectomy should be done followed by prophylactic radiation. In cervical carcinoma in the operable stage, either a panhysterectomy followed by radiation or cauterization or a thorough radiation without operation.

Axillary or enter results can be obtained from radiation alone. It is usually no danger or pain to the patient, and is not interfering beyond the point at which the knife can be used. In general cases, radium is much superior to any other treatment. Large fungating masses producing hemorrhage may be removed with the cauterium followed by radium. I have abandoned the Percy cautery for radium. I do not advocate the Wertheim operation because of its high mortality, mainly its serious sequelae, and because there are too few cases for the difficulties and dangers encountered.

#### Paralysis of Abducens Nerve Secondary to Mastoiditis

Dr. GEORGE C. DITTMAN, St. Paul: I have had two cases. In both patients recovered one after mastoidectomy and the other with conservative treatment and the injection of 2 c.c. of 1 per cent. (ear the 3rd) neutralized will gum camphor, into the middle ear every other day. No doubt the condition is due to an an anlysis of the sixth nerve in its relation to the petrous portion of the temporal bone. I believe that

the infection spreads by way of the tympanic cavity and not through a mastoid route. Mastoid operation or early and free drainage of the middle ear is indicated in all cases.

#### Sustaining Value of Repeated Blood Transfusions in Pernicious Anemia

Dr. FREDERICK H. K. SCHAAF, Minneapolis: A patient who had pernicious anemia was transfused fifty-four times, receiving a total of 34,235 c.c. of blood. Forty-nine transfusions were necessary to produce the second remission, which was of five months' duration. The sodium citrate method is the method of choice, especially since the percentage of reactions has been reduced and their harmlessness has been proved. It is the procedure of choice in hemophilia, purpura and melena neonatorum. Blood transfusion is far superior to the injection of salt solution, when more than merely a momentary effect is desired. It will often save a case of acute or chronic bleeding, and permit surgical intervention otherwise impossible. In cases of severe streptococcal infections, transfusion is of no value, but in low grade subacute infections, and in toxemias, it will increase the patient's resistance and help toward recovery. In pernicious anemia in a majority of cases, it will produce immediate general improvement and facilitate feeding by increasing the appetite and causing the disappearance of nausea and other annoying symptoms when other therapeutic measures would require weeks to produce the same effects. In many cases of pernicious anemia, transfusion may cause a remission, but whether by direct stimulation of the bone marrow or indirectly by improving the general condition and circulation has not been decided. Transfusion may have to be repeated again and again to keep the patient alive until another remission occurs. In pernicious anemia the transfusion of blood has a decidedly beneficial influence, but has no curative value whatsoever.

### Current Medical Literature

#### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Ophthalmology, Chicago

October, 1919, 2, No. 10

- Tuberculosis of Retina. E. Jackson and W. C. Finnoff, Denver.—p. 715.  
Treatment of Daercyocystitis by Curettage (Thompson): Supplemented by Immediate Rapid Dilatation of acrimonial Duct. J. Green, Jr., St. Louis.—p. 723.  
Recurrent Spontaneous Retinal Hemorrhage of Probable Tubercular Origin. R. H. Buck, Chicago.—p. 731.  
New Operation for Relief of Conical Cornea. L. W. Fox, Philadelphia.—p. 738.  
Experiments on Rabbits with Arspenamin. J. A. Johnson, Tacoma, Wash.—p. 741.  
Spontaneous Rupture of Morgagnian Cataract. J. de J. Gonzalez, Leon, Gto., Mexico.—p. 743.  
Case of Traumatic Pulsating Exophthalmos. R. S. Magee, Topka, Kan.—p. 744.

#### Archives of Neurology and Psychiatry, Chicago

Nov. 1, 1919, 2, No. 5

- Some Neurologic Aspects of Reconstruction. H. Cushing, Boston.—p. 493.  
\*Cutaneous Sensibility in Cases of Peripheral Nerve Injury: Epicritic and Protopathic Hypothesis of Head Untenable. S. Cobb, Boston.—p. 505.  
Supplementary Muscle Movements in Peripheral Nerve Lesions. L. J. Pollock, Chicago.—p. 518.  
Misleading Motor Symptoms in Diagnosis of Nerve Wounds. A. H. Woods, Philadelphia.—p. 532.  
\*Eye Symptoms in Pseudotumor Cerebri: Report of an Additional Observation. A. Lutz, Havana, Cuba.—p. 539.  
Hysteria in Light of Experience of War. A. F. Hurst, London, Eng.—p. 562.

Cutaneous Sensibility in Peripheral Nerve Injury.—A review of the experimental and clinical work on cutaneous sensibility Cobb claims indicates that the epicritic and protopathic hypothesis of Head and his collaborators should be abandoned. Dissociations of sensation due to peripheral nerve lesions arise from comparing stimuli not only quali-

tatively different but quantitatively unequivalent. In short, they are artefacts. Clinical examinations should be simple, and since areas of dissociated sensation in peripheral nerve lesions are shown to be due to artefact, examination for one mode of sensation suffices for diagnosis. For clinical sensory examinations quantitatively standardized stimuli should be used. Subcutaneous pressure is best tested with an instrument which gives the threshold values in grams. Hyperalgnesia may follow the course of superficial veins.

**Eye Symptoms in Pseudotumor Cerebri.**—Lutz records the case of a woman in the prime of life who fell suddenly ill, without any increase of temperature or signs of infectious meningitis, presenting all the symptoms of brain tumor: choked disk, headache, vertigo and vomiting. These symptoms, after having appeared most alarming for fourteen days, slowly recede, the choked disk included, so that four weeks later the patient feels normal. In the subsequent two years a unilateral deafness develops, followed one year later by the unilateral loss of the vestibular function, and from time to time attacks occur which tend to show an alteration in the left cerebellopontile angle. The patient shows no indications of the unilateral Romberg sign, which can be explained by unilateral lesion of the homolateral tractus spinocerebellaris. Pseudotumor can be diagnosed with certainty only by necropsy. Lutz says that he does not in this case make the diagnosis of benign tumor of the cerebellopontile angle, but he inclines to that of pseudotumor, for the following reasons: sudden onset of the disease; retrocession of all the symptoms within a short time, especially of the choked disk; negative reactions of the cerebrospinal fluid and increase of its quantity; the fact that the unilateral deafness did not appear as a first symptom; the lack of a constant progressive paralysis of the other cranial nerves; the increase of the patient's weight, and, finally, the time that has elapsed since the first attack.

### Boston Medical and Surgical Journal

Oct. 30, 1919, 181, No. 18

Use of Obstetric Forceps. C. J. Kieckhafer, Boston.—p. 534.  
Epidemiology of Influenza. D. M. Lewis, New Haven, Conn.—p. 640.

### Florida Medical Association Journal, St. Augustine and Jacksonville

October, 1919, 6, No. 4

Wassermann Test as Control in Treatment of Syphilis. G. E. Henson, Jacksonville.—p. 76.

### Journal of Infectious Diseases, Chicago

November, 1919, 25, No. 5

- \*Bacteriologic Analysis of Fecal Flora of Children. Changes Produced by Carbohydrate Diet. G. B. Morris, R. L. Porter and K. F. Meyer, San Francisco.—p. 349.
- \*Studies in Epidemic Encephalitis (Encephalitis Lethargica). L. Loewer, S. Hirschfeld and I. Strauss, New York.—p. 378.
- \*Role of Pfeiffer Bacillus in Recent Epidemic of Influenza. C. W. Duval and W. H. Harris, New Orleans.—p. 384.
- \*Influenza Epidemic at Camp Grant. E. F. Hirsch and M. McKinney, Camp Grant, Ill.—p. 394.
- Antigen of Bacillus Anthracis. C. C. Warden and J. T. Connell, Ann Arbor.—p. 399.
- Production of Antiserum for Agglutination Tests. F. H. K. Reynolds and J. F. Hill, Ft. McPherson, Ga.—p. 412.
- \*Serum Reactions in Influenza. F. P. Gay and D. H. Harris, New Haven, Conn.—p. 414.
- \*Transmission of Influenza. H. R. Wight, G. B. White and H. W. Lyall, New Haven, Conn.—p. 419.
- Influence of Desiccation on Certain Normal Immune Bodies. H. T. Karsner and K. R. Collins, Cleveland.—p. 427.

**Fecal Flora of Children.**—This article contains the description and interpretation of a bacteriologic method applicable to the examination of fecal specimens of children apparently suffering from "intestinal intoxication." It is furthermore shown that a strongly putrefactive flora is associated with certain groups of intestinal disorders of infancy, and that clinical improvement is practically always accomplished by a strict carbohydrate diet. The progress in the transformation of the intestinal flora is readily controlled by the cultural tests described.

**Virus of Epidemic Encephalitis.**—A filtrable virus was obtained by Loewe and his associates from the nasopharynx

of the mucous membrane in fatal cases of epidemic encephalitis. The virus is capable of producing in monkeys and rabbits lesions similar to those found in the human brain. The virus has been carried through four generations in the rabbits, transmitted to a monkey in the fifth generation, and then brought back to rabbits. The virus can be recovered from the nasopharynx of animals inoculated intracranially. A natural immunity was found in approximately 50 per cent. of the rabbits. An acquired immunity was demonstrated in one monkey. A possible connection of this disease with influenza was hinted at in a previous report and studies are now being undertaken to establish such relationship.

**Pfeiffer Bacillus in Influenza Epidemic.**—It is maintained by Duval and Harris that the micro-organism known as the bacillus of Pfeiffer may be isolated from the material of the respiratory tract lesion in all cases of epidemic influenza, and recovered only occasionally from persons not infected. There is inadequate proof that the Pfeiffer bacillus is a member of the normal upper respiratory tract flora. That it may occur in normal individuals during epidemic times or persist for months in those who have recovered from the infection, is well recognized. These persons are the interim carriers of the bacillus and constitute an important means for transmission of the infectious agent. During the course of the infection and for a variable time after recovery, the blood contains specific immune bodies for *B. influenzae* while those not infected are without these substances. The subcutaneous inoculation of persons with influenza protein causes the production of specific immune bodies. The reaction occasioned in the inoculated person is definite evidence of its toxic property. Secondary infections with one or more of the ordinary respiratory tract flora is common in epidemic influenza and is usually responsible for the occurrence of pneumonia. The Pfeiffer bacillus is the primary cause of epidemic influenza for the reason that sufficient postulates in the recognition of its etiology can be fulfilled.

**Influenza Epidemic at Camp Grant.**—With the decline of the influenza epidemic at Camp Grant, the changes noted at postmortem examinations were chiefly such as occur with a healing or complicated pneumonia. The postepidemic pneumonias differed from the epidemic in that changes commonly recognized as due to a hemolytic streptococcus were frequent. Occasionally, the epidemic type of pneumonia was noted within three months after the epidemic, but more recently the classical gray lobar variety was observed. The postmortem bacteriologic studies demonstrated a high incidence of hemolytic streptococcus infections, less frequently pneumococcus. The virulence of pneumococci recovered from diseased lungs since the epidemic is less in rabbits and guinea-pigs than the epidemic strains. Hemolytic streptococci recovered during and since the epidemic, according to Holman's classification, belong chiefly to the pyogenes group.

**Serum Reactions in Pneumonia.**—The serum of rabbits immunized by means of suspension of mixed cultures of *B. influenzae* gave for the most part negative immunity reactions. Fixation antibodies were found in high dilutions, using a preparation of the same mixed cultures as antigen. Agglutination reactions were negative when incubated for a short period at 37 C., but positive in from three to six hours at 55 C. The immune serum failed to react with two strains of *B. influenzae* that had not been used in immunizing, thus suggesting the existence of separate groups of *B. influenzae*. The serum of acute influenza cases gave a positive agglutination reaction at 55 C. in dilutions of 1:80 and above, in the majority of instances (88 per cent.) with one of the strains of *B. influenzae* tested. A few tests with another recently isolated strain were also positive in a few instances. Another strain was uniformly negative. Fixation reactions were negative in all but one case with a mixed antigen. The serum from individuals that had recovered from influenza gave agglutination reactions at 55 C. in about two thirds of the instances. Fixation reactions were negative. The serum of individuals that had been vaccinated gave agglutininations at 55 C. in 45 per cent. of the cases.



thoroughly in one of the drops of the indicator, using the other drop as a control. An alkaline reaction is indicated by a reddish violet to violet color, neutral reaction, no changes, and acid, by a light yellow color. The density of these colors will depend on the amount of acid or alkali present.

**Mental Hygiene, Concord, N. H.**

October, 1919, 2, No. 4

- \*Mental Defect in a Southern State (Georgia). V. V. Anderson. New York.—p. 527.
- \*State Program for Care of Mentally Defective. W. E. Fernald. Boston.—p. 566.
- Dementia Praecox as a Social Problem. H. M. Pollock. Albany, N. Y.—p. 575.
- Experiment in Occupational Therapy at Base Hospital 117, A. E. F., S. I. Schwab, St. Louis.—p. 580.
- Disciplinary Problems of Army. H. M. Adler. Springfield, Ill., p. 594.
- Function of the Social Worker in Relation to State Hospital Physician. H. D. Singer. Springfield, Ill.—p. 609.
- Function of the Social Worker in Relation to a State Program. G. M. Kline. Boston.—p. 618.
- Place and Scope of Psychiatric Social Work in Mental Hygiene. M. Ryther. Plattburgh, N. Y.—p. 636.
- Current Misconceptions Regarding Reformation. G. G. Fernald. Concord, N. H.—p. 647.
- Psychopathic Clinic of Children's Court of New York City. H. Montague. New York.—p. 650.

**Mental Defect in Georgia.**—This is the report of the Georgia commission on feeble-mindedness and the survey of the national committee for mental hygiene prepared with the assistance of Anderson. This report emphasizes the conditions found elsewhere, viz., that mental deficiency forms the very root of crime, prostitution, hereditary pauperism, and the like, conditions for which the state is spending vast sums of money. These problems are preventable. Expense is not an excuse. It is simply a question of whether the state will pay blindly or intelligently—whether it will pay in crime, in courts, in reformatories, in prisons, in almshouses, or in prevention, in intelligent care and training of these feeble-minded children in schools and institutions suited to their particular needs, in special class instruction of them in the public schools, and proper supervision of them in the community. The report recommends the establishment of a training school and farm colony for feeble-minded persons; special classes in the public schools; state wide supervision; mental clinics, and laws for the commitment of the feeble-minded.

**Care of the Mentally Defective.**—The program outlined by Fernald includes the mental examination of backward schoolchildren; the mental clinic; the traveling clinic; the special class; directed training of individual defectives in country schools; instruction of parents of defective children; after-care of special class pupils; special training of teachers in normal schools; census and registration of the feeble-minded; extra institutional supervision of all uncared for defectives in the community; selection of the defectives who most need segregation for institutional care; increased institutional facilities; parole for suitable institutionally trained adult defectives; permanent segregation for those who need segregation; mental examination of persons accused of crime and of all inmates of penal institutions; and long continued segregation of defective delinquents in special institutions.

**Michigan State Med. Society Journal, Grand Rapids**

November, 1919, 18, No. 2

- Adaptation of War Surgery to Civilian Practice. F. B. Walker. Detroit.—p. 551.
- Practical Points About Eye, Ear and Nose Work. C. H. Baker. Bay City, Mich.—p. 555.
- Diagnosis of Diseases Causing Gastric Disturbances. A. O. Hart. St. Johns, Mich.—p. 558.
- Brain Injuries. L. Dretzka. Detroit.—p. 559.
- Epidemic Cerebrospinal Meningitis at Camp Jackson, S. C. F. W. Baeslack. Detroit.—p. 561.

**Minnesota Medicine, St. Paul**

November, 1919, 2, No. 11

- Open and Closed Treatment of Fractures; New Methods and New Apparatus Used. A. E. Wilcox. Minneapolis.—p. 413.
- Studies in Influenza. E. C. Rosenow. Rochester, Minn.—p. 423.

- Graecoian's Syndrome as a Late Complication Following Masteoectomy.—Report of Case. A. E. Smith. Minneapolis.—p. 424.
- New Needle for Intravenous Administration of Antisyphilitic Medication by Longitudinal Sinus, Given in Children. T. L. Birnberg. St. Paul.—p. 425.
- Program of State Board of Health for Control of Venereal Diseases and What Results May Be Expected. H. G. Irvine and M. S. Ulrich. Minneapolis.—p. 428.
- Refractive Needs in Children. E. A. Loomis. Minneapolis.—p. 435.

**Missouri State Medical Association Journal, St. Louis**

November, 1919, 16, No. 2

- Why Prenatal Care? C. A. Ritter. Kansas City.—p. 359.
- Diagnostics of Disease in Infancy. C. G. Grulee. Chicago.—p. 366.
- Influenza in France (in A. E. F., 1918). L. Sale. St. Louis.—p. 373.
- \*Syphilis as an Etiologic Factor in Epilepsy. D. S. Booth. St. Louis.—p. 374.
- Work of Neuropsychiatrists in U. S. Army Camps. H. S. Major. Fulton, Mo.—p. 377.
- \*Congenital Pyloric Stenosis. R. Hill. St. Louis.—p. 379.
- Congenital Pyloric Stenosis, Pylorospasm and Chronic Appendicitis. C. A. Potter. St. Joseph, Mo.—p. 380.

**Syphilis as Cause of Epilepsy.**—In Booth's experience the proportion of epileptics giving a Wassermann reaction in some degree is much greater than that given in available statistics, and he feels confident that the laboratory has not detected all cases in which syphilis was either directly or indirectly an etiologic factor. Though some of his cases of epilepsy have shown only a two plus Wassermann and a few only a one plus reaction, he is treating them as though specific in origin and with encouraging results. Those giving a one plus Wassermann have been almost entirely children or women in whom Booth had reason to believe that if syphilis were present at all it was hereditary.

**Congenital Pyloric Stenosis.**—Hill's personal experience in congenital pyloric stenosis comprises twenty-five cases with sixteen recoveries and nine deaths. Of this number fourteen patients were operated on by posterior gastro-enterostomy with only six recoveries. Hill has done eleven operations by the method of Ramstedt and ten of the patients recovered. Hill concludes that all cases of congenital pyloric stenosis should be submitted to operation if the patient does not make immediate gain on tube feeding. The patient will only gain on tube feeding in case the obstruction is very slight.

**Modern Medicine, Chicago**

October, 1919, 1, No. 6

- Air Control and Reduction of Death Rate After Operations. E. Huntington. New Haven.—p. 463.
- Medical Supervision of Students at Wisconsin. C. R. Bardeau. Madison.—p. 468.
- University of Iowa as a State Medical Center. H. Chamberlin. Iowa City.—p. 478.
- Medical Extension Work. D. K. Martin. Columbus, Ohio.—p. 485.
- Medical and Hospital Treatment Under United States Compensation Act. J. W. Trask. Washington, D. C.—p. 489.
- Uses of Motion Pictures in Industrial Diseases. L. W. Sprague. New York.—p. 496.
- Health Service Through Employers' Mutual Benefit Association. B. Hall. Milwaukee.—p. 499.
- Carbon Monoxide Poisoning. R. P. Albaugh. Cleveland.—p. 505.
- Role of Ventilation in Preventive Medicine. G. T. Palmer. New York.—p. 505.
- Neighborhood Organization vs. Tuberculosis. N. A. Nelson. Cincinnati.—p. 515.
- Critical Survey of Public Health Topics. J. Schevitz. Oklahoma City.—p. 522.
- Physician and Human Conservation. J. H. McBride. Pasadena.—p. 528.
- Convalescent Care. M. B. Hexter. Boston.—p. 532.
- Scabies in Relation to Community. A. Rayooh. Cincinnati.—p. 543.

**New Orleans Medical and Surgical Journal**

October, 1919, 72, No. 4

- Administration of Tuberculosis. W. J. Durel. New Orleans.—p. 164.
- Making the Cure of Gonorrhea Safe. L. Levy. New Orleans.—p. 170.
- Radium Therapy. E. C. Samuel. New Orleans.—p. 177.
- Race Degeneration: What Can We Do to Check It? R. M. Carroth. New Roads, La.—p. 183.
- Observation of Drug Addict O. Dowling. Shreveport.—p. 193.
- Use and Abuse of Drugs in Treatment of Addicts. J. A. O'Hara. New Orleans.—p. 195.
- Veneral Disease? A National Problem. W. E. Miller. U. S. P. H. S.—p. 210.
- Tendencies of Times, Medical and Otherwise. L. G. Stirling. Baton Rouge, La.—p. 217.
- Surgical Treatment of Typhoid Carriers. H. J. Nichols. J. S. Simmons. C. O. Stimmel. U. S. Army.—p. 220.

Oklahoma State Medical Assn. Journal, Muskogee

October, 1919, 12, No. 10

- Syphilis of Digestive Tract. J. T. Martin, Oklahoma City—p. 73.
- Syphilis of Eye. A. S. Piper, Enid—p. 75.
- Treatment of Chronic Urethritis. T. B. Cullter, Tulsa—p. 280.
- Gonorrhea in Female. C. E. Linn, Tulsa—p. 286.
- Chest Resection in Operative Suppurative Mastitis. F. S. Clinton, Tulsa—p. 291.

Southern Medical Journal, Birmingham, Ala.

October, 1919, 12, No. 10

- Treatment of Meningoencephalitis. W. W. Herrick, New York—p. 587.
- Clinical Significance of Achylia Gastrica. H. G. Beck and H. McLean, Baltimore—p. 594.
- Duodenal Lavage in Treatment of Catarrhal Jaundice. Case Report. J. W. Ousley, Kansas City—p. 527.
- Prophylactic Medicine and Some Present Day Problems. W. S. Lammers, University, Miss.—p. 601.
- Rural Health Work. P. G. Pope, Columbia, Miss.—p. 608.
- Surgical Significance of Adhesion. H. A. Royer, Raleigh—p. 613.
- Postoperative Cancer Problem. J. L. Jelks, Memphis—p. 615.
- Fistula Operation for Fistula in Ano; Report of Case. G. T. Tyler, Conway, S. C.—p. 617.
- Enema and Purge for Postoperative Paralytic Ileus. J. C. Culley, Oxford, Miss.—p. 618.
- Prophylactic Treatment of Acute Gonorrhoeal Epididymitis. T. B. Hummer, Montgomery, Ala.—p. 619.
- Radium and Röntgen Ray in Gynecology. W. A. Weed, Birmingham—p. 621.
- Nitrous Oxide Oxygen Anesthesia. A. G. Brezler, Charlotte, N. C.—p. 623.
- Psychology of Anesthesia. T. A. Cheatham, Birmingham—p. 626.

**Etiology of Achylia Gastrica.**—Beck and McLean made a study to determine if possible, the existence of some relationship of achylia gastrica with any particular disease or group of diseases, in addition to the influence of age, sex, habits, etc., as etiologic factors. It was present in approximately 11 per cent of gastro-intestinal cases. One hundred and forty-three focal and systemic infections occurred in seventy-seven achylic patients. Of these, 108 were definitely focal and thirty-five were systemic. And of the focal, sixty-nine were about the head, chiefly as some form of oral sepsis. Chronic cholecystitis, appendicitis, arthritis, pyelitic and rectal abscess, comprising thirty-nine infections, formed the remainder of the group. In thirty-three cases there was disturbance of the endocrine functions, including the thyroid, parathyroids, pituitary and gonads. None of the cases of suprarenal insufficiency were achylic. Nervous or reflex disturbances in themselves are not etiologic factors. Exclusion of carcinoma of the stomach and advanced stages of chronic interstitial gastritis, gastro-intestinal disturbances are either incidental or secondary to achylia. It would appear that cardiorenal and metabolic diseases occur coincidentally with chronic infections and play an unimportant part in the etiology of achylia gastrica. Alcohol and tobacco excess without focal infections will apparently not produce achylia. The excessive use of tea and coffee may result in it.

**Duodenal Lavage in Catarrhal Jaundice.**—Ousley has not considered any unpleasant by-effects from the use of duodenal lavage and clinical cures have resulted in all his cases. He has used the following diet with satisfactory results: milk, 1 1/2 milk, green vegetables, peas, beans, potatoes, a parsnip, spinach, celery, lettuce, watercress, cauliflower and celery, fruits of all kinds, except those high in starch or sugar, orangeade, lemonade, and one orange and lemon three times a day; bread, crackers and dry toast, oatmeal, cream of wheat, farina and rice; and desserts, such as sweet corn, oatmeal, plain, praline, stewed and baked apples and grape fruit. No tea, coffee or cocoa is allowed.

**Significance of Sigmoid Adhesion.**—Royster emphasizes the etiologic relationship between left sided pain and adhesions of the sigmoid. He has operated on sixty patients with good results. Attention was directed to the adhesion in many instances by the failure to cure left sided pain by previous operations only to discover the overlooked sigmoid block on reopening the abdomen and to secure a cessation of symptoms by cutting and suturing the adhesion.

**Enterostomy for Postoperative Paralytic Ileus.**—In cases of ileus which will not warrant any prolonged operative procedure or the handling of the bowel any more than is absolutely necessary, Culley says, all that should be done is to protect the peritoneum as much as possible and to make an opening into the distended loop or loops of intestine, provide adequate drainage and thereby relieve the distention and eliminate the toxic substances.

Texas State Journal of Medicine, Fort Worth

October, 1919, 15, No. 6

- Enema and Purge in Preoperative and Postoperative Treatment. J. T. Moore, Houston—p. 208.
- Radium. G. H. Lee, Galveston—p. 10.
- Collargol. I. L. Van Zandt, Ft. Worth—p. 11.
- Diagnosis and Treatment of Conjunctivitis. N. H. Bowman, Waco—p. 216.
- Reflex Disturbances Originating in the Nose, Throat and Mouth. S. J. Clark, Austin—p. 219.

**Enema and Purge in Preoperative and Postoperative Treatment.** From a study of the physiology of the intestinal tract and digestion, Moore is convinced that there is no reasonable basis for giving a laxative or purge preceding any operative procedure.

**Use of Radium.**—Lee would restrict the use of radium to inoperable cancer of the uterus, giving it in heavy dosage and intra-uterine. The dosage should be repeated every four or six weeks, and the case carefully watched for changes in the parametrium, etc. Should the uterus become mobile and removable by hysterectomy, that should be done, with due regard, in deciding the question of operation, to the shrinkage and sclerosis of the tissues and the increased difficulty of operation. Operable conditions should be dealt with surgically, and should be preceded and followed by exposure to the gamma rays, with careful dosage, regulated in conformity to the character of tissues exposed. Recurrences in the vagina should be treated persistently, but with very moderate and repeated exposure.

Wisconsin Medical Journal, Milwaukee

October, 1919, 18, No. 5

- Psychoneuroses and Surgery. H. E. Wolf, La Crosse—p. 152.
- Ford's Infection. F. G. Connell, Oshkosh—p. 157.
- High Spots in History of Anatomy. H. M. Brown, Milwaukee—p. 165.

FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 11, 1919, 2, No. 306.

- \*Care of Crippled Children; Proposed National Scheme. R. Jones and G. R. Girdlestone—p. 45.
- Tranquil Tracheotomy; Injecting Cocain within Trachea. S. C. Thomson—p. 460.
- \*Case of Co-existent Suprarenal and Renal Disease of Uncertain Origin. H. G. Sparrow and W. S. Soden—p. 491.
- Two Cases of Tuberculosis with Chloasma Pleural Effusion. H. Sharpe—p. 462.
- Pericardial Effusion of "Gold Paint" Appearance Due to Presence of Cholesterol. J. S. Alexander—p. 46.
- \*Fragment of Inoperable Carcinoma with Selenium. E. Wainwright Williams—p. 463.
- Surgical Anesthesia among British Troops in Tropics (India). L. M. Roth—p. 464.
- Case of Poisoning by Hydroquinon. A. Mitchell and J. Webster—p. 465.

**Cure of Crippled Children.**—Jones and Girdlestone bring forward proposals for the establishment of a system of orthopedic hospitals and clinics for the active treatment of cripples, and more particularly of crippled children, throughout the country. In Shropshire a system of hospital and outpatient treatment has been organized. As a direct consequence many hundreds of children have been cured or greatly benefited. Further, through the outpatient clinics many cases have been brought to light which would otherwise have remained unknown and untreated. The proposals put forward concern the multiplication of this organization throughout England and Wales, under the ministry of health. Kickets and surgical tuberculosis taken together account for 40 per cent. of the crippled children under treat-

ment. Patients under treatment for congenital deformities and paralysis constitute 45 per cent. of the total number of cases. The authors propose the division of the country into a number of districts; the establishment in each district of (1) an open air country orthopedic hospital; and (2) a system of scattered outpatient clinics. The organization of efficient treatment and the general coordination by a committee working under the ministry of health. The expenses of maintaining such a series of hospitals and dispensaries are to be met by the government, the local authorities and the patients: Private wards for those who could pay full fees; arrangements by which all patients should make a contributory payment who could afford to do so; arrangements by which local authorities should pay at least part of the cost of the poorer patients.

**Coexistent Suprarenal and Renal Disease.**—The outstanding clinical features in the case reported by Sparrow and Soden were those of profound Addison's disease, but the presence of albuminuria and of purpura rendered diagnosis very difficult. In this case, occurring at the time when malignant malaria was rife among the troops of the Egyptian expeditionary force, the patient received quinine treatment in spite of negative blood films. The postmortem appearances were not those of true Addison's disease. An interesting point in the case is the absence of all visible signs of cardiac hypertrophy so common in renal disease, explicable, perhaps, by the deficiency of epinephrin.

**Treatment of Inoperable Carcinoma with Selenium.**—Although Williams has seen some good result from the use of selenium in cases of inoperable cancer, he has seen nothing so far to suggest that selenium will cure carcinoma.

### Dublin Journal of Medical Science

August-September, 1919, Third Series, Nos. 572-573

- \*Removal of Foreign Body (Bullet) from Lung. S. Pringle.—p. 49.
- Secondary Suture of Wounds. R. A. Stoney.—p. 52.
- Cholera; Its Early Treatment. A. G. Varian.—p. 66.
- Sleep: Normal and Abnormal. E. H. C. Allen.—p. 75.
- Direct Reading Localizer for Roentgen-Ray Work. E. O. Marks.—p. 96.

**Removal of Foreign Body from Lung.**—In Pringle's case a rifle bullet was lodged in the lower lobe of the lung for two and one-half years. The patient suffered considerable pain with any exertion, and Pringle felt justified in advising its removal. Four inches of the seventh rib were excised subperiosteally from the midaxillary line backward. On opening the pleura no adhesions were found. The hand was passed into the chest and grasped the part of the lung involved, which was delivered through the incision, and then caught in a rubber covered forceps. The bullet was easily felt about an inch deep in the lung. An incision was made over it, and it was easily extracted. The space in which it lay was swabbed with ether, and obliterated by two mattress stitches of catgut, which completely controlled the slight hemorrhage present. The whole area involved was buried by a continuous Lembert suture of the visceral pleura. The part of the lung which had been withdrawn from the chest was sponged with ether and returned to the thoracic cavity. The parietal pleura was then sutured by a continuous mattress stitch everting the edges. Before the last stitch was tied the lung was expanded tightly against the pleura, thus expelling the air from the pleural cavity. The muscles were stitched in two layers, and the skin was united with a continuous suture. No drainage was employed. Immediately after the operation air could be heard entering the lung freely. The patient made a rapid recovery without interruption apart from a mild bronchitis of both sides and a slight amount of localized surgical emphysema.

### Edinburgh Medical Journal

October, 1919, 23, No. 4

Wound Treatment by Means of Ensil. With Special Reference to Methods of Continuous Irrigation and Lavage. J. B. Hogarth.—p. 214.

Hysterical Complications of "Rhenism." R. G. Gordon.—p. 228.

Future of Teaching of Clinical Medicine. T. Addison.—p. 235.

Field Ambulance in Gallipoli, Egypt, Palestine, and France. J. Young.—p. 244.

### Indian Medical Gazette, Calcutta

September, 1919, 54, No. 9

- Madras Tuberculosis Institute. E. S. Murte.—p. 321.
- Oriental Sore or Baghidat Bol. D. J. Harries.—p. 325.
- \*Flagella of Spirochaeta Carteri. P. R. Bhandarkar.—p. 327.
- Temporary Officer in War. A. D. M. S.—p. 327.
- \*Snake Venom as a Therapeutic Agent. F. Wall.—p. 330.
- Simplicity in Prevention and Cure of Bacterial Infection.—p. 331.
- Treatment of Fracture of Patella. P. F. S. Smith.—p. 336.
- Case of Dabolia Poisoning. W. R. Taylor.—p. 337.
- Colloidal Preparations in Modern Treatment. Ch. Lalul Singh and Mercury in Specific Arthritis. N. N. Mokerjee.—p. 338.
- Malunion in a Fractured Tibia. Dne to Tendon of T. bialis Anticus. D. J. Harries.—p. 340.
- How a Snake Catches His Prey. K. A. Darukhanewala.—p. 341.

**Flagella of Spirochaeta Carteri.**—Bhandarkar and his associates succeeded in demonstrating one or two flagella at one or both ends of the organism, using the method of Nicolle and Morax.

**Snake Venom as a Therapeutic Agent.**—Many snake venoms have an immensely toxic effect on all forms of animal life, and it seems probable that they might prove destructive to such pathogenic animal organisms as the trypanosoma, *Spirillum obermeieri*, *Spirochaeta pallida* and the plasmodium. It is a general rule, so far as the higher animals are concerned, that the lethal dose of snake venom depends on the size of the animal. If this holds good all down the animal kingdom, a dose of snake venom necessary to kill such lowly organisms as those enumerated above, would be innocuous to the host infected by them.

### Japan Medical World, Tokyo

Sept. 21, 1919, No. 301

- \*Passage of Micro-Organisms Through Normal Organs. I. Terauchi.
- \*Action of Radium and Mesothorium on Vaginal Tuberculous Lesions. M. Shiraki. Sept. 28, 1919, No. 302.
- Clinical Treatment of Schistosomiasis. Y. Nagao.
- \*Change in Ovary of Rabbit Injected with Alcohol. Y. Yamazaki. Oct. 5, 1919, No. 303.
- \*Complement Fixation Test of Serum in Ucinariasis. K. Usami.
- Comparative Study of Action of Some Ergot Preparations on Uterus and Intestine. S. Takagi.
- Development of P. westermanni in Eyeball and Orbit. S. Sugiura.

**Passage of Micro-Organisms Through Normal Organs.**—Terauchi carried out experiments on the problem whether micro-organisms pass through normal organs. He employed mostly rabbits and albino mice. He affirmed the fact that the conclusion arrived at by some investigators, that micro-organisms do not pass through the normal kidneys, was reached by employing animals that had a strong bactericidal property in their blood. The fact is that micro-organisms really pass through normal kidneys but the passing of the micro-organisms into the urine depends on the strength of the bactericidal property of the animal's blood. Under ordinary conditions the normal placenta does not allow *B. subtilis* to pass through its tissues, but when the resistance of the peripheral blood vessel of the mother is lowered, micro-organisms can be made to pass through the placental tissues. *S. duttoni* passes through the normal placental tissues into the fetus. Micro-organisms injected into the fetus passed through the placenta into the maternal body.

**Action of Radium and Mesothorium on Vaginal Tuberculous Lesions.**—Shiraki found that radium and mesothorium destroy the lesion and the fibrinous change of the local tissues, and even after three years no remission has been observed to occur. The destruction of the superficial tissues occurs in the pathologic lesions as well as in the normal tissues. They are ne rosed and slough off, while in the deeper tissues the degeneration of the connective tissues takes place until cells assume the embryonic state, from which reformation of the new tissues takes place. The author has been unable to demonstrate microscopically the action of these rays against the bacilli. It seems highly possible, however, that the infecting bacilli are so enveloped by the connective tissues that they are unable to maintain life. Amelioration of the general symptoms, restoration of the normal temperature the gain in body weight, the

increase of the hemoglobin, the gain in appetite, etc., are brought about as the local improvement is attained.

**Change in Ovary Following Injection with Alcohol.**—Fifty per cent. and 25 per cent. solution of alcohol was injected by Yamazaki into the articular vein of rabbits. The ones that had been given a moderate quantity of alcohol for a long period of time continuously showed severer changes than any others. The most conspicuous changes take place in the medullar tissues of the ovary. The interstitial connective tissues are seen to increase considerably, while the interstitial gland cells degenerated. From the fact that around the interstitial cells a remarkable increase of the connective tissues has been demonstrable, it would seem very probable that the increased growth of the interstitial connective tissues must be the primary change, while the change in the interstitial gland cells must be the secondary. Other changes are the increased growth of the cysts and also the thickening of the cyst walls.

**Complement Fixation Test of Serum of Uncinariasis.**—By testing the serum of uncinariasis as to the complement fixation with the alcohol extract of the hookworm as antigen, almost all cases produced positive results. It was not only positive against the serum of the patient infested by ascaris. The complement fixation, therefore, is by no means specific. It is, however, noteworthy that the hookworm antigen produced a negative result against the serums of tuberculous cases, of syphilitic and also of normal persons, who had been proved free from any parasites.

### Journal of State Medicine, London

October, 1919, 27, No. 10

- Housing in Relation to National Health from the Medical Aspect. F. W. Hope.—p. 289.
- Scheme of Treatment of Tuberculosis. H. H. Thomson.—p. 297.
- Social Care of Child. L. Mackenzie.—p. 306.
- Housing in Relation to National Health from Citizen's Aspect. N. Chamblain.—p. 312.
- Suggested Overseas Community Health Settlements for British Expeditionary Service Men. E. S. Scammell.—p. 314.

**Scheme of Treatment of Tuberculosis.**—The essential units of a complete tuberculosis scheme according to Thomson are: (1) An improved method of notification to provide fuller information regarding the type of the disease and the circumstances of the patient. (2) An efficient and coordinated system of dispensary and domiciliary treatment. (3) The provision of adequate hospital accommodation for acute and advanced cases of tuberculosis with compulsory powers of removal. (4) The provision of up-to-date sanatorium accommodation combined with facilities for the industrial training of parents. (5) The provision of large hospitals for the conservative treatment of nonpulmonary tuberculosis; each hospital to serve a large district and population. (6) The provision of sanatorium accommodation for children and of facilities for open-air instruction in connection with hospital, sanatorium and schools. (7) The incorporation in the scheme of an after-care unit with an emigration and employment bureau. (8) And lastly, the carrying out of a comprehensive scheme of scientific investigation and preventive effort with a view to the control and final abolition of tuberculosis.

### Journal of Tropical Medicine and Hygiene, London

Oct. 1, 1919, 22, No. 19

- Prevention of Mosquito Breeding. J. A. Delmege.—p. 181.

**Prevention of Mosquito Breeding.**—Delmege describes the methods for the prevention of mosquito breeding carried out in Matadonia in an area of which the chief natural features were rocky streams and deep ravines intersecting the hills; scattered marshy areas and isolated chains of pools on the plain, and large cultivated areas provided with irrigation channels. The methods used were those suitable to an army in occupation of a mosquito breeding area for a comparatively short period, and were therefore of a temporary nature, although they should be easily adaptable in a modified form to the needs of any small community living in a malarious district. The methods used were constructional, canalization, etc., and larvicidal, use of cresol and paraffin.

### Lancet, London

Oct. 11, 1919, 2, No. 5015

- Army Medical Service as a Career. J. Goodwin.—p. 631.
- Cases of Bilharziasis Treated by Intravenous Injections of Antimonyum Tartaratum. G. C. Low and H. B. G. Newham.—p. 633.
- Causes of Failure in Vaccine Treatment of Arthritis, Rheumatism and Neuritis. H. W. Crowe.—p. 637.
- Diurnal Variation in Body Weight in Tuberculous Patients. J. M. Scott.—p. 639.
- Trench Fever and War Nephritis. J. H. Lloyd.—p. 640.
- Case of Sacculated Aneurysm of Abdominal Aorta. H. A. Haig.—p. 649.
- Relation Between Chorea and Rheumatism. H. L. Cronk.—p. 646.
- "Idiopathic Tetanus"; Recovery. W. B. Cosens.—p. 646.
- Long Retained Foreign Body in Bronchus. A. W. Lemarchand.—p. 646.

**Antimony Tartrate in Bilharziasis.**—Five cases are cited by Low and Newham in which antimony tartrate was used with good effect. The dose varied from 16 to 30 grains. The authors recommend that the dose should be small to begin with (one-half grain), and then gradually worked up to see how the patient will stand it; 2½ grains at a dose may be considered the maximum, any increase on that being dangerous. The dilution of the drug is also important; the authors always give it dissolved in 60 c.c. of sterile physiologic sodium chlorid solution, and run it in through a fine needle as near as possible at blood heat. The solution is made up fresh a few hours before the time of administration, an important point; it must not be given old or after standing a long time. Too concentrated solutions are dangerous. Generally, the drug is given twice a week; it should not be administered more frequently than this. The best plan is to keep the patient in bed the day of the injection, and only to let him up next day if no untoward symptoms have taken place. All symptoms must be carefully recorded, and any indications of gastric or constitutional disturbance must be considered in detail, and if had and recurring at each injection may contraindicate further injections. The urine must be examined to exclude nephritis and faulty elimination from the kidneys. Albumin of itself does not contraindicate the injections if this is part of the disease, but the injections should then be given with the greatest caution. Rigors are not uncommon after some of the injections, and cough immediately after is often troublesome.

**Vaccine Treatment of Arthritis.**—The causes of failure in the vaccine treatment of these conditions are grouped under six heads by Crowe: (1) false diagnosis; (2) errors in bacteriology; (3) incorrect or inefficient vaccine; (4) faulty administration of vaccine in regard to dosage and interval; (5) peculiarities in the constitution of the patient and in his response to vaccines; (6) mistakes in general treatment.

**Diurnal Body Weight in Tuberculous Patients.**—Out of a total of 962 recorded weights, Scott found that 146 showed no variation, 205 showed an increase, and 611 showed a decrease. The average increase was 0.77 pound. The average decrease was 1.03 pound. Scott concludes that a tuberculous patient will record a greater fall in weight in the morning, as compared with the afternoon weight, than a person who is merely a suspect. Also, that where an increase is recorded in a positive case, that increase is likely to be less than an increase in a suspect case. The more serious and advanced the disease the greater the variation in weight recorded.

**Relation Between Chorea and Rheumatism.**—The relationship between chorea and rheumatism in childhood is shown in a striking manner by Cronk's findings in two series of 200 cases each, the patients being children, from 2 to 14 years of age.

**Long Retained Foreign Body in Bronchus.**—Lemarchand cites the case of a woman, 50 years of age, who retained the cervical vertebra of a rabbit in a bronchus four years before it was expelled by coughing.

### Annales de Médecine, Paris

September, 1919, 6, No. 4

- Diaphragmatic Hernia. A. Cade and R. Montaz.—p. 245.
- Mechanism of Death in Influenza. M. Renaud.—p. 267.
- Hypertrophy of Nerves. G. Roussy and L. Cornil.—p. 296.
- Lethargic Encephalitis. J. Lhermitte.—p. 306.

**Latent Diaphragmatic Hernia.**—Cade and Montaz describe three sets of symptoms with a possibly unsuspected diaphragmatic hernia according as the digestive organs, the heart or the lungs are most hampered by the hernia. Treatment can be only surgical, but in the well tolerated congenital cases, there may be no need for operative measures if the patient is kept under relative medical surveillance.

**Mechanism of Death in Influenza.**—A similar article by Renaud was summarized recently in these columns, September 27, p. 1016, and he here reiterates the importance of regarding and treating influenza from the start as an epidemic form of pneumococcus infection inducing multiple foci of consolidation in the lung and thus hampering the heart action. This conception imposes the necessity for bed rest from the first symptoms of catarrh and slight congestion in the lungs. Nothing is more effectual in combating congestion, he says, than hydrotherapy, extensive cold packs, etc. The hydrotherapy should be supplemented with digitalis, and in the graver cases an intravenous injection of 0.25 or 0.5 mg. of epinephrin followed in twenty minutes with 20 or 40 c.c. of antipneumococcus serum. (He used the antiserum made by the Pasteur Institute.) The reaction to this is dramatic, the pulse running up to 140 and growing smaller, the temperature to 104 F. or higher. But this crisis is brief and transient, and in all the twenty-seven cases was followed by entrance on convalescence, the fever dropping with profuse diuresis and the signs of congestion in the lung subsiding. Three typical charts show the unmistakable benefit following this treatment, the temperature in one day dropping from 40.8 C. to normal; from 41.8 C. to subnormal, and from 41.8 C. to 38.5 C. The injection had been made the eleventh, the fifth and the third day, respectively, in these three cases.

**Hypertrophy of Nerves.**—Roussy and Cornil report a case of progressive hypertrophic neuritis in an agricultural worker of 44, resembling Dejerine's progressive and hypertrophic interstitial neuritis in children except that the onset was at the age of 40, that there is no Argyll Robertson sign, no myosis, nystagmus nor general atrophy of muscles, while there is intentional tremor. It differs also from the Marie type by the lack of a familial tendency, scanning speech and exophthalmos, and the atrophy of muscles is limited to the arms. It thus forms a third type of progressive hypertrophic neuritis, nonfamilial, and occurring in adult life.

**Lethargic Encephalitis.**—Lhermitte declares that the disease called by this name is an infectious process involving the midbrain. He does not regard it as a form of influenza but suggests that the latter seems to pave the way for it, possibly by enhancing the virulence of the pathogenic agent responsible for it. Treatment with convalescents' serum is promising, but there are so few convalescents that this treatment is not practicable. The only drug that seems rational to date is hexamethylenamin as this in the nerve centers and cerebrospinal fluid displays some bactericidal efficacy. He gave it by the mouth and by the vein in daily doses of 1 or 1.25 gm. In one particularly severe case he injected the drug intravenously several times, immediately after withdrawal of fluid by lumbar puncture, hoping thus to facilitate the passage of the drug into the cerebrospinal fluid. Whether due to coincidence or effect, general and local improvement followed at once. This method, he says, is entirely harmless.

**Archives Médicales Belges, Liège**

May, 1919, 72, No. 5

- \*War Wounds of Joints. L. Delrez—p. 513.
- \*Partial Epilepsy. F. D'Hollander—p. 537.
- \*Gastritis from Corrosive Fluid. H. Koettlitz—p. 562.
- Modifications in the Blood after Wounds and Operations. H. Friederich—p. 569.

**Wounds of Joints.**—Delrez recalls that the synovialis has to be protected against both blood and infection, and he reviews his experience in this line in 190 cases of wounds of the larger joints. Infection developed in only twenty-one cases, including 16 in the knee. Treatment by arthrotomy and Willems' method of active mobilization gave extremely satisfactory results. It requires great energy on the patient's part and makes great demands on the physician's time, but

it well repays for all this. In cases in which active mobilization is out of the question, he applied passive mobilization and the results even of this were better than after resection.

**Partial Epilepsy.**—The woman of 50 in D'Hollander's case developed partial epilepsy, motor incoordination, attacks of petit mal, hypo-esthesia, monalgia, etc., but all this train of sensory-motor symptoms was restricted to the left arm. There was a history of healed pulmonary tuberculosis, and the sudden appearance of the partial epilepsy and its final retrogression incriminate some acute tuberculous process as responsible for it, some small patch of meningitis-encephalitis such as is common in the tuberculous. He discusses each of the symptoms in turn, and reiterates that this and similar cases confirm that the so-called psychomotor sphere is in reality a mixed motor-sensory region.

**Gastritis from Corrosive Fluid.**—Koettlitz relates the case of a young woman who was given hydrochloric acid by mistake on the eve of an operation for chronic appendicitis. She was given milk of magnesia at once and was fed for a week with only ice and diluted milk. Then she went home but returned to the hospital within a week vomiting repeatedly, and gastro-enterostomy became necessary by the end of the eighth week. She was then doing well when hemorrhagic purpura developed and later aphthous stomatitis and she succumbed the tenth week. The caustic fluid had evidently passed through the esophagus and the cardia so rapidly that the walls had not been injured, the pylorus region bearing the whole brunt of the corrosive action.

**Bulletin Médical, Paris**

Sept. 6, 1919, 33, No. 38

- Sodium Cacodylate. H. Maréchal—p. 492.
- Sept. 13, 1919, 33, No. 39

\*Purpuric Nephritis in Children. P. Nobécourt—p. 503.

**Purpuric Nephritis in Children.**—Nobécourt's patient was a girl of 15 who for four months had been presenting symptoms of rheumatoid purpura, but there had been no epistaxis, hematemesis or melena, and the purpuric eruption had never progressed to ecchymoses. Blood was noted in the urine on two occasions, and from 0.3 to 0.5 gm. albumin per liter was found constantly in the urine. These findings testify to simple albuminuous nephritis persisting after the subsidence of the purpura. This purpuric nephritis is rarely accompanied by edema, uremia or high blood pressure. Even with retention of chlorids, this is slight and transient. On the other hand, purpuric nephritis without hematuria may be more tenacious; the albuminuria may persist for two, four or six months. Osler has published a case in which the purpura progressed in severe waves, with violent abdominal crises, and edema. The urine contained albumin and casts but no blood, and the child finally died in uremic convulsions. In Nobécourt's own experience, bacteriologic examination was always negative. He never found a septicemia, and the nephritis only exceptionally passed into a chronic phase. The hematuric form may subside completely in four or five weeks after an acute course, but usually it runs a subacute course and gradually improves, or it may persist indefinitely. It proved rapidly fatal, or only after several months, in about 25 per cent of the cases cited. The characteristics resemble those of what we call primary nephritis or nephritis of unknown origin. Treatment should be addressed both to the purpura and to the nephritis. He has been successful in some cases with subcutaneous injection of peptone. Calcium chlorid should also be tried. If it does no good, at least it does no harm. To act on the renal hemorrhage, tannin, ergot and krameria have been tried but without much benefit. The main reliance is on dietetic measures, milk for a short time, then milk and vegetables, with a small amount of mutton or ham. Salt need not be discarded unless there is retention, but not much should be allowed as it may increase the hematuria. The child should be kept in bed a long time. Getting up may bring a wave of purpura and increase the albuminuria. Marini's patient eliminated 505 gm. of albumin in ten hours' reclining, and 150 gm. when she got up. Careful treatment may ward off complications but it does not modify the course materially.

## Journal de Chirurgie, Paris

Sept. 4, 1919, 15, No. 3

\*Cancer of the Tongue. H. Morestin, p. 241.  
 1. Incision for Gastro-Enterostomy. R. Toupet, p. 153.

**Radical Operation for Cancer of the Tongue.** Morestin emphasizes that the key to success in operating on a cancer of the tongue is the removal of the glands. This is more important here than with cancer elsewhere, and the mutilation has to be extensive even for a small neoplasm on one edge of the tongue. The entire tongue must be sacrificed if the lesion straddles the middle. His fifty-page article has fourteen illustrations showing the preferable technic. The incision in the neck has three straight branches of nearly equal length, one vertical, one running to just below the tip of the chin, and one to just below the lobe of the ear. The portion removed should comprise, he reiterates, the entire half of the tongue, the mucosa of the floor of the mouth on that side (sublingual region and glossomaxillary groove), the sublingual glands, the mylohyoid muscle, the anterior belly of the digastric, the submaxillary gland, and the median suprathyroid glands, along with the submaxillary anterior lymph glands and the entire retrojugal chain, and they must all come away in a single block, the lymph glands still surrounded with their cellular atmosphere. Two of the illustrations show the mass thus excised; in one it included the lymph glands also on the opposite side as the neoplasm had crossed the middle of the tongue. The patient is fed afterward through a retention catheter passed through the nose in the course of the operation, before tamponing or suturing. There is every advantage in getting the patient out of bed early, immediately if possible after he has been thoroughly warmed and rested. If the two first days pass without mishap, the clinical cure is practically certain. The operative mortality of cancer of the tongue is still 20 or 25 per cent, but he knows of cases free from recurrence for one, two, five and even ten years. The functional disturbance from loss of the tongue is much less than might be anticipated; mastication suffers most.

## Lyon Chirurgial

March-April, 1919, 16, No. 2

\*Chronic Intestinal Stasis. Victor Panchet.—p. 135.  
 \*Ankylosis of Ribs after Trauma. L. Bérard and Dunet.—p. 147.  
 \*Traumatic Pulmonary Tuberculosis. V. Cordier.—p. 153.  
 \*Reflex Action from the Pleura. R. Montaz.—p. 159.  
 \*Nine Cases of Aneurysm. L. Desgouttes.—p. 164.  
 \*Parotitis after Typhus and Relapsing Fever. P. Bonnet and S. de Nabias.—p. 172.  
 \*Indirect Operative Treatment of Fistula of Parotid Gland. R. Olivier.—p. 204.  
 \*Flail Elbow. R. Massart.—p. 207.

**Chronic Intestinal Stasis.**—Panchet always examines for kinks and bands at every laparotomy, and corrects anything of the kind he discovers, reducing the size of the dilated bowel and suspending sagging loops. In cases in which it proved necessary to short-circuit the bowel or resect more or less of it, he had 2 fatalities in the 60 in which he joined the ileum to the sigmoid flexure; 3 fatalities in 19 total colectomies, and one in the 36 hemicolectomies, but none died in the 11 colectomy cases in which the operation was done in two sittings. He remarks that this latter method and simple ileosigmoidostomy are comparatively harmless interventions. Extreme care is necessary after the operation to ensure proper diet, massage, physical culture and psychotherapy. The cure or the improvement become apparent only very slowly, as it takes time for the effects of the chronic intoxication to wear off and the patient to regain poise.

**Traumatic Pulmonary Tuberculosis.**—Cordier is disinclined to accept the possibility of a traumatic origin for pulmonary tuberculosis, as sclerosis such as forms after traumatism is Nature's method of curing tuberculosis and, still more, preventing its development. A foreign body in the lungs starts formation of sclerosis, so that there is no sense, he says, in removing a foreign body solely from fear of tuberculosis settling in the lesion. Devic reported in 1917 a case of a man wounded in the lung many years before, who died finally from pulmonary tuberculosis but necropsy

showed that the tuberculosis had invaded all of the lungs except the track of the projectile so long before.

**Syncopal Attacks from Irritation of the Pleura.**—Montaz warns that when localized irritation of the pleura keeps up and induces recurring syncopes, nothing but removal of the irritating factor will put an end to the disturbances. He reports a case in a young man with a scrap of shell impinging on the pleural cavity. He presented all the symptoms of internal hemorrhage although there had been scarcely any bleeding. At each respiratory excursion the lung bumped against the sharp edge of the metal, and the syncopal attacks proved fatal in less than twelve hours from the injury. When the thorax was opened, the projectile did not seem to be in a dangerous point and it was left unmolested, the syncopal attacks being regarded as contra-indicating further search. Piery has reported a similar case of sudden death from pleural reflex action, the pleura being irritated from a fractured rib. Evidently there are certain zones in the pleura which are particularly sensitive to irritation, and this is liable to induce shock. Morphine in large doses is best to attenuate this reflex action.

**Parotitis Consecutive to Typhus and Relapsing Fever.**—Bonnet and de Nabias give the clinical histories of 38 cases in which extreme swelling and pain in one or both parotid glands had followed typhus or relapsing fever at a French surgical hospital in Roumania in 1917. The parotitis seemed to be more common after typhus, and gangrene from arteritis after relapsing fever, but these complications occurred in some of both. The number of cases was very large, but the 38 reported were the only ones of which careful notes were kept. Parotitis used to be considered a feature of typhus, as much as the bubo in plague, but we know now that it is due to secondary infection, the streptococcus predominating. All but 2 of the 38 cases progressed to suppuration; the 2 exceptions were in relapsing fever cases. In another case the bilateral parotitis was accompanied by gangrene of the foot. Seven of the 38 cases terminated fatally, all in the relapsing fever group. Erysipelas of the face was frequently a further complication. Rinsing out the mouth every three hours with iodized water did not seem to ward off the parotitis, but the parotid did not suppurate in the cases in which this was done in typhus and relapsing fever. They add that if the patients could have been fed properly during the disease and the secretion of saliva thus kept up, there would have been less chance for the parotitis to develop. There were some days in February and March when there was absolutely no firewood, bread or tea, and an onion was all the food available for the whole day for each patient. They incised the parotid gland from the back, starting from the mastoid and turning the angle of the jaw a fingerbreadth below. This incision respects the facial nerve, is less disfiguring, and heals better than in the stretched tissues over the parotid.

**Nerve Resection to Cure Fistula in the Parotid Gland.**—Olivier adds three new cases to the list of those in which a long rebellious salivary fistula into the parotid gland healed spontaneously and promptly after the auriculo-temporal nerve had been resected and the central stump seized with forceps and torn off by rolling it up gently on the forceps. He located the nerve by tracing its branches back. In one of the cases the operation was done to ward off impending fistula, after removal of an aberrant and enlarged parotid gland.

**Flail Elbow Joint.**—Massart describes the principles that should be followed in correction of loose elbow, and reports with illustrations some typical cases. Surgical measures are giving good results with ankylosis or neo-arthritis according to the indications.

## Paris Médical

Sept. 20, 1919, 9, No. 38

\*Syphilis in Joints. Lacapère and C. Laurent.—p. 221.  
 \*Migration of Projectiles in the Abdomen. Barthélemy.—p. 234.  
 \*Bacteriology of Tuberculous Cold Abscesses. A. Demolon. p. 234.

**Syphilitic Processes in Joints.**—Lacapère and Laurent relate that in 1,200 syphilitics examined at the Dispensaire

antisiphilitique at Fez, Morocco, no case of involvement of a joint was noted among 178 syphilitic Europeans, while there were specific joint lesions in 112 of 979 Mohammedans. Fully 75 per cent. of the native population are syphilitic, and the joints are affected in about 10 per cent. The joint lesions are more common among Arabs from the rural districts than in the city, and the percentage of joint cases jumps from below 10 to over 28 in the colder months of the year. They think that malaria is another predisposing factor. They give illustrated descriptions of a number of cases of different types, affecting the knee, the elbow, the shoulder, some with fistulas, some entailing ankylosis. In some the joint lesions were the work of inherited syphilis. They emphasize in particular the cases of ankylosis from "syphilitic rheumatism." The Arabs pay no heed to lesions of any kind unless they become quite painful, so this articular syphilis is allowed to progress to an advanced stage before medical aid is sought.

**Migration of Projectiles in the Abdomen.**—In one of the two cases reported the bullet was found on repeated examination in the left hypochondrium, 3 cm. from the median line and 2 cm. in front of the spine. The day after the last roentgen examination an incision at this point failed to reveal the bullet, and it was found embedded in the ascending mesocolon close to the cecum. In the other case the projectile was seen 3 cm. deep and 3 cm. to the left of the entering point, 2 cm. below the umbilicus. It was found three days later in the exact center of the peritoneal cavity.

**Bacteriology of Tuberculous Abscess.**—Demolon found inoculation of guinea-pigs the most reliable means to determine the bacillary nature of a cold abscess, as he shows by three typical case reports. The inoculations may prove positive up to the very last traces of the healing abscess. It is evident therefore that the healing of these abscesses is due to some clinical process other than sterilization. Under vigorous disinfectants the pus may give negative findings for a time, but as soon as the disinfectant is stopped, the bacilli may reappear from their lurking places in the deeper tissues. During the entire course of treatment, even with camphorated naphthol, the bacilli seemed to retain the same virulence, judging from the action on the inoculated animals.

### Presse Médicale, Paris

Sept. 25, 1919, 27, No. 54

\*Nervous Complications of Typhus. D. E. Paulian.—p. 541.  
Comparative Study of the Reaction of Fixation in Tuberculosis with the Calmette and Massol Antigens. L. Boez and E. Dubot.—p. 543.  
Arsenic in Treatment of Gangrene of the Lung. M. Perrin.—p. 546.  
Recent Acquisitions in Typhus. A. L. Fourcade.—p. 548.

**Nervous Complications of Typhus.**—Paulian has had extensive experience with typhus on the Russo-Roumanian front, and he emphasizes that the lumbar fluid invariably shows a lymphocyte reaction in typhus. Whatever the form of the disease, the nervous system is affected from the beginning. There is a meningeal reaction constantly during the course of the disease, and it may persist long afterward, for a year or more. There may be complications in the nervous system, symptoms showing involvement of the brain, pons, cerebellum, spinal cord, and mental impairment, neuritis or polyneuritis, or there may be various complications, functional or showing involvement of different organs or glands.

Oct. 4, 1919, 27, No. 56

\*Tremor. L. Binet.—p. 561.  
\*Primary Paraneuritic Phlegmon. A. Bergeret.—p. 563.  
\*Puncture and Induced Pneumothorax in Treatment of S. rostrifrons Pleurisy. G. L. Regard.—p. 564.  
\*Staining the Cilia of Bacteria. E. Lancereaux.—p. 565.  
\*The Physical Reactions to Aviation. L. Binet.—p. 566.

**Devices for Study of Tremor.**—Binet gives illustrations of various devices for recording the special features of the tremor in different diseases. They allow analysis of the special type of the tremor and its variation under fatigue, emotions, medication, and operative treatment. For instance, if the hand is held horizontal in front of a mirror, and a photograph is taken of the reflection in the mirror, the difference between horizontal and vertical tremor is very apparent, as he shows by two such photographs.

**Primary Paraneuritic Phlegmon.**—Bergeret emphasizes that the alleged primary phlegmon is in reality always secondary to some infectious process elsewhere. The contraction of the muscles and intense pain in the costovertebral angle on deep pressure at the top of the angle formed by the twelfth rib with the sacrolumbar mass are instructive and may permit an early diagnosis, especially if there is unilateral bacteriuria, or the kidney on that side shows reduced functional capacity. By comparing the costovertebral angle on both sides, the rigidity of the wall over the phlegmon is very apparent. The onset of the phlegmon is usually insidious, but it is extremely important to discover and evacuate it to ward off serious complications.

**Treatment of Pleurisy.**—Regard evacuates the effusion and replaces it with filtered air. Weil has reported successful application in fifty cases of this *pneumococcus therapeuticus*, and Regard's own experience has confirmed the advantages of this technic. It ensures complete repose for both the pleura and the lung, while the separation of the two sheets of the pleura prevents irritation and production of adhesions. The normal balance of the heart, diaphragm, etc., is restored; the heart is relieved, and pain from friction and inflammation is warded off. Some of his patients with 2 liters of effusion after two or three weeks of the pleurisy were cured so promptly that they returned to work in fifteen or twenty days, even those who required a second puncture.

**Staining Technic for the Cilia of Micro-Organisms.**—Lancereaux describes a simple modification of the Zettnow and van Ermenghen technics which shows up the cilia of bacteria.

**Influence of Aviation on the Organism.**—Binet analyzes twenty-five recent works on the medical aspect of aviation, and lists the reactions observed in aviators during and after their flights.

Oct. 8, 1919, 27, No. 57

\*Lumbar Puncture in Syphilis. P. Ravaut.—p. 573.  
\*Reconstruction of the Esophagus. Gussez.—p. 575.

**When to Test the Spinal Fluid in Syphilis.**—Ravaut expatiates on the importance of lumbar puncture, both for diagnosis and in treatment of syphilis of the nervous system, when it is done at the right moment. At other times it is not instructive and has no therapeutic value, and is an unnecessary infliction on the patient. He has made a special study of lumbar puncture in syphilis since 1902, and soon discovered that long before there are clinical manifestations of nervous syphilis, the meninges and vessels are being gradually injured by the spirochetes. When symptoms from this become evident, the destruction has gone too far for recuperation to be possible. In detecting the latent "meningovascularitis" which precedes and engenders most of the nerve processes of syphilis, lumbar puncture is most instructive and helpful. This meningovascularitis is liable to develop at any stage, early or late, of the syphilis. He charts the findings in 1,000 syphilitics classified according as they presented symptoms of nervous syphilis or not. They show that during the first three years, reactions of septiceptic origin are common. The reactions which persist after the third year in all probability are traceable to changes in the central nervous system, although as yet they may not have given a clinical hint of their existence. Between the beginning of the fourth year and the tenth year is the period of the maximum frequency of the occurrence of reactions in the cerebrospinal fluid testifying to a latent phase of meningovascularitis. At any stage of the syphilis, lumbar puncture will reveal the organic or neuropathic nature of nervous symptoms and the intensity of the meningitis. If there are no nervous symptoms, he advises puncture as a routine procedure at the fourth year, and would defer the puncture to this date, as a rule. After the tenth year, over 75 per cent. of those with a positive reaction in the fluid have also unmistakable clinical nervous symptoms. When a patient without known syphilis presents puzzling nervous disturbances, lumbar puncture may clear up the case when of course many different causes might be incriminated. A distinctly positive reaction with syphilis known to be a factor indicates syphilitic meningitis, and this calls for treatment as long as the reac-

tion persists positive, which may take years. In several cases in his experience, notwithstanding persevering treatment, symptoms indicating grave lesions finally developed. Latent meningitis is less and less frequent after the fourth year. In conclusion Ravaut warns that certain slight syphilitic processes may run their course at points in brain or elsewhere without inducing meningitis. These must be excluded before drawing the prognosis from the normal cerebrospinal fluid.

**Reconstruction of the Esophagus.**—Günzev gives an illustrated description of the comparatively simple technic with which he reconstructed the missing upper three-fourths of the cervical portion of the esophagus in a woman of 66. The gap was 6 cm. long, and the woman was being fed through it. The portion above seemed to form a blind pouch, and swallowing movements were thus impossible as these have to start in the pharynx. This passage was made permeable, and at a second sitting a tube formed from skin was introduced into the esophagus and sutured to the stump above and below, the skin side inside the tube.

### Progrès Médical, Paris

Aug. 30, 1919, 34, No. 35

- \*Pancreas Extract in Gastric Cancer. M. Loeper.—p. 341.
- Pleuropulmonary Tuberculosis in Children and Adolescents. L. Ribadeau-Dumas.—p. 342.
- \*Fixation of Movable Kidney. Uteau.—p. 346.

**Pancreatic Extract in Gastric Cancer.**—Loeper has been giving intravenous injections of pancreatic extract in treatment of gastric cancer, and he here reports live out of the larger number of cases in which this has been done, discussing the theoretical bases for it. The results show that this treatment has a decidedly favorable action on certain of the symptoms from gastric cancer—"I do not say on the cancer itself." The weight increased in all, the number of erythrocytes increased and the antitryptic index showed higher values in two of the four patients tested. In the cancerous it acts the same as in healthy subjects and in dogs, increasing the antiproteolytic power of the blood serum and the resisting power of the blood corpuscles. The general condition improves, and the resisting power of the organism is enhanced, including the special defensive reactions against the cancer products.

**When Should a Movable Kidney Be Fastened in Place?**—Uteau remarks that a movable kidney may induce disturbances of three kinds, pain, dyspepsia or nervous instability, or all combined. With pain and dyspepsia accompanying a movable kidney, he keeps the patient in bed for several days. If the symptoms show marked relief, the kidney may well be incriminated as the cause of the disturbances, as also when there is retention of a few grams of urine in the kidney pelvis, found on catheterization of the ureter. On the other hand, he advises against any attempt at fixation when the displacement of the kidney forms part of a general tendency to ptosis. In this latter case, general gymnastic exercises and hydrotherapy to strengthen and tone up the abdominal wall are indicated, resting the sagging abdominal wall by frequent reclining. This will give these patients a living abdominal band which is better than all artificial measures. A strong and elastic abdominal wall is one of the best means for restoring a sagging kidney to place. The wearing of an abdominal band may also usefully supplement this. A course of treatment for the nervous instability may prove helpful in curing the subjective symptoms with movable kidney. In case an operation is considered, a neurologist should be consulted beforehand with nervous subjects and, still more imperatively, with insane subjects. Uteau warns to leave "silent movable kidneys" alone, and to operate only when the connection between the symptoms and the movable organ is definitely determined. The benefit from the fixation may be months in appearing.

Sept. 6, 1919, 34, No. 36

- \*Gastric Stenosis in the Gassed. A. Clerc, and others.—p. 351.
- \*Functional Impotence and Reflex Contracture. A. Barbé.—p. 372.
- \*Tuberculous Membranous Cast of Bronchus. P. Meurisse.—p. 354.

**Genital Sequelae in the Gassed.**—The injuries of the external genitals from gassing healed promptly in all but nine of

the 108 soldiers presenting these lesions among the 441 *ypérites* at the special service for the gassed in charge of Achard. The nine exceptional cases are described and the medicolegal importance emphasized.

**Functional Impotence and Reflex Contracture.**—Barbé insists on the frequently unsuspected, remote cause for functional impotency and reflex contracture, describing several typical cases. In one the impotency of the arm was finally traced to nutritional disturbance from overtight dressings after a comparatively slight wound of the hand. The edema and paralysis of the arm were unmistakably due to an organic lesion. He warns that negative electric tests do not exclude organic mischief. Reflex contracture may occur from irritation of muscles from some bone lesion. This is particularly liable to occur after fracture of metacarpal bones. The lesions of muscles or tendons have more to do with the contracture than the primary bone lesion. The vessels and the nerve fibers may also be involved. The contracture perhaps interfering with the nourishment of the parts may set up a vicious circle.

**Tuberculous Membranous Cast of Bronchus.**—In the case described by Meurisse the man of 37 seemed to have been cured of pulmonary tuberculosis. He had had hemoptysis on two occasions, the last three years before and the hemoptysis had not been severe. Recently he expelled a membranous cast of a bronchus without effort or dyspnea. It was about 13 mm. long by 3 mm. in diameter, white, and rather firm, but easily shredded with a needle, and containing very large numbers of tubercle bacilli.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 18, 1919, 49, No. 38

- \*Regional Gastrosasmus with Cholelithiasis. M. Lüdin.—p. 1417.
- \*Comparative Study of Test Meals in Gastro-Intestinal Pathology. H. C. Frenkel-Tissot.—p. 1423.

**Regional Gastrosasmus with Cholelithiasis.**—Lüdin explains that it is extremely difficult sometimes to distinguish between spasmodic constriction of the stomach just above the pylorus and cancer in this region. Even repeated radioscopes may happen to catch the spasm each time. Administration of sedatives to abolish the spasm does not always answer the purpose. Consequently only an exploratory incision will reveal the true condition in some cases. This may allow correction of the cause inducing the gastrosasmus, as in two cases described in which the laparotomy disclosed pathologic conditions in the gallbladder, with stones, all previously unsuspected. Cholecystectomy put an end to all the disturbances, including the gastrosasmus.

**Test Meals.**—Frenkel-Tissot analyzes experiences with the ordinary test meals at the Virchow Hospital in Berlin. Each of the 250 subjects had the stomach contents aspirated usually seven or eight times in the course of several days—a total of 2,000 readings. The aim of the special research was to determine the length of time the test meal remained in the stomach according to local conditions, with ulcer, cancer, etc., and in the normal stomach. A series of standards for the characteristic evacuation of the stomach in these various conditions was thus obtained, and he expatiates on the important information to be derived from this hitherto comparatively neglected test of the motor functioning.

Among the points emphasized are the peculiarly instructive findings when test meals of different types, with and without "ballast," are used in the case. In 18 per cent. of the cases he found that organic stenosis of the pylorus was responsible for the twelve hour retention of the test supper (200 gm. rice and 30 gm. raisins or dried currants). The amount of the retention is no guide to the malignancy or not of the pathologic process. Twelve hour retention was never found with gastric neuroses, gastroptosis or gastritis. He found occult blood in the stools only in 63 per cent. of the certain cases of cancer, while it was evident in other cases in which necropsy failed to reveal a trace of cancer. Occult blood has been found with mere pancreas and gallbladder disease, polyps, diverticuli, and varices in the intestines. His experience shows further that small or microretention has

no significance from the standpoint of etiology; that persisting retention of the Kemp or Leube-Riegel test meal for seven to ten hours with gastritis is suspicious of cancer, but it may fall within the frame of simple gastritis.

Twelve hour retention with achylia points very emphatically to malignant disease. It is extremely rare under other conditions. It is possible, however, for cancer with total achylia to progress for months without retention; in two such cases the inoperable tumor lay along the lesser curvature to the esophagus. These patients had absolutely no disturbance in the evacuation of the stomach and no pains, and they had applied for treatment merely on account of their weakness. Hyperchlorhydria was evident with ulcer in only 48.5 per cent. of the ulcer cases, and retention in only 45.7 per cent. of the uncomplicated cases, and this only for seven hours. With actual stenosis, the test supper and the Kemp meal are equally instructive. With duodenal ulcer, the fasting stomach was always found empty, as also with reflex gastric secretory anomalies from lead poisoning, pancreas, gallbladder and bowel disease.

Sept. 25, 1919, 49, No. 39

- \*Radiotherapy at Zurich Gynecologic Clinic. G. v. Mandach.—p. 1449.
- \*Diaphragmatic Hernia. G. Jchok.—p. 1457.
- \*Congenital Cartilaginous Exostoses. H. Jaeger.—p. 1461.
- Attitude of Children in School. W. Loewenthal.—p. 1464.
- \*Surgical Disease of the Biliary Passages. C. Krähenbühl.—p. 1466.
- Postinfluenzal Psychoses. V. Demole.—p. 1468.
- \*Goiter and Iodine in the School. Weith.—p. 1474.

**Radiotherapy at Gynecologic Clinic.**—Von Mandach reports satisfactory results from roentgen treatment in almost every case of preclimacteric and climacteric hemorrhages and of myoma. In 45 cases of the former the hemorrhages were completely arrested in all but 4, and they had become insignificant in 3 in this group. The treatment failed completely in only one case. In 168 cases of myoma all were relieved from their hemorrhages but 5, but the myomas persisted unmodified. He agrees with those who think that the time has not yet come for relying on raying alone in all cases of malignant disease, but he is convinced that post-operative raying has great promise, although this technic has been introduced too recently for a final decision on it as yet. In 4 cases of carcinoma of the body of the uterus and 6 of the cervix, treated by operation and raying in 1914 and 1915, all the women have kept in good health since. Among the 2 cervix cases was a woman of 24 and another of 40 with a cancerous nodule in the labium minus.

**Diaphragmatic Eventration.**—Ichok applies this term to the condition when the thin and relaxed diaphragm allows the abdominal organs to slide into the thorax, but without any actual breach in the diaphragm. A case in a woman of 44 is described.

**Congenital Cartilaginous Exostoses.**—The remarkable feature of the new-born child reported by Jaeger was that some of the multiple cartilaginous exostoses of the ribs showed a distinct hinge or joint connection which allowed free play of movements in a horizontal direction. The only plausible explanation for this articulation formation, he thinks, is the assumption of movements of the fetal thorax analogous to the breathing movements after birth. Althfeld called attention in 1905 to rhythmical wavelike movements of the fetal thorax, as has been mentioned in THE JOURNAL. He said they could be easily seen and palpated during the last months of pregnancy, and this has been repeatedly confirmed by others. The joint production in the congenital rib exostoses in the case here described is still further corroboration.

**Surgical Disease of the Biliary Passages.**—Krähenbühl refers to Courvoisier's law that when the common bile duct is obstructed by a gallstone there is no distention of the gallbladder as this is already pathologically shriveled. With obstruction of the common bile duct from without, the gallbladder is not pathologic in the same way, and it soon becomes distended. When this distention has lasted a long time, cancer obstructing the biliary passages is usually the cause. In an experience with 41 operative cases of cancer of the gallbladder, this law applied in 34 cases and in 4 obesity prevented investigation. In only 3 cases the law did not

apply. Gallstones were found in 87.8 per cent. of these cancer cases. In 4 of the other cases no search was made for gallstones, and in still another, gallstones had been previously passed in the stools. In 37 of the 41 cases there was a history of gallstone colics long before the cancer. The larger proportion of gallstone cases which come to operation nowadays and thus ensure the removal of the gallstone irritant cause for cancer production, explains the progressive reduction in the number of cancer cases. The proportion in the last three decades dropped from 12.1 to 5.9 per cent. of the total 498 operative gallstone cases.

**Goiter and Iodine in the School.**—Weith relates that large mouthed bottles containing 20 gm. of 10 per cent. tincture of iodine were placed in all the school rooms of several of the school buildings at Lausanne. Examination of the children after two months of this showed only 495 with goiter when there had been 651 to start with, and more than 50 per cent. showed marked retrogression. This reduction of 13 per cent. does not compare favorably with Marine's 33 per cent. in the Akron schools, but Weith relates that in the school buildings at Lausanne in which no attempt at the iodine treatment had been made, the proportion of children with goiter had increased during this same period from 22.86 and 36.72 per cent. to 28.72 and 57.77, and in one of the schools the percentage among the girls had doubled (from 22.85 to 45.18). The contents of the bottles disappeared in the course of thirty days, that is, 2 gm. of metallic iodine passed into the air of the room, about 7 eg. daily, and were distributed among thirty to forty scholars. He thinks that iodine crystal-might work still better, and that twice the dose might be preferable. This "iodation" of the school rooms has a number of obvious advantages over administration of iodine by other means, and is, he declares, the true public prophylaxis, automatic and effectual.

### Annali d'Igiene, Rome

June, 1919, 29, No. 6

- Co-Agglutinin in Immune Serums. C. Sarti.—p. 349.
- \*Radiotherapy of Chronic Malaria. Ant. nino Pais.—p. 359.
- Compulsory Notification of Tuberculosis. V. Puntoni.—p. 366.

**Radiotherapy in Malaria.**—Pais has been conducting research for some time on the way in which the chills and fever in chronic and rebellious malaria are influenced by raying. He bases this treatment on the assumption that minute doses of radiant energy stimulate the vital functioning of the cell, instead of having the destructive action of the large doses. The minute doses attenuate the gravity of the disease and sometimes abort the paroxysms of fever, and may cure the disease in its chronic form, refractory to or even without the aid of quinin. There is a great difference in the response in different forms of malaria and at different stages of the paroxysm. The results of his 3,000 experiences have convinced him that this is a practical and effectual method of treating cases in which ordinary measures have failed. He applies the rays diffusely to the spleen through an aluminum filter. The hematozoa disappear from the blood after repeated mild exposures. The number of erythrocytes increases. In one case, from 2,300,000 it ran up to 3,100,000 on the fifteenth day and there was no further fever after the second exposure. Usually the improvement in the blood picture is much more gradual. Pais reiterates that with the small doses he advocates, from 1 to 10 or 12 units, even the largest spleens yield to the action of the roentgen rays if applied in very small doses at long intervals. Too large doses and too short intervals cause the spleen to increase in size again. As the patients witness the subsidence of their spleen tumor and the disappearance of the pains and discomfort from it, they return with enthusiasm for further exposures.

### Gazzetta degli Ospedali e delle Cliniche, Milan

September 14, 1919, 40, No. 74

- \*Prophylaxis of Tetanus in Civilian Population. G. Zanetti.—p. 784

**Prophylaxis of Tetanus in Civilians.**—Zanetti discusses in particular the prophylaxis of tetanus in agricultural workers, especially from the standpoint of insurance against acci-

dents. He remarks that the lessons learned from the war in regard to the efficacy of antitetanus serotherapy should be applied to ward off tetanus in persons working on farms, etc. Italy has made compulsory insurance against accidents to workers in industries and on farms, and he pleads that antiserum should be made available for all such accidents. The large supplies of antitetanus serum now left on hand from the war should be sold at cost to the communities throughout the country so that effectual prophylaxis would be available everywhere.

### Policlinico, Rome

July, 1919, 20, Surgical Section, No. 7

- \*Bone Cysts. B. Poletti, p. 217. Concn.  
 \*Experimental Ligation of the Ureter. A. Pignatti—p. 231.  
 \*Cutaneous Hernia. G. Marchetti, p. 244.

**Solitary Bone Cysts.**—In two of the three cases reported with minute detail by Poletti, the femur was the site of the cyst in children of 8 and 9. In the third case, in a young man, the cyst was evidently of sarcomatous origin. In all three the clinical course, the symptoms, and the contents of the cyst were alike, and only histologic examination revealed the sarcomatous origin in the third case. The course was rapid and scarcely painful in all, the lesion was restricted to a single segment of the bone, and there was no involvement of glands. The cyst contents looked like blood and the cure was rapid and complete in all after the bone cavity had been scraped out. It filled up rapidly with new forming tissue. Notwithstanding the similarity in the course and findings, these three cases testify to the fundamental difference in the pathogenesis in different cases. A list of sixty-eight articles on bone cysts is appended.

**Experimental Ligation of Ureter Plus Nephrotomy.**—Pignatti ligated the ureter in a number of rabbits and then incised or decapsulated the kidney. When nephrotomy alone was done, the development of hydronephrosis was retarded, but when the kidney was decapsulated no tendency to hydronephrosis became apparent at any time, and there was no destruction of kidney tissue. The practical conclusions from his research are that when the ureter becomes obstructed from any cause, prompt nephrotomy with decapsulation might ward off destructive processes in the kidney parenchyma and thus do away with the necessity for nephrectomy later. The benefit is probably due to collateral circulation developing through the nephrotomy cicatrix and connecting with the intrarenal circulation.

**Ischiatic Hernia.**—Marchetti has been able to find records of only thirty cases of hernia in the ischiatic or gluteal region, and describes a case personally observed in which the hernia was formed of a large diverticulum in the sigmoid.

### Rivista di Clinica Pediatrica, Florence

August, 1919, 17, No. 8

- \*Autogenous Therapy of Skin Disease in Children. G. Guidi.—p. 393.  
 \*Microscopic Pioneer Work in Pediatrics. A. Spallucci.—p. 411.

**Autogenous Therapy of Pyodermitis in Young Children.**—Guidi reviews the history of autogenous vaccines and describes considerable experience with them at the children's hospital at Florence in the last three years. The microorganism usually responsible is *Staphylococcus pyogenes-aureus*, the vaccine treatment was limited to the exceptionally severe and rebellious cases. In the twelve typical cases described, the progressive spread of the skin disease was arrested and the defensive forces reinforced. Most of the severe children whose case histories are related were infants under 2 years old. One 6 months infant had furunculosis, small abscesses over its body and confluent on the scalp. No local measures had seemed to do any good during two months of treatment, but under six injections of the auto-vaccine the skin cleared up. The last to heal was a vast ulceration on the scalp.

September, 1919, 17, No. 9

- \*Cirrhosis of Liver in Boy. Pietro Busacchi.—p. 449.  
 \*Bean in Infant's Bronchus. Virgilio Craglietto.—p. 477.

**Cirrhosis of Liver in Child.**—In the boy of 10 whose case is described with comment by Busacchi, the kidneys and the

cardiovascular system seemed to be normal, and the only plausible explanation of the anasarca seemed to be the assumption of cirrhosis of the liver. This was confirmed by the metabolic findings and the improvement under treatment addressed to the liver. The latter organ must have been constitutionally inferior as to this might be ascribed the convulsions at the age of 18 months, and it may have been a factor in the inflammatory gastro-intestinal process from which the child had repeatedly suffered. The child died from intercurrent influenza about three years after the first symptoms. The child's brother has a much enlarged liver, but the Wassermann test was negative in both.

**Bean in Bronchus.**—The 14 months infant had repeated attacks of suffocation with loss of consciousness, with apparently normal intervals. Low tracheotomy at the third hour permitted the removal of the foreign body after two vain attempts, the bean being repeatedly drawn in deep again with the breath just as it was being fished out through the opening in the trachea.

### Archivos Españoles de Pediatría, Madrid

August, 1919, 3, No. 8

- \*Bladder Stones in Children. F. Suñer Ordóñez.—p. 449.  
 \*Case of Rat-Bite Fever in Spain. P. Escolano Sabater.—p. 456.

**Bladder Stones in Children.**—Suñer relates that in two of the forty cases in children which he has encountered at Valladolid, the stone was expelled spontaneously as the operation was contemplated. It measured 15 mm. by 2 cm. in one girl of 8 but it traversed the urethra apparently without damaging it. In the other girl of 12 the presence of the stone in the bladder was determined beyond question but when the bladder was opened four days later nothing was found, the stone having evidently been expelled in the interim without the patient's or the attendants' knowledge. The child died from shock six days later, the necropsy findings entirely negative. Since this occurrence he never operates without verifying the diagnosis anew just before the intervention, and he is particularly wary in the cases of calculi in girls. In another case the manipulations of the operation had dislodged the calculus in the bladder and it had slipped into the urethra. In still another case the calculus blocked the outlet of the bladder intermittently and the boy of 7 was almost moribund from uremia. The convulsions did not yield to chloral or hot baths, but they were arrested by withdrawal of 120 gm. of blood. This was the only case of uremic accidents in his forty cases in children, but it shows the possibility of sudden and grave disturbance from this cause. In the case reported the further history demonstrated that the kidneys were sound. In one boy of 4 a small calculus had perforated the lower urethra and the urine had collected in the region, with mortification of the skin from the distention. There had been nothing to suggest a tendency to lithiasis before, and the good general health and clear urine testified that it was merely a local process. Suñer confirmed in this case the statements of others in regard to the injury from a retention catheter in such a case; it seems to act like an irritating foreign body.

**Rat-Bite Fever.**—Escolano reports the case of an infant of nearly 2 who was lying in a low cradle on the ground floor when its mother was summoned by the child's sudden screaming, and she found blood on the cheeks and brow and a small wound in the brow. Fifteen days later typical rat-bite fever developed, with chills, hard swollen glands at the angle of the jaws, and eruption and swelling of the face, but the child took the breast normally and the bowel functions seemed normal. The symptoms lasted two days and then subsided, but eight days thereafter they returned in all their former intensity, and the edema of the face was accompanied with patches of redness, almost violet at certain points. This eruption erythem did not itch and it disappeared under pressure, but the doughy edema was tender. These attacks of fever, chills and prostration returned again and again with approximately normal intervals of one or two weeks. Frugoni has known them to recur during years, but recovery is generally complete in from two to five months. A colored photograph of the child in the case



operation had not reduced the condition. This amounts to 90 per cent. good results and 10 per cent. frankly bad. This latter group included cases of ulcer near the pylorus, ulcers remote from the pylorus, and duodenal ulcers. In the juxtapyloric and duodenal ulcers the outcome was good in all but 8 per cent., the larger proportion of bad results and fatalities being encountered in the hour-glass stomach cases. Simple gastro-enterostomy seemed to give as good results as resection in the juxtapyloric and duodenal ulcer cases. The dread of cancer later is not an argument against it as cancer has been known after resecting operations. The results of gastro-enterostomy with gastric ulcers at a distance from the pylorus are far from equaling those of the other groups.

### Norsk Magazin for Lægevidenskaben, Christiania

September 1, 1919, No. 9

- The Nansen-Widberg Diffusion Phenomenon in Immune Serum  
T. Thomsen, 875. To be continued.  
\*Vaccines. G. H. M. Fred. Krohn, p. 919.  
\*Chorea (Lia in Ordo). S. Holth, p. 939.  
\*Ascites. Christen Johannessøn, p. 941.

**Ataxia.**—This is Mourad-Krohn's graduation thesis. He treats of the three great groups of ataxias, the spinal, the cerebellar and the cerebral, their pathogenesis and treatment. Systematic, minute clinical examination is, he says, the alpha and omega of neurologists, and the only guide to successful treatment. He explains how it is possible to substitute volitional movements, direct from the brain with the aid of vision, for the lost more or less unconscious reflex movements, the loss of which constitutes the ataxia of tabes.

**Filaria Loa in the Orbit.**—In the case described by Holth, the man had become infested with the filaria several years before but the parasites had probably all died except one. This seemed to live in the left orbit and occasionally could be seen under the conjunctiva. The man then hastened to the ophthalmologist but during the wait in the afternoon the parasite moved on out of sight. The filaria can move at the rate of 1 cm. per minute.

**Pseudo-Ascites.**—Johannessøn gives radiograms of a case which suggested tuberculous peritonitis with ascites but this diagnosis was disproved by the lack of fever and negative tubercle tests. The area of dullness changed its outline from day to day, and the outline was curved or angular, instead of the even horizontal upper outline of true ascites. Occasional rams occurred at times but no tender points were discovered, and there were no symptoms such as would certainly have developed during the three years if there had been a tuberculous basis. There was chronic intermittent diarrhea with anemia and emaciation. The mucous membranes had become stretched and flabby from the profuse diarrheal secretions, the stools sometimes amounting to more than 1 liter, and the girth of the abdomen declined from 60 to 49 cm. after the bowel had been emptied. This never occurred with anuria. Another differential sign was that when the patient was raised the fluctuation showed little change, while in true ascites the fluid sinks down into remoter crevices of the abdomen. Nothing to suggest stenosis could be found. The chronic diarrheal condition and gas distention had attended the unobstructed intestines. As they sagged they caused the patient to lie down with them until the physical examination revealed these with ascites. The fermentation during the attack with dietetic and other measures to treat the diarrhea, and as the appetite and general health improved the distention in the abdomen subsided.

### Ugeskrift for Læger, Copenhagen

September 8, 1919, No. 37

- \*Erythrocyte Count at Different Ages. H. J. Berg, p. 433.  
\*Eclampsia. S. T. Tofte, p. 442.

**The Erythrocyte Count at Different Ages.**—Bing's tables show that the average number of red corpuscles in 19 pre- and small children, men under 50 was 5.5 millions, the range from 4.2 to 6.1, with a hemoglobin average of 112 per cent. In 41 women the corresponding figures were 4.9; 4 and 5.9, with hemoglobin 105 per cent. In 22 men over 60, the erythrocyte average was 6.1 millions, the range from 4.9

to 6.8, with hemoglobin average of 104 per cent.; and in 21 women of 60, the erythrocyte average was 5.1 million, range from 4.2 to 6.4, with 96 per cent. hemoglobin average. Tests after drinking large amounts of fluid showed a higher erythrocyte count than before. Comparison of the count in blood from the ear, from a vein, from the abdomen and from the finger tip of the same person showed differences up to 1.6 million. The average count is thus 5.5 million for men and 4.5 for women, but the physiologic figure varies within wide limits. The erythrocytes are evidently not evenly distributed through the body. The higher erythrocyte average count in the elderly is not an absolute rule as in some of the younger persons equally high figures were noted, and, in some of the elderly, figures as low as the lowest in the younger subjects.

**Meningococcus Infection and Meningitis.**—Tobiesen reports what he thinks is a very instructive experience with two cases of meningococcus infection. A girl of 14 developed cerebrospinal meningitis; six days after the first symptoms her classmate showed meningococcus infection, but there were no signs of meningitis. Meningococci were cultivated from the throats of both girls, and both had the typical exanthem. But serotherapy was applied so promptly in the second case—the circumstances then allowing speedy differentiation—that prompt recovery followed before the meningococcus in the blood had had time to induce meningitis. Both the girls were left carriers for some time, showing that the brief febrile meningococcus septicemia is epidemiologically as important as actual meningitis.

Sept. 25, 1919, No. 39

- \*Uveoparotid Fever. H. Thomsen, p. 1517.  
\*Eclampsia with Uremia. A. Tofte, p. 1521.

**Uveoparotid Fever.**—Thomsen remarks that during the ten years since Heerfordt described the first 3 cases of uveoparotid fever, only 15 other cases have been published; 10 of the 18 were in Scandinavian literature; 2 in Germany. This set of symptoms does not seem to have been encountered elsewhere. Thomsen's attention was attracted to it by the case he here describes in a girl of 18. The slow insidious chronic course of the bilateral iridocyclitis and bilateral parotitis was accompanied by unilateral facial paralysis. The latter has been recorded only in 5 of the total 18 cases and in all these there was peripheral paresis. All agree that the disease has nothing to do with mumps or syphilis. Bang in 1908 suggested that the disease had some analogy with pseudoleukemia, while others are inclined to incriminate the tubercle bacillus. In 2 cases on record a complete cure was realized under tuberculin and this occurred also in the case here described. None of the ordinary measures had the slightest effect, while there was a strong focal reaction to the tuberculin test and striking benefit followed systematic tuberculin treatment, progressing speedily to a complete cure. He thinks it is evident therefore that in a certain proportion of these cases tuberculosis is responsible, although as yet tubercle bacilli have never been discovered in any instance. If the tuberculin test proves positive, tuberculin treatment should be given a trial.

**Uremia After Eclampsia.**—The woman in Tofte's case had had severe pregnancy nephritis at her first pregnancy; then came three normal pregnancies in rapid succession. After an interval of thirteen years the fifth pregnancy was accompanied by severe eclampsia, blood pressure 200, and 15 per thousand albumin in the urine, with much methemoglobin. After vaginal cesarean section there followed anuria, uremia and spasms, but the eclampsia subsided. The woman lay in apathy, and the clonic spasms the fourth day seemed to be due to the uremia, the total amount of urine having been only 158 c.c. in the first three days. The prognostics of such cases of anuria and acute uremia after eclampsia is grave, and decapsulation of the kidneys may be the only means of salvation. This was contemplated in Tofte's case but did not prove necessary, the anuria being overcome by drinking of fluids, repose and a diuretic. He doubts whether the patient would have survived decapsulation of the kidneys. He supplemented the 1000 to 2,000 c.c. fluid by the mouth with saline infusion of 800 to 1,700 c.c.

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## THE SKIN: A MIRROR TO THE SYSTEM

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I fear that the dramatic title of this discourse is rather misleading. I do not mean that the skin, as an organ, is of universal diagnostic value in relation to internal disorders. What I mean is that the skin may be of great diagnostic assistance in many groups of general conditions or diseases. In other words, it may reflect, as a mirror, certain fundamental truths relative to the pathology of diseases in general.

Dermatology, since the time of Hebra, has become a study of morphology. The lesions seen on the skin have been studied both histologically and clinically, generally without regard to the underlying connection they may have with any other organ or system whatsoever. Most of the literature on skin diseases consists of a clinical description of the disease and its histologic character. This custom has been extant for the past sixty years, and it has been only in the past few years that the proper study of certain diseases of the skin has been undertaken.

Leloir remarked some thirty years ago, in his graphic French way, that the skin was a mirror to the system, that is, certain signs and symptoms on it could be used, when properly understood, in the diagnosis of many systemic conditions.

Skin diseases are usually treated in the outpatient departments of hospitals and universities, without any direct connection with the departments of internal medicine. Those limiting their practice to diseases of the skin are apt, through routine and training, to pay attention only to the treatment of objective lesions on the skin, and in the very nature of this practice are not enabled to follow the case into the intricate mazes of internal or systemic conditions to which it may lead.

No one can properly study diseases of the skin and have a comprehensive knowledge of their pathology unless he is enabled to study profoundly all conditions relative to the case. This can be accomplished only in a well regulated and well equipped general hospital in which the full clinical data relative to the patient, or case, may be worked out; where he can have the cooperation of a trained internist and all of those facilities which constitute the conditions for proper clinical study.

During the past few years there have been signs of revolution in the present status of diseases of the skin, which has been brought about by the modern methods of diagnosis and clinical study.

The skin is obviously an organ of the body, as much so as the liver or kidneys, and is subject to the same laws of health and disease as those that govern the other organs of the body, the only difference being its exposed and external position. It receives its nourishment from the blood stream and is, therefore, affected as any other organ might be from anomalous conditions as to quality and quantity of the constituents of this fluid. It is affected, as any other organ, by the nerves and vessels of the body. Therefore, through this intimate internal relationship, the study of the changes that occur on the skin may prove of great assistance in the proper understanding of various systemic constitutional conditions.

This subject naturally embraces such a large field that it would be impossible in a short discourse to cover all of it. My plea is more for the purpose of drawing attention to a few striking groups of diseases in which the skin is of the greatest diagnostic assistance and importance.

For the purpose of discussion I will divide the subject roughly into, first, inherent factors that point to certain constitutional conditions, and second, blood-borne conditions which affect the skin.

### INHERENT FACTORS

Any one who has studied the pathology of skin diseases for a number of years must recognize the fact that there are certain inherent conditions in the skin, congenital or inherited, which, when understood, throw a flood of light on the proper understanding of the patient as a whole. Take, for instance, the early manifestations of that condition known as exudative diathesis, which appears very early in life and marks the infant a clinical entity, the first symptom of which is eczema. This is seen on the cheeks or body to be followed all through life by adenoids, asthma, bronchial conditions, and enlarged glands, and tells the observer, in unmistakable language, the phases of the pathologic conditions through which the patient will pass. This type of individual frequently never changes, and may be pursued throughout life with recurrent respiratory inflammations. Sensitization in infancy may be at the bottom of this condition. Improper feeding may show itself on the skin by a dry, scaly condition which may induce traumatic eczema. Heaping up of cells about the follicles on the extremities may point in early life to hypothyroidism.

How graphically may presenility be shown in those changes seen on the skin in the disease known as xeroderma pigmentosum. Although the disease is said to be due to the effect of the actinic rays of light on the skin in these persons, yet their skin is a senile skin. A senile skin at the age of 8 or 10 years does not differ fundamentally from that of an old man or of one

burned by constant exposure of the roentgen ray. This disease first shows itself by exaggerated freckles, followed by marked pigmentation, telangiectases, atrophy and, finally, the formation of carcinoma which frequently metastasizes. This skin is an old skin, and the person it covers is fundamentally senile. The signs and symptoms on the skin of these patients give one at once a clue to the equation of the individual.

Age, although usually computed by time and years, is indicated more on the skin. A man is not only as old as his arteries but also as his skin. The skin shows the first signs of senility, whether thirty or eighty years have passed since birth. These indelible signs of life-wear are seen first on the exposed surfaces and on the chest, in the form of atypical cornifications of the epidermis called keratoses senilis, of persistent freckles which do not disappear during the winter, discolored areas of the skin, and, finally, the wrinkled, atrophic appearance seen in old age.

It is curious to note how early these senile cutaneous changes occur in certain families, and usually they are seen in those who are prematurely old at 40. The skin on the back of the hand is a true gage as to the wear and tear of the body in relation to years.

The earliest signs of approaching puberty are seen on the face, indicated by the little comedo on the cheeks or nose and the increased oiliness of the skin in that region. The comedo and a mild or severe degree of the so-called oily seborrhea are as truly secondary sex characteristics as the appearance of hair on the pubes or face. They signal a systemic change, the awakening of a new phase of life, a chemical and physical change. Yet we are taught to look to the diet as the cause of oily seborrhea and the blackhead. That some systemic hormone has affected intrafollicular conditions and the fat metabolism of the epidermis is the only modern biologic explanation.

Acne vulgaris sometimes follows, with a lesion whose histopathology demonstrates its bacillary origin as truly as the military tubercle of tuberculosis is of bacillary origin. Yet we are taught to look to the diet with this histologic evidence before us. Dietetic or food-produced lesions, or, rather, lesions produced by chemicals (foods) taken into the alimentary canal or introduced parenterally, belong to the large erythema group and do not produce the organized inflammation, almost of a granulomatous character, seen in acne vulgaris. The intrafollicular flora is awakened into new life by a chemical change in the body; and not only this, but the folkle and the individual also enter a new phase of existence; the oily seborrhea, the comedo, and the acne vulgaris signal this change.

#### BLOOD-BORNE CONDITIONS

The inherent and physiologic conditions reflected by the skin are many, but we must consider the more important blood-borne conditions. The anomalous action of the ductless glands is frequently the cause of change in the skin in the form of telangiectases, pigmentation, dryness, scurfulness, darkening, etc.; all of which is well known in medicine. We will dwell, however, for a few moments on hypothyroidism, a subject which I have had unusual advantages in studying from a purely dermatologic standpoint.

The thyroid gland secretes several definite chemical compounds, each with a specific office as demonstrated by Kendall. I had arrived at this conclusion years ago from the experimental study of obvious hypothyroid

phenomena on the skin. Experimental thyroid feeding with the various thyroid preparations on the market demonstrated plainly the necessity of more exact specific preparations as, in a certain type of cutaneous change, thyroid feeding in certain cases would produce only a degree of improvement, while on increasing the dosage, untoward vasomotor and cardiac symptoms of hyperthyroidism would interfere. With Kendall's "Thyroid B" in which the vasomotor element was omitted, uniformly definite results were obtained. "B" of Kendall contained only the element which specifically affected the skin, at least, that was the obvious clinical conclusion.

The cutaneous symptoms of hypothyroidism are diagnostically more valuable than the reduction tests, the pulse, or any of the vague systemic symptoms. Sometimes the only symptoms are the skin changes:

1. There may be a dryness and scurfiness of the skin, frequently associated with pruritus.
2. A shriveled presenile appearance of the skin as a whole may exist, differing from other types of presenility in that the changes are more marked on the covered portions and on the palms and soles. The skin over the covered portions is more deeply lined, somewhat finely striated, of a very pale pear-gray, dry, maybe scurfy, and soft. The palms and soles are characteristic, dry, maybe fissured, the lines of the fingers and palms greatly multiplied by deepening of the furrows. Such a palm would puzzle a palmist. The skin of the dorsum of the foot is sometimes slightly atrophic.
3. There may be an erythema of a deep red to purplish hue on the nose and cheeks, curving downward around the corner of the mouth onto the chin. This area may be studded with small, fine, scaly papules due to secondary infection. The face is full and round, and the cheeks are prominent.
4. Myxedematous pads may be found in the supraclavicular depression. These are small, raised, tumor-like hemispheres, resilient to the touch. They may vary daily in size. Their peculiar resilience differentiates them from fat. Such pads may be found elsewhere on the individual, quite frequently on the arms, as occurred in a brother and sister in our series of cases. They can easily be discovered by careful palpation.
5. There may be loss of hair, particularly about the temples. The hair is dry and lusterless.
6. A sharply defined scorchlike dermatitis of the head, neck, face and chest may be present. The process stops abruptly just below the clavicle in a curved line, curving convexly upward and backward from the front to join the area from behind at the base of the neck. This type of marked dermatitis I have seen disappear again and again under proper thyroid therapy. It is usually accompanied by patches in front of the elbows and behind the knees. Other symptoms of hypothyroidism are usually present: headache, slow pulse, forgetfulness, pain in the back, slight resistance to cold, etc.
7. Pigmentary anomalies are frequently the sign of thyroid disturbance as well as that of other glands, the supra-renal glands, for instance. The thyroid pigmentations may be: in children, a slight deepening of pigment in a broad band about the neck, the deepening of color sharply defined; a similar deepening to a light café au lait tint about the trunk, *en cuirasse*; a darkening of the whole skin to a deep pearly or dirty, unhealthy, bluish gray, or a changing of the skin to a "skimmed milk" tint.
8. A scurfiness of the elbows and knees, when accompanied by the palmar and plantar changes, is characteristic of hypothyroidism in those past 30.
9. Acquired ichthyosis or ichthyotic-like changes appearing after puberty reflect thyroid deficiency.

When we say thyroid deficiency we do not know what we mean, and most frequently we do not obtain successful results from our present methods of thyroid feeding, as no one knows what specific elements are

contained in the products at present on the market. Therefore, a therapeutic test at present is misleading and frequently unsatisfactory. Exact, specific thyroid feeding, from the standpoint of Kendall, is needed.

OTHER BLOOD-BORNE REFLECTIONS ON THE CUTANEOUS MIRROR

*The Erythema Group.*—This group of skin diseases, including urticaria, angioneurotic edema, erythema multiforme, erythema nodosum, scarlatiniform erythemas, purpuras, certain cutaneous gangrenes and Raynaud's phenomenon, possibly certain types of pemphigus, dermatitis herpetiformis, and lupus erythematosus, is the most fascinating and alluring of all groups of skin diseases, because modern medical illumination has flashed its rays on the mirror. Our writers have not as yet seen the light relit by Osler through his epoch-making study of this group. That lesions of the erythema group were not infrequently pathognomonic of grave systemic disorders antedated Osler's observations, but the glow was dim, indistinct, flickering. Osler relit the light, trimmed it, and held it aloft.

The erythema group is always deserving of careful study and thorough clinical investigation, no matter in what eruption or form it may present itself on the skin. The eruption is always produced by something brought to the skin by the blood stream: a chemical which may produce a wheal or a papule, a tubercular lesion, a spreading plaque, a hemorrhage, gangrene or a node, through local vascular effect or an interference, physically and chemically, in the nutrition of one or more extremities—so-called Raynaud's disease. Similar results may be produced by embolic foci of micro-organisms brought to the skin. The offending chemical may come from numerous sources: a food-stuff rendered innocuous through sensitization, foreign serums parenterally introduced, focal sites of infection, drug sensitization, acute invasion of micro-organisms, as in the infectious diseases, etc. The study of an individual case presenting an eruption belonging to the erythema group is a task of no mean importance.

Many of the symptoms of this group are due to direct embolic disturbance of the skin by micro-organisms. A simple urticaria relieved by diet and salts is a therapeutic triumph; but how often do we obtain such results in other types of eruption belonging to this group? With recurrent erythema multiforme we are not so fortunate. The latter means a study which will tax all departments of clinical research. Cultural investigation may disclose a micro-organism in the general circulation when an aortic murmur may be well established or be just beginning. Sensitization tests may demonstrate a condition of allergy; the roentgen ray, an old appendical trouble; the dentist, an involved root; but this is rarely a factor; and so on.

Minute petechial hemorrhages about the edge of the lobe or concha of the ears, in the gluteal folds, in the tips of the fingers or toes, points always to emboli of *Streptococcus hemolyticus* and, not infrequently, these petechiae are associated with erythema multiforme, urticaria or angioneurotic edema.

In studying the erythema group it is well to remember that many organisms beside the spirochete of syphilis remain, we might say, latent in the system. This explains many of the recurrent, relapsing forms classically described by Osler. I have had the advantage of following several cases to the end. The most

murderous of the class of cocci that lurk in the system to appear probably at intervals in the blood stream is *Streptococcus viridans*.

This organism may not infrequently in its insidious invasive stage cause some type of erythema multiforme or urticaria; but I have never seen any eruption after the constitutional symptoms became constant. In one striking case from an old mitral lesion the new blood systemic invasion evidently began, ushered in by an urticaria, with some lesions characteristic of erythema multiforme. The subsequent course of the disease presented no cutaneous disturbance. *Streptococcus hemolyticus*, on the contrary, induces purpuric lesions with no inflammation or, at least, with very mild inflammatory phenomena, and gangrene is the frequent associate.

A child enters the hospital with erythema multiforme, purpura, or one of this group. It may or may not have intestinal crises or rise of temperature. A short sojourn effects a symptomatic cure, yet the child deserves watching unless the etiologic factors in the case have been convincingly demonstrated. Negative blood cultures are not convincing. A mitral harshness may be mistaken for an anemic murmur when it may be the incipient stage of a building colony on the valves. An erythema multiforme at 10 and 12 may explain the patient's death years after. Syphilis is not the only eruptive disorder which delays its sting for years.

I have seen the sting delayed for thirty-five years in a case of cutaneous gangrene with Raynaud's disease. To the surgeon this group is extremely important. How chagrined he must feel who has opened an abdomen in a case of Henoch's purpura; and it has happened many times and unavoidably, too. I remember a clever surgical friend sitting with a child writhing with abdominal pain, believing and hoping for an eruption which finally appeared on the skin—it was measles.

Again, an old inflamed appendix may produce an eruption. The blood count is then of great value.

One can readily discern, I hope, from this short sketch of the erythema group how important it is, into what mazes of clinical research it leads, and how fascinating is its elucidation. Dermatologists since the time of Hebra have treated these different types of eruption as clinical entities, have named them and labeled them as such. It is a rule of nature to reestablish an equilibrium; therefore, these eruptions may, and do, disappear, and in the great majority of instances their true pathology is never known, just as the eruptions of syphilis disappear, but not the disease.

Lupus erythematosus, whose eruptive phenomena frequently occur as one of the types of the erythema group, is, in a large percentage of instances, accompanied by tuberculosis, and may be pathognomonic of that disease.

Dermatitis herpetiformis, a type of eruption quite characteristic, often shades into the erythema group in some of its eruptive varieties, and is always a symptom of some systemic toxemia. It may be reproduced in certain individuals by drugs—iodids, for instance. To me, it is generally an indication of intestinal toxemia; yet other sources for toxic bodies may be found. Vaccination connects this group, in a symptomatic way, with pemphigus. How characteristic to the trained dermatologist is postvaccinal pemphigus. Yet we see exactly similar eruption with which vaccination cannot be connected. Reasoning, therefore, from analogy

on objective grounds, pemphigus is loosely related to the erythema group and is undoubtedly pathognomonic of some blood-borne principle—a chemical (toxin) or micro-organism. The kidney disturbance accompanying these variously named eruptions is significant. When death occurs from the continuous action of these agents which induce the disease, it is usually due to exhaustion or terminal infection.

The papulonecrotic tuberculids which occur most frequently in childhood and adolescence are fast attaining their true position as diagnostic signs of great value. Pediatricians are recognizing this. The skin in this instance reflects the individual's true biologic relationship to the tubercle bacillus as the tertiary lesion of syphilis does to *Spirochaeta pallida*. These lesions, as demonstrated by Rist and Rolland, indicate a condition of allergy to the tubercle bacillus. They are spontaneous examples of Koch's phenomena and are produced by endogenous reinfection from some active or latent foci of tuberculosis within the system—blood-borne emboli of live organisms.

The terrific immunizing forces set into operation by the bacilli at once destroy them and incidentally produce the tuberculid seen on the skin as papules or nodules—a mass of cells which are, more or less quickly, absorbed. The type of tuberculid depends on the location of the reaction in or under the skin or in the vessels in or under the skin, most of them being fundamentally and, in their incipency, vascular in origin. Other organisms beside the tubercle bacillus may produce similar lesions, as in the condition known as erythema nodosum. Rist remarks:

It is impossible to reflect on the anatomical and clinical evolution of human tuberculosis without meeting the problems raised by the study of the tuberculids, and one must recognize that no general conception of tuberculous infection will be legitimate if it does not take into consideration the question of the tuberculids and fails to give a satisfactory explanation of them.

The lesions produced by this terrific reaction to the bacillus may occur in the form of disseminated lesions, as small papules or large gummatous masses, especially marked on the lower limbs. They always heal readily under rest and proper food. The type known as erythema induratum of Bazin is frequent in young girls from the large shoe factories in and about St. Louis.

Raynaud's disease, portrayed for years as an affection or disturbance of the so-called vasomotor system, is rapidly losing this position as the light of careful clinical research illuminates these dark recesses. In fact, formerly, the whole erythema group was attributed to the effect of some toxin acting on the vasomotor nerve and centers. Prince Morrow's book on "Drug Eruptions" may be epitomized as the effect of the offending drug on this system. The vasomotor system has been a family bar rack on which our dermatologic family has hung anything we could not find use for elsewhere. It is a cloak, a waste basket.

The experiments of von Dühring, Phillipson and Goldrist in their investigation of urticaria, the fundamental lesion of all blood-borne phenomena on the skin, when grasped, convince one at once of the inflammatory nature of these lesions, and divorces them forever from their supposedly vasomotor origin. These investigations demonstrated beyond a doubt the local action of some poison or agent, at the site of the urticarial lesion, which set in operation terrific forces, local in action.

By discarding this warm and comfortable cloak, the vasomotor theory, the investigation into the fundamentals of all of the blood-borne group of eruptions will take on new vigor, virility and daring. So it is with Raynaud's disease—critical investigation most frequently tears away the cloak and removes it from the vasomotor phenomena and places it with the vascular obstructions, obstructions of the vessels by spirochetes, tubercle bacilli, streptococci, or any other organisms.

*Group in Which the Palms and Soles Are of Diagnostic Assistance.*—The plantar surfaces of the feet and the palmar surfaces of the hands are of inestimable value and assistance in the diagnosis of certain diseases, particularly (1) hypothyroidism, (2) arteriosclerosis and (3) diabetes. Hypothyroidism has been described.

Thickening of the epidermis on the soles of the feet, especially about the heel, with a skin of dry and calloused appearance is very suggestive of diabetes. Frequent vesication with a tendency to localized necrotic areas is quite characteristic. All of the local symptoms on the palms and soles may be attributed to nutritional changes from thickened vessels. In diabetes, the local changes do not occur until late—after arteriosclerosis has begun. These blisters and epidermic thickenings not infrequently signal the debacle in these cases.

Xanthoma tuberosum and xanthoma diabetorum are well known. Xanthoma striae on the palms and soles are often the earliest symptoms of diabetes, especially in the young. Pollitzer and Udo Wile were the first to introduce into dermatologic literature the true significance of those yellowish tuberos lesions about the joints—called xanthoma tuberosum multiplex. The lesions on the skin merely reflect, at points of irritation and frequent motion, the condition of the blood which contains in excess cholesterol—fatty acid esters which irritate and infiltrate the cells. Similar deposits are found in other organs on the body, especially the heart. Xanthoma diabetorum is probably an acute type of the same process, associated with sugar in the urine.

11 Princeton Avenue.

## OUR BLINDED SOLDIERS

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The observations on which this paper is based are drawn from studies made of the men in U. S. General Hospital No. 7, while I was psychiatrist to that institution. The men totally or practically blinded in the American Expeditionary Forces, as well as those losing their sight elsewhere in our army and navy during the war, were sent to this hospital. Hospital No. 7, "Evergreen," is situated on a large suburban estate, giving a country environment. At the time my notes were taken, the handsome residence was used for those patients needing hospital care, while the other blind men were housed and attended the classes of the educational department in barrack buildings on the grounds a short distance from the hospital.

My conclusions are drawn from a series of 115 patients. Of these, seventy were blinded by high explosives, twelve by machine-gun or rifle bullets, and six were gassed. There were five cases resulting from epidemic meningitis, five from syphilis, one from

gonorrhoea, and four from degenerative processes, probably specific. There were four cases of retinitis pigmentosa, two of glaucoma, and there were six resulting from various other causes—infections, accidents, etc. I am indebted to Lieut. L. G. Campbell, ophthalmologist to the hospital, for ophthalmologic data referred to in this paper.

The average age of these men was 25, the oldest being 36, the youngest 17. With the exception of five, they were American born. They were for the most part sturdy individuals. The majority of them had grown up on farms and were members of rather large families. Their average attainment in school was the seventh grade; fifteen had had some high school training; one could not read or write; three had had college training. The apparently medium grade of educational attainment was not due to inferior intelligence but to the fact that so many men, growing up on isolated farms and having to work in the winter, had had only limited advantages of short-term schools. On the whole, these were intelligent, practical boys of good judgment, from whose heredity and environment we would expect a stable nervous system, and in whom we would look for an average healthy reaction from the shock of the western front. Most of these soldiers participated in some of the most terrible fighting of the war. A goodly number had been cited for special bravery.

The studies were made, generally speaking, from three to four months after the date of the original injuries, and after previous hospital treatment had been received. The acute symptoms had, therefore, largely subsided. My diagnoses were based on the histories elicited and on the present condition of the patient.

#### REHABILITATION PROGRAM

General Hospital No. 7, in addition to providing hospital and purely medical care for the men, also carried out an extensive educational and rehabilitation program. The work of the two departments was, of course, closely interrelated; and an important function of the psychiatrist was that of advising in the assignments to be given the men, so that their work in kind and amount might be that for which they were best qualified in every particular, especially from the standpoint of their state of health and mental makeup. In these pages I have presented, first, the more definitely psychiatric conditions encountered at Evergreen, and later have briefly reviewed the kind of life one found there among the men—the men often referred to as sightless, but who themselves always spoke of seeing as naturally as though their eyes still existed intact.

#### TYPES OF CASES

There were forty-two concussion cases. In three of these the injuries were received outside of actual warfare, as a result of explosions—one from a torpedo and two from dynamite explosions in government construction work. The loss of the eyes in all but five of the concussions was due to high explosives. The eyes were destroyed in a few cases apparently from the violent concussion alone; but generally from penetrating wounds caused by shrapnel entering one side of the face, or one orbit, and making its exit on the opposite side. In cases of the destruction of the eyes by rifle or machine gun, the bullet followed a similar course. In the five cases above excepted, blindness was brought about in this manner. It must be borne in mind that

in addition to the atmospheric changes which are a most important element in the production of concussion, we have in these cases the direct effect on the brain by the shrapnel, or bullet, crashing through the eye structures themselves; and through the bony structures, of and about the orbits, which are in direct contiguity to the brain.

In all these cases in which violent trauma occurred, shock was present in varying degree. Thirty gave a history of unconsciousness. But it is difficult to say just what part was played in the disturbances of consciousness by the element of shock. We do not know to what extent in certain cases there may also have been organic damage to the brain. The portion of the brain in which this damage was most likely to occur was the lower frontal lobes, especially the inner depressed portions around the olfactory bulbs and tracts where definite neurologic sequelae would be lacking—except in the case of the sense of smell. Furthermore, because of the complicated nature of the bony structures about the anterior portion of the base of the brain, through which the bullet or fragment often passed, it is doubtful if in many cases roentgenography would reveal the fracture causing the brain damage. Several of the men gave a history to the effect that a portion of the brain substance had been exposed by reason of the injury.

In nineteen of the concussion cases the sense of hearing was affected, varying from a ringing in the ears, and slight deafness, to complete deafness on one side, and rupture of the tympanum in a few cases. This large proportion of auditory disturbances is a natural accompaniment of a group of concussions due to high explosives.

The sense of smell was affected either temporarily or permanently in sixteen of the concussions. In those cases in which both eyes were destroyed by the flying fragment, the ethmoid bone was usually shattered in its cellular portion, but at times through the cribriform plate as well, the latter being the most likely mechanism in the cases of complete anosmia.

The sense of taste was either destroyed or impaired in seven of these cases. This finding at once brings up the question as to how the lesions in these particular cases brought about damage to the sense of taste. We know that the chorda tympani carries the fibers for the sense of taste of the anterior two thirds of the tongue; but the further path of these fibers, to the brain, is still open to question. Erb, with others, maintains that this further path of the taste fibers is through the facial by way of the large superficial petrosal nerve and Meckel's ganglion into the second branch of the trigeminal to the brain. Meckel's ganglion lies in the upper part of the sphenomaxillary fissure, which opens into the floor of the orbit; and this fact affords an explanation of the pathologic conditions in those cases in which the floors of the orbits were fractured with injury to Meckel's ganglion, and consequent interruption to the path of the gustatory fibers. The tips of the inferior temporal lobes where the middle fossae constitute part of the walls of the orbits were in some cases in the path of injury. For this reason we must consider the possibility of damage to the motor cortical centers of taste and smell which have been charted just behind this area.

In twenty five of the forty two cases of concussion, operation was performed within thirty-six hours following the injury, thus imposing the additional trauma

of operation, and, in many cases, the toxicity of anesthesia. In some instances the operative element prolonged the period of unconsciousness and exaggerated the subsequent disturbed mental state.

#### CASES ILLUSTRATIVE OF THE CONCUSSIONS

CASE 1 (47).—The patient, aged 20, was blinded by a high explosive shell at Soissons in September, 1918, receiving at the same time wounds in left side of face and in right arm. This patient has no recollection whatever of his injury, and remembers nothing of events for a week or more preceding it (retrograde amnesia); and for the month following his memory is also a blank. The amnesic period was followed by several weeks during which he could not remember the names of people, nor call objects by their right names (paramnesia). He suffered from insomnia, was highly sensitive to noises ("jump"), was very restless, and was unable to fix his attention. This motor restlessness is still present seven months after the injury; and his taste and smell seem permanently damaged. We have been unable to induce this man to avail himself of any of the advantages of the educational department in either mental or manual training. He reads restlessly from building to building; is irascibly jealous and irritable or dejected; in a rather good humor he is always dissatisfied, wanting to be some place where he is not. He has only slight insight into his condition. I find his deep reflexes all exaggerated. This is a case of brain concussion of moderate grade in which mental deterioration will progress.

CASE 2 (41).—The patient, aged 27, was blinded in October, 1918, by a high-explosive shell on the Verdun front, sustaining at the same time an additional head wound and injuries to the left arm and left hip. There was a history of unconsciousness extending over a period of weeks. When I saw him four months later he was still bedridden, and confused as to time, place and persons. He was extremely weak and emaciated. He was in a semi-stuporous state much of the time. At times he would be humming the same tune over and over, or laughing to himself. His memory defect was very marked. He would forget in the middle of a conversation that he was being talked to, and would ask irritably why no one was there. This patient improved to a noticeable degree physically, but his mental defect was still very marked even months after his injuries. His elbow and knee jerks were exaggerated and were greater on the right; there were double clonus in the left; the pulse was 96 (in bed). The picture was that of definite mental deterioration following brain and skull concussion—moderately well marked dementia. This case represents a severe grade of concussion.

CASE 3 (32).—This patient, aged 34, was blinded in September, 1918, by a high explosive shell on the St. Mihiel front, receiving at the same time wounds in the face (four upper eyelids, lower eyelid and) and in the left shoulder. He was wounded while on patrol duty, being one of a party of four men and a German due out. "I crawled into one of the holes, and a fellow got into the bank over mine, and it was a trap. . . . I am the only one of the four left." He gave a history of bleeding from the ears following the injury, and a discharge from them for six months. He felt that all went following the injury; he turned his gun on himself, but "the trigger wouldn't work." He walked a half mile, but lost consciousness; he was unconscious for ten days. His unconsciousness was followed by confusion that lasted two weeks. He dreamed for many weeks of "going over the top"; and depression was extreme. This patient is still (seven months after injury) troubled by extreme depression, and tires easily. "When I get up in the morning I try to make good. I go all to pieces. . . . I can't stand music either, when the fellows talk I think I'll go crazy. . . . I can never like this before I was hurt; my fellow was in a jump like that I'm in his right senses." The elbow jerks are normal; the knee jerks are about normal but slightly more active on the right.

This patient is an exceptionally fine type of man, courageous, modest, naturally well poised, a Westerner of splendid physique. He has stuck to bridle with unusual persistence.

In spite of this soldier's inherent health and vigor and his force of character, the shock that his nervous system has sustained has permanently reduced his ability to withstand strain. This is a case of concussion followed by marked neurasthenic symptoms.

#### DIFFERENTIATION OF SYMPTOMS

It is manifestly impossible when the trauma is so overwhelmingly physical to differentiate etologically symptoms specifically dependent on concussion from those purely neurasthenic in nature. Observation over a long period would often be necessary for a satisfactory differentiation. In thirty-seven of the forty-two concussion cases, there developed a condition showing symptoms indicative of neurasthenia, in addition to symptoms such as the following more definitely characteristic of concussion: inequality and increase or decrease of the deep reflexes, dizziness, vomiting following injury, ringing in the ears and discharging ears, bleeding from the nose and ears, unconsciousness, pain in the head, and delirium. In those cases in which I made a diagnosis of neurasthenia in addition to that of concussion, there were found symptoms such as hypersensitiveness to sounds—"jumpiness"—dreams of the battle field, motor restlessness, paresthesias, and increased reflexes. The majority still presented, when coming under my observation, evidences of vasomotor weakness (lividity, tachycardia, lowered surface temperature, clamminess of extremities), and in a large percentage, muscular tremor.

I am impressed by the importance of being cautious in giving a prognosis for complete recovery in these cases of concussion. It is necessary to bear in mind that while, in some instances, return to physical health may be permanently maintained, in a fair number this apparent recovery may be succeeded by a slowly progressive deterioration. In all the severe cases I believe ability to withstand mental or physical shock has been permanently lowered.

Of the entire series (115 cases) fifty patients suffered from well marked symptoms of neurasthenia; four of these had not been subjected to actual warfare. The concussions, as has been stated, contribute thirty-seven of these neurasthenia cases. In addition to the fifty mentioned above, twenty-eight presented mild symptoms that were regarded as neurasthenic in nature. The term neurasthenia is used here as designating a state of exhaustion dependent primarily on such causes as physical trauma, concussion, shock, prolonged fatigue, infections, etc., alone or variously combined.

#### CHARACTERISTIC SYMPTOMS

Symptoms characteristically found in the neurasthenic group were, in the milder cases: transient depression, mild anxieties, fatigability, restlessness, insomnia, irritability, etc. In the moderately severe cases these symptoms were exaggerated and prolonged; and the depression sometimes carried the patient to the point where suicide was contemplated. Nostalgia in an exaggerated form often existed. Dreams of fighting in the trenches occurred. In these moderately severe cases, recuperation was slow, and clearly defined symptoms were still present when I saw the patients several months after the original trauma. Many showed, at this time, moderate lividity of the extremities and increased activity of the heart. Prognosis generally was good. In the severe types of neurasthenia the neurocirculatory aetiology was more grave; muscular tremors, tachycardia, palpitation, hyperhidrosis, and

increased reflexes were more in evidence. In this severe group, we find those patients who passed through marked anxiety states; sleep was disturbed for many weeks by dreams of fighting; many suffered from extreme exhaustion; in a few the neurasthenic state followed a prolonged period of amnesia or of delirium. Prognosis for complete recovery in the majority of this group is doubtful; in some, prognosis is definitely bad.

In some of these cases the term hysteroneurasthenia was used in the diagnosis to characterize the emotional element figuring in the syndrome. A fact noticed in these hysteriform syndromes was that in every instance the patient was constitutionally more or less unstable emotionally. On taking reflexes one met an overreaction in which there seemed to be a voluntary element. These men were overfearful during examinations. They were often distrustful and querulous. It must be understood that the symptoms in this group were not major manifestations of hysteria.

#### DIAGNOSTIC VALUE OF ATTITUDE TOWARD BRAILLE

I have disregarded, in these tabulations, psychasthenia as a distinct diagnostic entity. A disturbed psychic condition necessarily exists in neurasthenia, and is more or less coextensive with the state of prostration. One of the evidences that I found of considerable importance in estimating the degree of mental inadequacy, or psychasthenia, was the ability of a man to apply himself to the study of braille, a system of raised characters by which, through his sense of touch, a blind man reads, and which is more of a tax on attention than typewriting or the other curative or educational work given to the blind soldiers at Evergreen. In certain cases this study seemed to cause especial distress and irritation. "I can take anything but braille; not braille, braille drives me crazy." This attitude toward braille varied with the severity of the neurasthenic symptoms. The memory-association with this particular work, when it had been inopportunistly urged on the patient, was in some cases so disagreeable as to prevent the resumption of this necessary study, even after sufficient recovery had been made for the men ordinarily to take it up without nervous strain. On the whole, the reaction toward braille, presenting in fair measure the degree to which these men were able to exercise their mental faculties, supplied an important diagnostic aid in estimating the extent of nervous shock sustained. In marked contrast to those reacting psychasthenically toward braille stood out the small number of sturdy individuals who found little or no difficulty in keeping up the sustained attention necessitated by this study.

#### INFREQUENCY OF SYMPTOMS OF MAJOR HYSTERIA

An interesting fact found in these cases is that in only two of the series of 115 did the condition presenting seem to be symptomatic of major hysteria. In one of these patients, a negro, aged 23, a typical "shell shock" condition arose a month previous to the time his blindness came on. This patient said he was "scared" all the time he was in the trenches. He related that his "shell shock" followed the explosion of a shell near him, though he "was not injured." He stated that for a half day following this he "couldn't tell what was going on, or what people were saying." He has been "kinda mixed up ever since." He related that he stuttered for two days. This patient still stut-

ters (seven months later) when excited. After this experience he was more than ever frightened, and his sleep was disturbed by dreams of fighting. This fear continued until he got away from the sound of the guns a month later. At this time he was taken sick with fever and headache. His vision failed and he was sent back to a hospital, where a month later one eye was enucleated. He was greatly depressed. The ophthalmologist's diagnosis was acute glaucoma. Six months later, examination revealed general hyperalgesia, with hysterical weakness of the left side of the body. This man had had pleurisy on the left side three years before going into the service. The knee jerks were minus; the elbow joint plus; there was tremor of the tongue and a pulse of 120 (sitting). The patient was overfearful during the examination.

The second patient with hysteria was a musician, aged 24. He was gassed but not sufficiently to account for the optic atrophy that was afterward discovered. There is a history of blood and spinal fluid examination; following lumbar puncture his right leg was paralyzed for three days; then it became numb with additional numbness of the entire body up to the nipples, the whole lasting about six weeks. His "body felt as though it was asleep." During this period he could not bend his knee or ankle. At the time of my examination, eight months later, the deep reflexes were slightly more active on the right. This patient presented a hysterical constitution, with a degenerative, probably syphilitic, neurotic process.

The absence of major hysterical symptoms among the men of this series, blinded at the front, is so striking that it calls for comment. Among those who received their wounds in actual battle there was an absence of stuttering, massive muscular tremors, tics, palsies, aphonias, hysterical deafness, etc.—in short, such phenomena as characterized the cases of major hysteria I saw at Plattsburg. The theory that hysteria does not develop when the wound is a "blighty," namely, so severe as to put the man definitely out of action, does not seem to afford a satisfactory explanation for the absence of hysteria in these men blinded under shell fire. For in only two or three instances did the soldier seem to realize at the time that his eyes were put out. In most cases the men did not know that they were blinded for weeks, and often for months, after the injury. Some were not told that they had permanently lost their sight, until after they had reached Evergreen. Very few suffered pain of any consequence either when wounded or subsequently; and thus many, their eyes being bandaged, did not suspect the seriousness of their condition. A number spoke of having expected to return to their "outfits" in a few days, and of being disappointed that they were not sent back to them. Nor could I discover from their talk that there had been any desire to escape from the fight, or any feeling of jubilation over being out of it. Their dreams, when such had occurred, were almost invariably of killing Germans, and of themselves coming out victorious. In the case of one patient, a boy only 17, who was somewhat unstable emotionally, a fear element came out in the dreams. He would awaken as "the boche was taking his trench." These findings are not such as we get in certain cases, when the absence of hysteria is attributable to belief in a disabling wound.

It seems reasonable to suppose that in so large a series there must have been men who were potential

candidates for major hysteria. The conditions under which the group received their knock out wounds were precisely similar to those conditions under which other men were wounded who did develop hysteria. However, there were two factors present in this set of injuries that did not exist in any other: the men were immediately blinded, and consciousness was at once more or less obtunded. The almost universal absence of pain is a tangible evidence of a general blunting of the sensorium. These two distinctive features seem to me of valuable consideration in explaining the absence of hysteria in these cases. Blindness shut out in a flash the horrible scenes of the battlefield. It is interesting to note in this connection that blindness was frequently encountered in soldiers as a hysterical phenomenon. This indicates the frequent importance of vision in connection with the scenes of the battle-field, when a psychic trauma supervenes. The second factor, the obtunding of consciousness, is of greater significance. Obtunding follows of necessity the peculiarly violent head injury sustained in these cases. In the dynamics of hysterical symptomatology formation, there seems often to be a critical moment during which consciousness is in a supreme state of awareness, and hyperemotional tension. This awareness and tension are, in fright situations such as confronted the soldier, most likely concentrated on some imminent hazard to life and overwhelming desire for escape from an unbearable situation. In the hysterical individual, the higher mental faculties seem, at this critical moment—the precipitation instant as it were—to be rendered suddenly inert by emotional panic, and the individual reverts to primitive biologic impulses having self-preservation or escape from an unbearable situation for their goal. In the reflex activities which occur, the higher mental faculties are shunted out of the arena, and the most varied and distorted associative mechanisms may be set in motion. It is from these mechanisms, coming into action in the lower biologic strata, with the controlling civilizational motives shut out, that the more or less autonomous hysterical symptomatology arises. I think I am safe in saying that because of the instant blunting of consciousness, along with simultaneous blinding, which occurred in these men, it was dynamically impossible for the mechanisms necessary for the acute onset of hysteria to come into play.

It may be remembered that the two men who developed major hysteria had not been wounded in battle or blinded, at the time of the onset of the symptoms. The first man developed symptoms following the explosion of a shell nearby, a month previous to the time his vision failed from acute glaucoma. In the second case, hysterical symptoms followed lumbar pain some time before the onset of blindness which was due to degenerative processes. There was a third man at Evergreen (Case 129), seen after the foregoing man was compiled, who developed hysterical symptoms; here, also, the symptoms arose independently of battle wounds or blindness. This patient lost his sight following influenza, his hysterical, "shell shock" symptoms ("I hollered and cried") came on in the trenches apparently during the prefebrile period of his influenza.

In the majority of the patients, operation was done within twenty-four hours after injury was received. Usually a general anesthetic was given. Almost with-

out exception those patients who were in an exhausted physical state at the time they received their injury experienced, while recovering from the ether, a condition of delirium in which they imagined themselves fighting in the trenches or carrying on in some violent war activity. In some cases a delirium succeeded the operation.

#### ABSENCE OF PAIN

A feature that has occasioned surprise is the fact that these patients almost universally, regardless of the manner in which the eyes were destroyed, give a history of having suffered very little pain. This was true even though both eyeballs were entirely evulsed from their sockets, and perhaps with considerable destruction of the surrounding tissues.

#### THE FORTITUDE SHOWN BY BLINDED SOLDIERS\*

There was surprisingly little depression experienced by the men as a result of the knowledge of being blind. As has already been said, many did not realize, often for weeks or months, that their sight was gone; and, when they at length found out their true condition, they had already made long strides toward adapting themselves to a state of blindness. Those who were much depressed over the loss of their eyes were either those who had sustained unusually severe injuries or showed signs of constitutional instability or had been isolated from other blinded men from the time of their injuries to the time they returned to the United States.

In any consideration of our blinded soldiers, we are confronted with the stern fact that these men are permanently disabled and with the handicap that is generally looked on as well-nigh insurmountable. The question of supreme interest for all of us, then, is to what extent this group of returned soldiers are going to be able to adapt themselves to the social and economic life of their communities. War compensation, which is generously supplied these men by the government, while it takes care of ordinary financial needs, can never of itself, except in a most inferior, vegetative kind of person, give happiness or content or make the man a useful member of society. These fellows were an active, energetic, often ambitious lot. For them to drag out an idle, vegetative existence, subsisting on government bounty, would mean certain deterioration and mental dilapidation. Better than this, for the individual, would be a beggar's post, the street corner; for that at least has, as an incentive, the question of the day's luck. If life is to be bearable to these men, and if they are to be other than a burden to their communities, they must be made again independent, active individuals with initiative, competing with a degree of equality with their fellows, in social and economic affairs. It was for the purpose of thus training the blind that the educational department of Evergreen was established. It is said that a blind man must be "125 per cent.," that is, he must be 25 per cent. more efficient in a particular calling than the sighted man with whom he has to compete.

#### RECREATIONAL AND EDUCATIONAL ACTIVITIES

Shortly after the men arrived at the hospital, as soon as their physical condition warranted it, they were granted a furlough, and immediately on their return to the post, they were introduced, on the psychiatrist's recommendation, into various activities, according to each individual need. At first these were largely recre-

ational in character, such as dancing, swimming, bowling, theaters and concerts. At the same time the man could take on some of the activities of the curative work shop, such as basketry, carpentry, weaving and netting. Wherever possible they were introduced at once to the typewriter and to as much study of braille as the condition of their nerves and attitude would warrant. Along with the foregoing, many of the patients immediately entered on some vocational and educational training: salesmanship, physiotherapy, literature, book binding, machine shop industries, different forms of agriculture, and many other pursuits. Chicken raising was being followed by a number of the men with great enthusiasm.

The response to the many avenues of rehabilitation open to the men was very general; but there were a few to whom the task of readjustment seemed insurmountable. In this group there were three men who were constitutionally inferiors; undisciplined, irresponsible individuals of nomadic habits, who would have been ne'er-do-wells and trouble makers, just as well, if they had not lost their sight. There were also four cyclothymic individuals of the constitutionally elated character. These men, on account of their native excessive activity and "press of occupation," had great difficulty in resigning themselves to the handicap of blindness. With this group there were periodic outbursts of insubordination to authority; they would become paranoid and violently resentful of authority and discipline. During the intervals they usually did good work. There were seven patients in whom hyperthyroidism presented a complicating factor in the matter of rehabilitation. In one the thyroid condition was a serious handicap. A few had always been unresourceful, phlegmatic and at times constitutionally depressed. In these cases it was rarely possible to counteract the inherent tendency to drift into a life of inactivity, with loss of ambition, and general deterioration.

Peripheral nerve injuries were found in twenty-one of the men. In two of these cases the nerve injuries seriously interfered with the use of one hand, but the majority of these lesions were of minor significance, and for the most part caused merely small areas of sensory disturbance, infra-orbitally or supra-orbitally. There was one man in the hospital who had lost one hand, and one man with both hands gone.

The impression prevails that a visitor to the hospital would encounter a depressed and unhappy lot of men. On the contrary, one found a cheery atmosphere of interest, joviality and activity. There was much "joshing" and fun-making. The boys always referred to each other as "blinks," and would speak of getting a "half blink" (a man with one good eye) to take them about. If a cane fell or some one blundered noisily, there was likely to be a chorus of: "Hey, blink, better get your eyes examined." There were stock jokes about being able to see when they got their glass eyes; and about getting jobs as night watchmen. The patients went about the grounds and buildings in groups or alone with almost no hesitancy or groping. It was not always possible to know that a man was blind from his manner or walk. They enjoyed doing certain things, like holding a coat for one to put on, or opening the door if going out or in with any one, etc. These things seemed to make them feel independent and less set apart from sighted men. The blind boys were especially fond of dancing. This was

one of the first things they were taught at Evergreen. It not only seemed to instill confidence, in a surprisingly short time, in their ability to get about, but the knowledge that they were not to be shut out from the good times of other young people was a big element in the matter of sane adjustment to life. These dances with their chaperones and hostesses to see that no boy was neglected, the daily tea and cakes at the Red Cross house, the quiet story-reading hours, with the interesting work of the school, opened a new world to many of the lads. The majority had grown up in very simple surroundings. It was interesting to see how quickly some of them threw off uncouthness and took on amenities.

A curious thing in connection with these young men was the fact that the majority of them, sooner or later, discounted entirely the loss of their eyes. Again and again one would hear: "No; I don't miss my eyes. I never think of them except when I go into strange places." Many men dismissed the subject of being crippled by blindness with an air of contempt. In daily contact with these men one got the impression that they had to stop to consider, to remind themselves that they were without eyes, when their blindness was brought to notice. The remaining senses, in some cases, became marvelously acute. There were men, totally blind, who could tell when they approached a building or a tree, possibly through appreciation of some echo or through a change in atmospheric pressure. One morning, one of the patients came into a class room, which ordinarily contained three typewriting tables with a chair at each. For some reason, earlier in the day, the back of the room had been packed with chairs. The man stopped suddenly inside the door to ask: "What's the crowd for?" We told him there was no one in the room but ourselves (myself and a teacher); but the young man was not satisfied. He kept turning his head about, and finally came out with: "There's something in this room; it's full of people, or something else."

#### RELIEF AFFORDED BY ASSURANCE OF FUTURE SUPPORT

In considering the reactions of these men it is well to take into account certain factors that undoubtedly played an important rôle. The men realized from the beginning that their future support was assured. Thus was removed the great anxiety that usually goes with the affliction of blindness. One of the great factors that contributed toward sustaining their morale and attitude of cheerfulness has been the fact of being associated with those similarly afflicted in a big common experience. The patients frequently declared that they were far happier when they were with other blinded men. It was noticeable that in a few instances, when men had been placed in hospitals or posts, apart from other blinded soldiers, they had been lonely and unhappy, and unable to adjust themselves successfully to their handicap. It happened almost uniformly that the men were eager to return to the life at the hospital after they had been home on furlough. The discipline of military life was, I believe, of inestimable value to the blind men at Evergreen; modified as it was, and wisely applied with rare insight and administrative ability.

In conclusion, I wish to add that I observed no type of mental reaction that may be regarded as peculiar to the blind. The fact that these men were interested

and entertained, and made to realize the many possible personal accomplishments open to them, tided them over that critical period of adaptation and nervous strain which otherwise would probably have thrown many of them into a life of inadequacy and hypochondriacal invalidism. Those patients who developed psychiatric conditions, such as paranoid ideas, represented cases of constitutional psychopathy, or had sustained organic damage to the brain by reason of concussion, penetrating wounds or other cause.

466 Bayard Street

## FETAL DEATH

### A STUDY OF ONE HUNDRED AND NINETEEN DEATHS IN A SERIES OF CASES\*

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SAN FRANCISCO

Williams<sup>1</sup> reported, in 1915, his series of 705 fetal deaths occurring in 10,000 consecutive cases at the Johns Hopkins Hospital. His total of 7 per cent. mortality included babies from the seventh month of gestation to fourteen days after delivery. Holt and Babbitt<sup>2</sup> reported in the same year a series of 10,000 cases from the Sloan Maternity Hospital. Their total mortality was 7.2 per cent., of which 4.2 per cent. represented stillbirths, while 3 per cent. occurred in infants who died within fourteen days following delivery; of these, half died during the first day. The mechanism of the various causes of death during labor has been discussed in a paper by Reed.<sup>3</sup>

My purpose, in this paper, is to record another series of carefully observed cases, which should be of added interest since, as far as I can determine, there is only one similar report from any of the Pacific or Middle Western states, that being a report of a series of 500 cases, with twenty-seven deaths, issued from our own clinic by Slemmons,<sup>4</sup> in 1915, in a paper discussing placental bacteremia as a cause of fetal death.

The present report covers a series of 2,717 deliveries in the University of California Hospital, the series terminating, Dec. 31, 1918. Patients in 2,215 cases were delivered in the hospital, and in 502, at their homes. Reckoning from the period of possible viability (the thirtieth week) to twelve hours after delivery, there were ninety-seven fetal deaths. So many factors play their part in causing the death of a child after the first twelve hours of life that it has been most difficult to assign correctly the part played by injury at birth. We have, in consequence, restricted our limits as above indicated. Within these limitations, the fetal mortality was 3.6 per cent.

In addition, there were found in this series twenty-two cases of fetal death occurring before the age of viability, namely, during the fifth and the sixth months, bringing the total deaths up to 119, or 4.4 per cent. We have entered these for comparison in several of our tables. As there were two instances of the delivery of

twins, there were only 117 mothers who lost their babies.

In Table I, we have attempted to classify our cases according to the cause of death. For the sake of clearness, we have assigned each case to one definite category, although it is obvious that it could not have been always strictly correct to do so, since several factors may present themselves for consideration, each of which contributes to the final result. For instance, if a case of toxemia of pregnancy calls for interference before the onset of labor, a bag may be introduced, and if the membranes are ruptured in the process and the head fails to engage, prolapse of the cord may occur, with indications for hurried extraction. The child is dead, and the question is, What killed it: toxemia, introduction of the bag, or extraction? It is often difficult to decide. But when a definite cause for premature labor or premature induction of labor is apparent, we have attributed death to this cause rather than to prematurity as such.

### CAUSE OF DEATH

*Syphilis.*—In this group are fifteen cases. All of the mothers had syphilitic treatment during pregnancy. The cases were diagnosed by (1) a strongly positive Wassermann reaction in the mother, or (2) by syphilitic changes in the placenta, or definite syphilitic lesions in the fetus. Microscopic examination was made

TABLE I.—CAUSE AND PERIOD OF ONE HUNDRED AND NINETEEN FETAL DEATHS

Cause	Under 30 Weeks	Over 30 Weeks	Percentage	Williams in 10,000 Cases
Syphilis.....	0	15	15.5	26.4
Unknown.....	6	17	17.5	18.0
Birth trauma.....	0	36	37.1	17.6
Toxemia.....	4	9	9.2	6.5
Fetal abnormality.....	1	8	8.2	3.4
Prematurity.....	2	5	5.3	7.1
Placenta praevia.....	2	2	2.0	3.1
Varicella.....	8	5	5.2	11.2
Total.....	22	97	100.0	

of each placenta in this entire series. The Wassermann test has been made in all doubtful cases since 1911, and in every case since 1914. It is quite possible that some syphilitic cases have escaped detection, even with these methods of diagnosis. The greater percentage of fetal death from syphilis in Williams' cases is due undoubtedly to the great prevalence of syphilis in the negroes of his clinic; 21.6 per cent of the negroes in his clinic gave manifestations of syphilis, which was present in only 4.8 per cent. of his whites. Our series includes few negroes.

*Unknown Cause.*—There are seventeen cases in this group, and of this number the infants in ten were macerated. Sufficient evidence could not be found to make a definite diagnosis at necropsy, although it is considered that about 80 per cent. of these cases were really syphilitic. Even should we class all of the macerated cases as syphilitic, there remain seven cases in which we have not been able to determine the actual cause of death.

*Birth Trauma.*—Included in this group are thirty-six cases, comprising 37.1 per cent. of the total. The different traumas and the number of deaths for which each was responsible appear in Table 2.

Undoubtedly, some of the deaths in this group represent the premium paid for experience, yet the majority were unavoidable. The cases of prolapsed cord

\* From the Women's Clinic of the University of California Hospital, Frank W. Lynch, M.D., director.

1. Williams, J. W., "The Incidences and Possibilities of Prenatal Death," *J. A. M. A.* **64**: 5 (Jan. 2), 1915.

2. Holt, L. E., and Babbitt, E. C., "Institutional Mortality of the New Born," *J. A. M. A.* **64**: 277 (Jan. 10), 1915.

3. Reed, C. B., *Surg. Gynec. & Obst.* **24**: 545, 1918.

4. Slemmons, J. M., "Placental Bacteremia," *J. A. M. A.* **65**: 1265 (Oct. 9), 1918.

are of considerable interest. In one instance, the prolapsed cord was not discovered until two pains before delivery; one pulsating cord might have been replaced; interference was not attempted in another case because of a previous complete rectovaginal laceration through which liquid feces constantly poured into the vagina. In other cases, the cords were pulseless when first examined in the hospital.

We have reviewed the breech cases carefully without finding hope for better results than were obtained under the treatment given—except in one case in which the baby was spontaneously delivered at home before the physician arrived. The body had been born nearly twenty minutes, the head remaining undelivered.

Combining the forceps and prolonged labor cases, we find contracted pelvis of moderate grade in seven of the sixteen cases. The patient, in this type of case, is either brought into the hospital far advanced in labor or else is given the test of labor, and the case gets beyond the point at which ideal treatment from the standpoint of the child can be given, because of increased risk to the mother. In his group, it is possible that different treatment would have saved four babies. One patient had been given, before admission, 1 c.c. of pituitary extract during the first stage of labor, and 1 c.c. during the second stage; finally, high forceps were applied. No record of pelvic measurements had been taken before admission. One patient

toxemia. Our clinic has used every effort to reduce mortality in this group by a well organized prenatal service in which the registered patient is seen at the clinic or visited at her home at two-week intervals. Yet there are always patients entering hospitals who have not had prenatal care. Moreover, eclampsia often comes without warning, as has been emphasized by Lynch.<sup>5</sup> At least one patient in the series developed eclampsia, whose blood pressure and urine had been normal a few days before admission. Williams cites similar cases of rapidly developing toxemia.

TABLE 3.—DEATHS OCCURRING IN DIFFERENT TYPES OF FETAL ABNORMALITY

Abnormality	No. of Deaths
Meningocele—double cleft palate	1
Congenital cystic kidney	1
Anecephalic in uterus	3
1 mother, aged 40, quartidipara	
1 mother, aged 25, primipara	
1 mother, aged 16, primipara	
Lymphoedema	1
Edema of lungs with right hydrothorax	1
Congenital heart disease	1
Perforated inter-lobular septum	—
Chronic endocarditis with pulmonary stenosis	—
Total	8

In one case, the mother used alcohol habitually to great excess. She was drunk when she entered and had, moreover, a systolic blood pressure of 185 and a diastolic pressure of 130, with a heavy trace of albumin in the urine. The child was born macerated.

*Fetal Abnormalities.*—This group comprises eight cases, or 8.2 per cent. of the total. The nature of the abnormalities and the number of times of occurrence of each appear in Table 3.

The infants in all of these cases were stillborn, except the hydrocephalic child, which displayed abortive respiratory efforts during the attempt to extract it. The aftercoming head was delayed twelve minutes after the appearance of the umbilicus. It might better have been perforated.

*Prematurity.*—There are only five cases left in this group after our various subtractions from it, noted above, of those instances in which the children were born alive but succumbed within a few hours. In these five cases we could find no other cause for premature death than immaturity. Necropsy disclosed only at-

TABLE 2.—DEATHS CAUSED BY DIFFERENT TYPES OF TRAUMA

Nature of Trauma	No. of Deaths
Prolapsed cord	0
Low and midforceps	5
High forceps	5
Prolonged labor	2
Breech	3
Version and extraction	3
Asphyxia—due to delayed delivery after signs of danger were apparent	3

was allowed to continue in labor six days before there was any interference in this distressing state of false labor pains and prolonged first stage. The cervix was finally dilated manually, and the child was delivered by a most difficult forceps operation. Early interference by cesarean section might have saved one other case in this group, in which a generally contracted pelvis of moderate degree greatly delayed delivery. In one case, pituitary extract was given three times before low forceps were applied. In another case, "twilight sleep" was attempted in a woman with a simple flat pelvis. Labor was greatly prolonged and was finally terminated by pubiotomy, the application of high forceps, wide episiotomy and craniotomy. To these there must be added three other cases in which incision and delay after the appearance of danger signs undoubtedly contributed to cause death. In the light of the records of the remaining cases, the treatment given seems to have been without criticism.

*Toxemia.*—Under this heading we have grouped nine cases, representing 9.2 per cent. of the total mortality in which some toxemia, as eclampsia or a marked disturbance of kidney function, either caused premature labor or gave definite indications for the termination of pregnancy. Since the mother's welfare is the first consideration, we may naturally expect a high percentage of fetal death when the maternal condition demands interference before term in the presence of

TABLE 4.—FETAL DEATHS FROM MISCELLANEOUS CAUSES BEFORE THE AGE OF VIABILITY

Cause of Death	No. of Deaths
Premature separation of normally implanted placenta	3
Premature separation of membranes	1
Laceration, laceration and removal of fetus from an anteverted or retroverted uterus	1
Suffocation of mother—child delivered by post-mortem cesarean section—level 15 minutes	1
Psyllid with severe toxæmic symptoms	1
Decompensated heart disease of mother	1

letaxis in each case. Otherwise, the infants were normal for their respective periods of development.

*Placenta Prævia.*—In this group, there were only two cases in which hemorrhage from placenta prævia occurred before manifestations of labor. In one case, the membranes and placenta had been ruptured prior to the insertion of a bag. When the bag was removed from the vagina, the pulseless cord was found to have been prolapsed. The placenta was born before the head. The child was full term and stillborn. In the

Other case the patient was delivered by podalic version, after dilatation of the cervix by Voorhees' bag. The child was at term and stillborn.

**Various causes.**—We have grouped in this class cases from which only one or two deaths occurred. As a result of premature separation of a normally implanted placenta, there was one fetal death; of premature rupture of the membranes, two deaths; of abdominal pregnancy, one death, and of cord hemorrhage, one death.

In the first three of these cases, the fetus was dead before the onset of true labor. The membranes rupture prematurely rather frequently, though they rarely cause fetal death. It would appear that they ruptured one month before delivery in one case, the child dying from an ascending infection through the cord.

The case of abdominal pregnancy was definitely diagnosed some weeks before the operation, while the child was still alive. The difficulty of controlling hemorrhage after the removal of the large placenta from the noncontractile pelvic tissues seemed so great, in the presence of an enormous child (10 pounds), that the case was allowed to go over term, with the expectancy of fetal death with consequent involution and cessation of the placental circulation. Two weeks after cessation of motion, the mother presented sharp rises of temperature and pulse, which were interpreted as definite indications for operation. Abdominal section was performed, and the dead fetus and the partially involuted placenta were removed without marked bleeding. Drainage was made over the placental site, through the abdominal wall. This method was chosen deliberately after all possible methods had been explained to the patient who, because of many small dependents, could not afford to take the added risk of a section for a living child. The mother made a good recovery.

The child that died of hemorrhage from the cord was delivered from a woman with placenta praevia,

The relation of the age of the mothers to fetal death (Table 6) shows a remarkable lack of variation. The ages are arranged in groups of five years. The smaller percentage of fetal death when the mothers were under 19 years and over 35 years probably does not indicate the lower incidence of death at these ages, but is a result of the smaller number of cases in these groupings of the series.

Normal pelvis were found in ninety-eight cases, generally contracted pelvis in eight, simple flat pelvis in four, and rachitic flat pelvis in three; and there was one case each of rachitic transverse contracted,

TABLE 7. PRESENTATION OF FETUS

Presentation	No. of Cases	Percentage
Left occipito-anterior	20	33.3
Breech	29	21.8
Right occipito-anterior	17	14.5
Right occipitoposterior	11	9.4
Occiput anterior	3	2.8
Left occipitoposterior	2	1.8
Right occipitotransverse	2	1.8
Face	2	1.8
Transverse position	2	1.8
Cesarean section (position not given)	7	5.9
No data	5	4.3

rachitic generally contracted, assimilation, and funnel pelvis.

The presentation and position of the fetus is given in Table 7.

The high percentage of breech presentations will be noticed, 24.8 per cent., as compared to Pinard's finding of 3,301 breech presentations in 100,000 cases more than seven months pregnant. In the greater percentage of our breech cases, birth was premature, and the position as such complicated labor or caused difficulty in the extraction, and was thus responsible for death in only five cases. The majority of the macerated fetuses in our present series presented the breech. The infrequency of left occipito-anterior and right occipito-anterior positions confirms the general idea that they predispose to easier labor and happier results. Nearly all the unusual positions are represented in the series. 2859 Jackson Street.

## ETIOLOGIC STUDIES IN TUBERCULOSIS

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The etiology of pulmonary tuberculosis is far from being a closed subject, and this communication is an attempt to supply what seems to some workers missing links in the etiologic chain. The dicta of many authorities have been apparently blindly accepted by their followers. On close scrutiny it is seen that many statements rest on inference rather than on fact. We have attempted in these few experiments on guinea-pigs to accept no statements, and to trace the tubercle bacillus, if possible, directly from the source of infection to the apparently exposed animal. The final test was of course the necropsy of the guinea-pig. In succession we studied the dust of rooms, the telephone receivers, the eating utensils, the infected hands of patients, the saliva, the transmission by kissing, the infection of tooth brushes, and the danger of flies and of coughing in tuberculous infection for guinea-pigs.

TABLE 6.—THE RELATION OF THE NUMBER OF PREGNANCIES TO FETAL DEATH

Pregnancies	No. of Cases	Percentage
Primipara	51	43.6
Secundipara	17	14.5
Tripipara	15	12.8
Quadrupara to quinquipara	17	14.6

TABLE 8.—AGE OF MOTHER IN RELATION TO FETAL DEATH

Age of Mother	No. of Cases	Percentage
15-19	18	15.4
20-24	30	25.5
25-29	28	23.4
30-34	21	17.4
35-39	12	10.0
40-44	7	5.8

in perian section. Presumably, the cord was loosely tied, since the baby was found dead two hours after birth, with considerable blood in the cord dressing. The child was premature, at the seventh month. A larger child might have survived the accident.

**Miscellaneous Causes.**—Deaths from miscellaneous causes, in fetuses under the age of viability, are given in Table 4. I have tabulated several other items of interest brought to light during the review of this series of cases. Reed is of the opinion that there are three times as many deaths in primiparas as in multiparas. In this series, they are nearly equally divided.

## I. THE DUST OF ROOMS

Since Hance found tubercle bacilli in the dust of a room on the floor of which a patient had spat, and failed to find them in other rooms, several attempts have been made to discover tubercle bacilli in the dust at the Trudeau Sanatorium. The dust collected by a vacuum cleaner from a large rug in the living room was negative on injection into a guinea-pig. The same result was obtained with the dust from a room in the infirmary occupied by a patient with numerous tubercle bacilli in the sputum and a cough so explosive that the mouth was rarely covered. Notwithstanding these results, we again investigated the subject and chose only rooms occupied by patients with severe cough and many tubercle bacilli in the sputum. Dust was collected before the daily cleaning by swabbing with sterile swabs the bed, tables, chairs, bed frames, corners of the rooms and walls near the patient. The swabs were washed in sterile broth, the washings treated with normal sodium hydroxide, incubated for one-half hour, then neutralized with normal hydrochloric acid, centrifugalized, and the sediment divided into three portions. Of these portions, one was inoculated into gentian violet mediums, another was stained in a slide for microscopic examination, and the third was inoculated subcutaneously in the inguinal region into guinea-pigs, two for each swab. In all, twenty-four animals were used.

*Results.*—As the gentian violet mediums were all contaminated, chiefly by molds, this method of study was abandoned.

As the slides stained for tubercle bacilli were all negative and not satisfactory, it was decided to pursue the study only by the inoculation of guinea-pigs.

The twenty-four guinea-pigs inoculated, Feb. 9, 1916, were killed forty-one days later and all organs, except a few enlarged bronchial glands and spleens, appeared normal macroscopically. The suspected organs were macerated and inoculated into a second series of guinea-pigs, March 22, 1916, which were killed, April 27, 1916, and were all negative for tuberculosis.

We then investigated the dust of two rooms in Saranac Lake Village, formerly occupied by two patients both long since dead, one a young colored girl, the other an advanced case. Both had numerous tubercle bacilli and violent coughs. The results were also negative. Since that time the sister of the colored girl who nursed her has developed pulmonary tuberculosis.

The mouthpiece of the telephone used in common by the patients at Trudeau was carefully swabbed out. The results of inoculation were also negative.

Thinking that infection by inhalation might prove more efficacious, we constructed a special glass box in which a guinea-pig was placed and kept in a definite position. This box was then attached to a vacuum cleaning apparatus, and dust drawn through it for one half hour. The three guinea-pigs used were not infected (subjected to dust, Aug. 7, 1916; intracutaneous test, Sept. 20, 0.5 c.c. of 1 per cent. old tuberculin, negative; necropsy, Sept. 24, and suspected organs were macerated and inoculated into a second series of guinea-pigs, which at necropsy, Nov. 20, 1916, showed no tuberculosis).

## II. EATING UTENSILS

The plates, cups, glasses (water and milk), forks, spoons and knives of patients who had numerous tubercle bacilli in their sputum (Gaffky VII and IV)

were studied immediately after breakfast. Particular attention was paid to those parts of the cups and glasses that come in contact with the lips. For purposes of study, plates and knives, cups and glasses, and spoons and forks were grouped together. Swabs were used and treated as in the first study. With the exception of two glasses (as noted above) and two spoons, one each of the utensils mentioned was studied for each patient.

*Results.*—The spoons, forks, glasses and cups were contaminated with tubercle bacilli, while the knives and plates remained free. In each necropsy a small portion of the spleen and the pus from the glands were used for smears, and acid-fast organisms were demonstrated.

As Price<sup>1</sup> had previously proved, ordinary washing and rinsing in very hot water is sufficient to sterilize these utensils.

## III. CONTAMINATED HANDS

Two patients with abundant sputum loaded with tubercle bacilli were instructed to cough hard and frequently on their hands, which were then washed in a small quantity of sterile water. The entire wash water was then (Sept. 1, 1916) injected into guinea-pigs, two for each patient. At necropsy (Oct. 20, 1916) generalized tuberculosis was found in all four guinea-pigs. This confirmed the work of Baldwin.<sup>2</sup>

An attempt was then made to infect the hands of a second person by hand shaking and a doorknob by rubbing it with the infected hand. After coughing on the hand, the patient immediately shook hands with a person whose hands had been previously cleansed. The hands of the second person were washed as previously described, and the entire wash water injected subcutaneously in the inguinal region into four guinea-pigs (Sept. 1, 1916), all of which remained free from tuberculosis (necropsy, Oct. 20, 1916).

Jan. 26, 1919, this experiment was repeated and two guinea-pigs were injected, in which at necropsy (Feb. 24 and March 6, 1919) no tuberculosis was found. The patient employed to cough had been so impressed with the danger of coughing that his attempts were considered too feeble, and again, March 14, the experiment was repeated and the two guinea-pigs killed, June 3, and found to contain no tuberculosis. In all these experiments cultures of the wash water on gentian violet mediums and slides stained with carbolfuchsin were negative.

A patient with positive sputum was made to cough several times into his hands and rub his hand over a doorknob previously sterilized. The doorknob was washed with sterile physiologic sodium chlorid solution, and this was injected subcutaneously in the inguinal region into two guinea-pigs, Jan. 26, 1916. At necropsy, June 3, the guinea-pigs showed no tuberculosis, and the slides stained by carbolfuchsin and the gentian violet mediums inoculated were all negative.

## IV. THE SALIVA

Before studying the danger of transmission of tubercle bacilli through kissing, it was deemed advisable to study the saliva. The saliva of two patients with numerous tubercle bacilli in the sputum was collected in a sterile container just before coughing and inoculated subcutaneously in the inguinal region into two

1 Price, J. W. The Distribution of Tubercle from Table Utensils at Saranac, *J. A. M. A.* 52: 208 (Feb. 13), 1916.  
2 Baldwin, E. R. *Tr. Am. Otolaryngol. A.* 1: 1: 102, 1913, *ibid.* *id.* *id.* *M. J.* 2: 1198, 1908.

guinea-pigs (Sept. 1, 1916). At necropsy, Oct. 20, 1916, both showed extensive tuberculosis.

#### V. KISSING

The lips are constantly moist with saliva and frequently contaminated with sputum. To prove transmission of tubercle bacilli to the object kissed, a patient with many tubercle bacilli in the sputum (Gaffky VIII) was instructed to kiss a sterile Petri dish which was washed with sterile physiologic sodium chlorid solution and inoculated, as previously described, into guinea-pigs. The guinea-pigs inoculated with the washings from plates kissed, some immediately after and some ten minutes after coughing, developed generalized tuberculosis, while those inoculated twenty minutes after coughing remained free from tuberculosis.

As infectiousness of the dishes seemed to vary somewhat with the time of coughing, it was deemed advisable to investigate the question of time more closely. A patient with numerous tubercle bacilli in the sputum was requested to kiss sterile Petri dishes at 7, 9 and 11 a. m., 2, 4, 6 and 9:30 p. m. and to return the dish to the laboratory immediately after kissing it. The dishes kissed at 11 a. m., 4, 6 and 9:30 p. m. were negative, the remainder positive. The experiment was repeated with a patient with fewer tubercle bacilli (Gaffky IV to VII) and only at 7 a. m. was the dish found to be positive.

#### VI. THE TOOTH BRUSH

The tooth brush of a patient with tubercle bacilli in the sputum was washed, immediately after it had been used by the patient, in 2 c.c. of sterile physiologic sodium chlorid solution, which was injected, Jan. 26, 1919, subcutaneously in the inguinal region into two guinea-pigs. One guinea-pig died in three days, and the other, examined at necropsy, June 3, 1919, showed marked tuberculosis. While slides stained with carbolfuchsin were only questionably positive, gentian violet mediums showed growth on the twenty-first day.

March 28, 1919, the experiment was repeated and was positive by stain, by culture and by inoculation. On this date, the washings made twelve hours after the brush had been used were studied. One guinea-pig died the day after inoculation, and the second showed marked tuberculosis at necropsy, June 3, 1919. Slides stained and gentian violet mediums inoculated were both negative.

#### VII. FLIES

Many have definitely proved that flies fed on tuberculous sputum are contaminated with tubercle bacilli and deposit specks that contain tubercle bacilli. To verify this we placed three flies in a large sterile baker and fed them on sputum containing many tubercle bacilli. The flies apparently developed diarrhea and deposited soft white specks, forming large circles, which contained on examination tubercle bacilli. A study of the bodies and wings of the flies by inoculation into guinea-pigs showed that they were generally contaminated with tubercle bacilli, for all the guinea-pigs developed generalized tuberculosis.

Next a study was made of the real practical danger to young guinea-pigs (two-thirds grown) by such flies when they crawled over and contaminated their food.

Five guinea-pigs were placed in a wire-covered cage or box, and twenty to thirty or more flies confined with them. As the flies died off they were replaced by others. A receptacle containing sputum with

numerous tubercle bacilli in it was placed high in the cage. The flies fed on the sputum and on the carrots, which they specked. The specks were shown to contain tubercle bacilli by inoculation of guinea-pigs, and the guinea-pigs in the cage ate the specks on the carrots. All the guinea-pigs in the cage failed to react to old tuberculin given subcutaneously, and at necropsy showed no trace of tuberculosis.

This experiment was repeated, November 18, and two sets of guinea-pigs (four each) used. The first set was exposed to food contaminated by flies with tubercle bacilli from sputum (Gaffky IV to IX) and the second set to bovine tubercle bacilli which had been mixed with negative sputum. The flies were changed weekly. The results were all negative.

#### VIII. COUGH

Only one experiment was done with cough. Two patients with numerous tubercle bacilli in the sputum, when performing their pulmonary toilet in the morning, were instructed to cough into the faces of guinea-pigs. This was done, Nov. 12, 1916, but the two guinea-pigs showed at necropsy no tuberculosis.

#### COMMENT AND SUMMARY

No originality is claimed for many of these experiments. The whole study was an attempt to discover whether infection in guinea-pigs at least followed exposure to what many have by inference referred to as sufficient exposure for infection of man. We do not wish to imply that these few experiments should be looked on as proof positive in a matter so important as this, but we contend that they emphasize the caution that must be used when infection is inferred to follow proof of contamination. The danger of the dust of rooms in a health resort, from telephone receivers, the danger from properly cleansed eating utensils, the danger from infected hands through handshaking or from knobs of doors, the danger of transmission by infected flies (at least in guinea-pigs) have not yet been conclusively proved, and these experiments tend to belittle it. On the other hand, the danger of transmission of tubercle bacilli by kissing, or the transference of the tubercle bacilli to eating utensils, and thence if not cleansed to a second person, has been borne out. Our hope in publishing these experiments is that others may realize that the etiology of tuberculosis is not a closed book, but one that contains many disconcerting and confused pages that need to be rewritten.

**Beginning an Attack on Tuberculosis.**—The question of health as related to industrial efficiency is a question of life. It is a paramount question. On this hinges happiness and this is determined by effectiveness. Effectiveness in life is related to health more closely and more absolutely than to any other thing. It should be the positive duty of every one to bring health to its highest state of perfection. The line between dependence and independence is drawn on the ability of the individual to go to work tomorrow. He who cannot work becomes a dependent. Charity organization statistics show that 85 per cent. of dependence is due to ill health and sickness; the other 15 per cent. is divided among desertion, drunkenness and other causes. A large mass of the people are afflicted with tuberculosis. We know how to cure it. But this means separation of the sick from the well. Until this is done the progress of the disease will not be stamped out. This means proper homes in which the people can be kept and in which danger to the community will be lessened. Tuberculosis is curable in the early stages. There are two ways to deal with it: (1) As it casually arises; cases are then often too far advanced; (2) go find it.—H. B. Favill.

PROTEOSOTHERAPY BY THE INTRA-  
VENOUS METHOD\*

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The most active measures used before the war against infectious diseases can be divided into three groups: (1) vaccines; (2) serums, and (3) specific chemical substances. According, then, to the measures employed, we practiced vaccinotherapy, serotherapy or chemotherapy. In the last few years a new form of therapy has been developed which has been called proteosotherapy or proteinotherapy, according as one gives a proteose as a protein foreign to the internal medium (blood and lymph) such as the casein of milk. The characteristic feature of this method is the administration of the protein or proteose by a channel which avoids the action of the digestive juices; that is to say, by a parenteral route, subcutaneous, intramuscular or intravenous. Permit me to present to you briefly my experience with proteosotherapy, which I believe I was the first to use.

## FIRST USE IN NONINFECTIOUS DISEASES

I used it first successfully in the treatment of non-infectious diseases. I began its use in 1908 in cases of hemorrhagic diathesis in order to increase the coagulability of the blood, later in paroxysmal hemoglobinuria, in which it inhibits the occurrence of the paroxysms, at least temporarily. During the war I introduced proteosotherapy into the treatment of infectious diseases, making use of intravenous injections of peptone.

## ACUTE INTOXICATION PRODUCED BY THE PROTEOSES

It has long been known to physiologists that, when given intravenously, the proteoses produce a state of acute intoxication, characterized chiefly by the non-coagulability of the blood, a great and rapid fall of blood pressure, and a state of great excitability of certain nerves or ganglions of the autonomic nervous system. This excitability manifests itself in the lungs in a state of spasm of the bronchi leading to acute emphysema and in the digestive tract by vomiting and diarrhea. This state has been called "peptone shock." It is not specific for peptone. One can produce it equally well by the intravenous injecting of a great number of substances, such as microbial toxins, animal or vegetable toxins, organ extracts, etc., whose common characteristics lie in their protein nature and in the fact that they are substances foreign to the normal humoral medium. These are the substances which have been termed antigens.

## EXPERIMENTAL SHOCK

One can easily obtain this shock in dogs by reinjecting into the veins a little defibrinated blood which has been taken from the animal itself. The same experiment performed in man gave the same results. If instead of defibrinated blood the serum freed from corpuscles is used, the result is the same; namely, that the simple coagulation of the plasma transforms it into a violent poison for the same species, if it is rapidly introduced into the vein; in other words, transforms

it into an antigen. In place of serum one can use red or white corpuscles provided they are first destroyed by placing them in distilled water to which an esoteric dose of sodium chlorid is added after hemolysis. Such an emulsion of hemolyzed corpuscles acts like peptone if introduced into a vein. If an antigen is given several times, at sufficiently long intervals, to an animal, the animal becomes more and more sensitive and reacts more and more violently. It has been placed in a state of anaphylaxis. The anaphylactic shock is not different from peptone shock; it is only an exaggeration of it.

## THE MECHANISM OF THE SHOCK

It is not possible for me to analyze here the mechanism of this shock. The question is obscure. The opinions of different authors are very divergent. But if the differences of opinion are great as regards the mechanism, the accord is almost perfect as regards the significance of the phenomenon. Almost all regard it as the expression of an effort which the organism makes to fix and to assimilate the antigen introduced into the veins. From the fact that the shock is identical in character no matter what sort of antigen has been injected, whether blood corpuscles, microbes, toxin or peptone, I think that one can draw the conclusion that the organs or tissues which have for their function this assimilation are always the same, contrary to the opinion of Ehrlich.

If this assimilation took place by the normal route of the digestive tract it would go on without any marked effect. Even by a parenteral route the assimilation could be complete and unnoticeable if the dose were not too large and if the passage into the blood stream took place only very slowly, as for example, after a subcutaneous injection. The shock is produced only if the introduction is rapid, which is the case after an intravenous injection when this contains a large enough dose of antigen.

## AVOIDANCE OF SHOCK

When one employs proteosotherapy to cure a patient of an infectious disease one should avoid shock—at least the violent shock which I have just described. But it seems to be an advantage to produce a mild reaction which I have called the "peptone effect" in contrast to "peptone shock." For this reason it is preferable to inject the peptone in a small dose into a vein rather than under the skin or into a muscle. This intravenous injection of an even very small dose of peptone is an intervention, which can only be performed by a physician who is acquainted with its dangers. It is necessary to proceed extremely slowly. The injection must take many minutes and during the entire period of the injection it is necessary to watch the pulse carefully in order to permit the operator to interrupt or slow down the injection in case the pulse becomes too rapid, for this indicates a rapid fall of blood pressure. If one is prudent the procedure usually takes place without accident. One may find a little transitory tachycardia, some very deep breathing or dyspnea, and a transitory headache. All this passes off within a few minutes, but after the lapse of a half hour to two hours after the injection the patient often suffers from a more or less prolonged rigor, which is followed by a state of devescescence with profuse sweating. The fall of temperature may last until the next day. This is accompanied by a subjective sensation of amelioration and by a diminution in the objective signs of the infection. I repeat the

\* Read in the General Medical Meeting at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

injections only every other day. In a great number of cases the improvement is shown after one or two injections, but it is necessary to continue these until a complete cure has been established, in order to avoid recrudescence.

This treatment was applied by me with good results, at first in typhoid fever, then in numerous cases of septicemia due to streptococcus and staphylococcus. In a large number of cases one finds a rapid disappearance of the germs from the circulating blood. I have also obtained good results in severe erysipelas, in acute polyarticular rheumatism, and in nonrheumatismal arthritis when taken at the start. It appears, then, to be well established that the judicious intravenous administration of peptone can exercise a favorable action in certain infectious conditions and especially in the septicemias.

#### ASSUMED MODE OF ACTION

One can assume that the mode of action is the following: Peptone is an easily assimilable antigen. The pathogenic microbes, on the other hand, antigens, are difficult of assimilation. A single mechanism brings about the assimilation of both when they are given by a parenteral route. It is probable that the administration of peptone has the power of stimulating this mechanism and of thus augmenting the destruction of the microbes. As the proteosotherapy is essentially a nonspecific method, it can with advantage be given in association with more or less specific chemical substances when the latter alone are insufficient for bringing about the cure. For this reason I have used proteosotherapy in conjunction with hexamethylenamin in the treatment of typhoid fever, and with sodium salicylate in daily doses of 6 gm. in the treatment of septicemia caused by streptococci and staphylococci and in acute arthritides.

#### COMPARISON OF VACCINOTHERAPY AND PROTEOSOTHERAPY

The vaccinotherapy differs from the proteosotherapy in that it is specific. It attempts to provoke the formation of a specific antibody by the administration of a vaccinal antigen. It thus differs from proteosotherapy in its much greater accuracy. However, it would be an error to regard these two methods as being diametric opposites. One must not forget that the vaccine is an antigen like the peptone, and that in the reaction which it provides in the organism there exists a nonspecific element which is common to all organisms. The proof of this lies in the fact that different diseases, notably typhoid fever, can be cured by the administration of cultures of microbes different from the specific germ, such as *Bacillus coli*, *Streptococcus proteus*, etc. One advantage of proteosotherapy is that it permits of the experimental study of the nonspecific element of vaccinotherapy, and, as the result of this, of a better understanding of the latter; and of better measures for its application. By way of illustration I will cite the following fact: Having determined that the proteosotherapy is much more effective when given by the vein instead of subcutaneously I concluded that this would also be true with vaccinotherapy. Starting from this fact, I have constantly administered vaccines by the vein, beginning with very small doses. My experience embraces numerous cases of septicemia due to the streptococcus, the staphylococcus, the pneumococcus and the meningococcus; certain

urinary infection due to *Bacillus coli*, and the staphylococcus, and finally the bacillary dysentery. In all these cases vaccinotherapy by the intravenous route gave results more certain and more rapid than those obtained by the subcutaneous route and permitted one to attain the desired results with doses of vaccine about a thousand times smaller than those which are necessary when given under the skin.

## DERANGED SEBACEOUS SECRETION AS AN ETIOLOGIC FACTOR IN DISEASES OF THE SKIN\*

II. R. VARNEY, M.D.

DETROIT

#### CLINICAL OBSERVATIONS

It is the duty of every one to keep physically well and to convey the appearance of physical well-being through a healthy skin. Others must observe us, and in all walks of life, among all classes of society, the healthy-looking person is the one most graciously received. The complex condition resulting in a healthy appearance of the skin is most difficult of adequate definition, yet every one has a rather clear objective knowledge of a perfect skin.

It is my intention to discuss in a most elementary manner a deviation of a well understood function of the skin which is an important etiologic factor in the case of many recognized skin conditions.

#### SEBACEOUS GLAND SECRETION

The daily physiologic sebaceous gland secretion amounts to about 1 or 2 gm.; it is quite constant in amount, somewhat less in children and much less in the cold season. The normal sebaceous secretion consists of a liquid and a solid part: the horny-changed membranes of the gland cells after the fat has left them.<sup>1</sup> Analyses have shown the presence of fats (olein, palmitin and stearin), and fatty acids (oleic, palmitic and stearic), inorganic salts, cholesterol, epithelial debris, and water. The cholesterol is thought to be a product of cellular degeneration, and its chemistry is that of the secondary alcohols.<sup>2</sup> It is most plentiful in the skins of ichthyosis and psoriasis, and in comedones.<sup>3</sup> The large polyhedral cells deeper in the glands have been found to contain many fat droplets, and through this cell degeneration, the sebaceous secretion is greatly assisted in its function, which explains why 2 gm. of sebaceous secretion can cover so extensive an area and afford protection.

Endeavoring to discover the true function of the sebaceous secretion, Dr. Max Joseph excised the coccygeal glands of several geese. They survived the operation and were apparently normal, but after entering the water and wetting their feathers, it was noted that the feathers held more water and took longer to dry than those of normal geese.

As is well known, diet greatly influences the sebaceous secretion. Montgomery says:

Modern man frequently suffers a penury of oxygen; because of this, he tends to select the easily split, easily fermentable

\* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Philippson; Monatsb. f. prakt. Dermat. 11: 292-309, 1890.

2. Small, J. C.; J. Lab. & Clin. M. 1: 809 (Aug. 16) 1916.

3. Linsler, P.; Deutsch. Arch. f. klin. Med. 80, Nos. 3-4, 1904.

carbohydrates and the easily absorbable fats, and these are the very foods that favor seborrhea.<sup>4</sup>

Kuznitzky says:

The sebaceous matter in increasing amounts, as we find it in seborrhea oleosa, is not, as was formerly assumed, the cause of the accompanying acne, but, on the contrary, in all likelihood, we have an ever easily recognized weakening of the defense against the organism.<sup>5</sup>

In every recognized skin disease there is always some derangement of the sebaceous function.

EFFECTS OF INSUFFICIENT OIL

The lack of oil is a far more common deviation than the excess. At the adolescent age, when all glandular activities are greatly increased, the activity of the sebaceous function predisposes to a few dermatoses, such as the seborrheas and some forms of acne. This stage of hypersecretion of oil is of short duration, is most amenable to treatment, and is not nearly so troublesome nor so common an etiologic factor as the insufficient amount of oil. It is this phase of the abnormality that I wish to discuss.

The skin that lacks oil is the skin that is sallow and nontransparent. It makes its possessor appear older than is really the case and does not present an appearance of a state of physiologic well-being. Oil intensifies colors and conveys the healthy look to the skin, and, as well, absorbs soil and prevents its entrance into the skin.

How much better would be the careful training of the daughter in her teens in order that she might convey a healthy, normal color to her cheek, than to see her apply artificial color in a vain attempt to produce a healthy appearing skin!

In the normal outer covering of the body, protected from all external irritants by proper cleanliness and sufficient sebaceous material, are embodied the essentials for a comfortable state of the skin. It is thus able to ward off many skin diseases.

No organ of the human body is more generally and constantly mistreated than are the skin and its appendages, and it is this daily improper care that is responsible for a large percentage of skin diseases.

Many of the adult white inhabitants of the north temperate zone, during the cold months of the year,

fail to produce sufficient oil properly to protect the skin and to keep it in a healthy condition. There is another large class of persons who have a sufficient allowance of oil, but who are daily removing this protection by too frequent bathing with soap and water, and having no thought for its replacement. American travelers demand hotel rooms with bath, and the excessive bathing in the cold months of the year is not at all necessary to the proper care of the skin. Yet less frequent bathing with soap stimulates oil production, through the dissolving action of the soap on the oil plug long after the soap has been washed away. This is demonstrated clinically following a shampoo, when the scalp and hair shaft become oilier forty-eight

hours afterward than they were before. In the Middle West, where lake water constitutes the water supply of the large cities, the water is made more irritating to the skin by the chemical agents used for disinfecting purposes, such as chlorin and lime.

Of the number of individuals who come to the dermatologist with skin affections, the majority definitely show a lack of oil, due, in most cases, to improper toilet, or to a temporary derangement from recent local or constitutional diseases.

How readily one forgets the function of oil in the human skin! When sufficient oil is present, the skin is flexible, whereas a penury of oil gives us a harsh, dry skin, the epithelium of which cracks, exposing sensory nerve endings, with resultant itching and burning. Through these fissures infection may enter, and a weeping, deplorable dermatitis may result. The pyogenic infections and their resulting dermatoses are the most frequent. The bath pruritis of the legs, which develops during the

first cold, windy days of fall in the frequent bathers, is the most common illustration.

A general lack of oil produces a constant wasting of bodily heat, resulting in the patient's feeling every sudden change of temperature, which the normal oil prevents. He requires more clothing, as well as bedding, sleeps in a curled or flexed position to keep warm, and thus does not receive the refreshment that should come from a relaxed, straight repose. We are familiar with the fact that without oil it would not be possible for the Eskimo to live in his country, where clothing, even the warmest of furs, would not keep him from freezing if he did not preserve or retain his

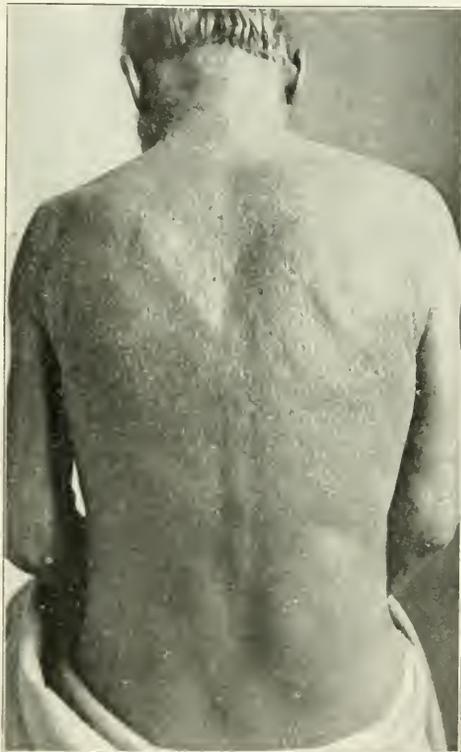


Fig. 1.—Condition resulting from a deranged sebaceous gland secretion, showing the roughened epithelial layers of the skin.

4. Montgomery, P. W.; J. Cutan. Dis. 34: 829 (Dec. 16) 1916.

5. Kuznitzky; Arch. f. Dermat. u. Syph. Orig. 111: 691 708, 1913.

body heat by applying nature's first covering for warmth, that of oil. To demonstrate further the retention of surface body heat, apply a bland oil and retire with the same coverings as usual. Within a very short time one will note an uncomfortable rapid heating of the body. This also illustrates that if an oil medication is to be applied to a large surface of the skin, it should be applied some time before the patient retires, for the retention of body heat from the oil base, and the discomfort following will often not only derange the comfort of the patient, but interfere with the effect of an appropriate medication. The accompanying temperature charts of a patient with dermatitis exfoliativa illustrate most interestingly the continuous subnormal temperature from loss of body heat, which in turn was caused by loss of oil. The temperature could be brought up to normal for about two hours following a hot bath and saturation with oil.

More food is required to keep up bodily heat because of surface waste, since the power of heat retention afforded by oil is lacking. This patient cannot wear wool or coarse fabrics, because of the uncomfortable condition resulting from the roughened, warped epithelial layers of the skin, for the filaments of the wool are constantly pulling on this outer layer of roughened cells.

The man who lacks oil is unable to shave comfortably, and he is led to believe that he has a tender skin and a very wiry beard. True, his skin is hard and rough, and he often cuts himself because of its lack of elasticity and smoothness, and his hair is wiry and hard to cut through lack of oil.

also hardened by water and alcoholic lotions. How promptly, if we practice replacing the oil after shaving, will we note the greater ease with which the hairs can be cut, the resultant longevity of the razor's edge and the greater comfort! And we may perhaps escape becoming a slave to the barber.

The dry skin that is constantly cracking admits any and all forms of infection that the human skin is capable of harboring, from the pyogenic organism to *Spirochaeta pallida*.

The normal amount of oil of the skin has many functions, some of which are well interpreted, others that are very indefinitely understood, or knowledge of them poorly applied, and still others, I believe, that are unrecognized.



Fig. 2.—Cracked skin and rough, fully developed finger-nails consequent on a deranged sebaceous gland secretion.

ABSTRACT OF DISCUSSION

DR. RICHARD L. SUTTON, Kansas City, Mo.: I think Dr. Varney has covered rather a broad subject in a very good manner. Many of us do not appreciate and realize the discomfort which a dry, harsh skin may cause. During the past two or three years I have frequently prescribed for the relief of this condition a combination first suggested by a

dermatologist of Chicago. It consists of powdered tragacanth, 4 gm.; phenol, glycerin and oil of bergamot, of each, 5 minims; olive oil, 120 c.c. and distilled water, sufficient to make 480 c.c. Persons whose skins are dry and hard can use this mixture with excellent results. For a long time we prescribed it under the designation of "Pusey's mixture"; but the resultant amount of advertising was too great for a competitor so close a hand, and in my office we now invariably refer to it as "the dew of Sahara."

DR. HAROLD N. COLE, Cleveland: I want to bear witness to the value of this remedy. I have used it most successfully in many cases of pruritus.

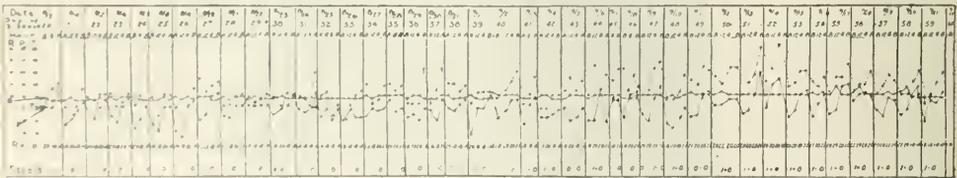


Fig. 3.—Persistent subnormal temperature from a loss of body heat, due to lack of oil, in a case of dermatitis exfoliativa.

The average man cares more for the leather in his shoes than the skin on his face. For when the leather of his shoe becomes dry and hard, he knows the life of the leather will be shortened by cracking, and he at once seeks what the leather most needs, oil; yet seldom or never replaces the oil in his own skin, even though it is most evident that it is needed. He is fond of alcoholic applications after shaving, which remove the little oil that remains, rather than of putting back into his skin the oil that he has taken out with soap and water. When he puts this oil back, his hair shaft will cut much more easily, and his skin will not so readily be cut in shaving, for the wiry beard is the hair that is not only devoid of most of its normal oil, but

DR. JOHN E. LANE, New Haven, Conn.: I am rather surprised at Dr. Varney's experience that washing the scalp increases the amount of oil secreted and that this is noticeable as early as forty-eight hours after the shampoo. My experience has been exactly the opposite and while I use other agents for combating seborrhea of the scalp, I have found frequent shampoos about the best single treatment for this condition. The dry skin of the face caused by too vigorous use of soap is a common condition in men, but I see it much less frequently in women. This is probably due to the fact that the latter use more cold cream and frequently use it as a substitute for soap and water.

DR. G. A. HARE, Fresno, Calif.: The temperature is increased or diminished by the use of oil, if I understood correctly. To put the question another way, does not oil

increase the retention of heat? I wish Dr. Varney would tell us of any observation he may have made on that. Also whether a dry skin, which is so annoying, is due to a retention of heat or to interference with the nerve mechanism. I wonder whether he has any evidence to guide us in the use of the shampoo in these cases, as to whether the soap and water have anything to do with the production of oil or whether the active massage is the factor of most importance.

DR. C. A. SIMPSON, Washington, D. C.: I should like to ask Dr. Varney if senile atrophy of the skin does not play a large part in hypo-activity of the sebaceous glands. Most of my patients, excluding those with xerodermatous lesions, who suffer from dry skin are over 35 years of age. They have a thin, atrophic skin, prominently visible blood vessels, and other signs of cutaneous atrophy, such atrophy being more conspicuous on the extensor than on the flexor surfaces. I agree with all that Dr. Varney says, but I believe that senile atrophy of the skin (not necessarily in a senile person) is very often the primary lesion. The lessened activity of the sebaceous glands and their final atrophy simply share in the general and primary cutaneous atrophic process seen in some patients at a relatively early age.

DR. HENRY R. VARNEY, Detroit: In classifying oil deviations, I have arranged them in two general classes—the excess and the insufficient. The excess is manifested at the age of hyperactivity of all glandular functions. The excessively oily skin is caused by the constant attempt of the patient to remove the oil by frequent use of soap, thereby stimulating and liquefying the oil plug.

The less frequent use of soap will clearly demonstrate this fact through prompt reduction of the amount of oil. We must entertain the varying effect which water has on the skin owing to the great difference in its softness in different sections. The water supply of the lake sections of the United States is treated chemically for disinfecting purposes, and these chemicals have a decidedly drying and roughening effect on the skin because of their direct action on the normal oil of the skin. The people who are taught to bathe daily and use soap freely can carry on such a toilet without discomfort during the summer months, but during the winter months many adults have insufficient oil and through frequent bathing render the skin rough and dry and more susceptible to itching dermatoses. I do not think that I can answer Dr. Hare's questions, but it is a fact that oil does assist in retaining and equalizing body heat. The senile atrophies are a different condition from the congenital ichthyoses. We have to rely on oil, not only for protection and cleansing purposes, but for comfort, and patients with beginning senile atrophies, with the pigmented patches and the roughening, which appears later, of the epithelial layer with ulcers, etc., could be given much comfort and protection from all outward irritation and perhaps carcinoma later by a proper amount of protective oil.

## AN OPERATION FOR "CLAW FOOT"\*

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The term "claw foot" is generally accepted to mean a foot with exaggerated arch, prominent metatarsals and hammer toe, with corns on the toes, and callosities on the sole of the foot over the distal end of the metatarsals.

The cause of this deformity may be either a limit to dorsal flexion, or an impairment of the intrinsic muscles of the foot from paralysis, or both.

In cases in which there is only a limit of dorsal flexion—"muscle bound feet"—especially in children, a marked change in the position of the tarsals, metatarsals and toes may be prevented from developing by a restoration of freedom in dorsal flexion. In cases in which a gross change has taken place in the position of the tarsals and metatarsals, with shortening of the plantar structures, exaggerated arch and hammer toe, a much more complicated problem is encountered. The shortening of the plantar structures accentuates the effect of the common extensors in deforming the toes, and the hyperextension of the toes accentuates the shortening of the plantar structures.

A study of many roentgenograms of such feet shows that this deformity takes place chiefly at the articulation between the astragalus and the scaphoid. The relation between the cuneiform and cuboid and the metatarsals is very slightly changed, if at all.

In these cases there may appear to be, on account of the exaggerated arch, a displacement downward of the os calcis, but such is not the case. The upper half of Figure 1 is a roentgenogram of an approximately normal foot; the lower half of Figure 1, one of a markedly developed claw foot—it shows at what point the deformity takes place.

In these cases, therefore, there are two problems to be solved: first, the correction of the exaggerated arch, and second, the removal of the deforming power, on the toes, of the common extensors, at the same time making more direct and effective their function as



Fig. 1.—Comparison of normal foot (above) with claw foot (below), showing exaggerated arch of the claw foot and elevated toes: *A, B*, axis of astragalus; *C, D*, axis of os calcis; *E, F*, axis of navicular, internal cuneiform and first metatarsal. Compare angle made by *D, C* and *E, F* in upper figure with the angle made by *A, B* and *C, D* in the lower. The comparison shows that the deformity is caused by the dropping down of the front foot at the mediotarsal joint.

\* From the service of the New York Orthopedic Hospital.  
\* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

dorsal flexors of the foot, which has been lost because of the deformity of the toes. Elongating the plantar structures, by separating them from their attachments to the os calcis, makes possible the correction of the exaggerated arch by elevating the foot anterior to the astragalus.

The second problem cannot be successfully met without destroying completely the power of the common



Fig. 2 Lines of incision.

extensors to extend the toes and transferring their attachment to a point in the foot which will insure the most powerful and direct exercise of their force in elevating the front foot at the mediatarsal articulation and in dorsal flexion at the ankle joint. This may be done by the division of the common extensors and the insertion of their proximal ends into the external cuneiform bone. This point of attachment is selected because it will insure the exertion of their force in elevating the front foot, and in serving as direct and positive dorsal flexors of the foot at the ankle joint. In most of these cases, there is some degree of inversion of the foot, and the attachment of the common extensors at this point such as that described insures correction of the inversion. In those cases in which there is also any serious degree of limitation of dorsal flexion at the ankle joint, subsequent lengthening of the Achilles tendon may be necessary.

After the usual preparation of the foot, an incision  $1\frac{1}{2}$  inches long is made internally through the skin and subcutaneous tissue over the os calcis, and with a periosteal elevator the plantar structures are separated from their attachment to the bone. The suggestion for this feature of the technic is from an article by Stender.<sup>1</sup> With the exercise of force the front foot is elevated, the exaggerated arch corrected, and the position of the metatarsals improved. Second, through a curved incision, 3 or 4 inches long, on the dor-sum of the foot to the outer side of the median line, the common extensor tendons and the internal cuneiform bone are exposed (Fig. 2). The tendons are divided low down, and their proximal ends pulled through a tunnel in the external cuneiform bone, and held there by a suture of forty-day chromic catgut. Subcutaneous tissue is closed by plain catgut, and the skin with ten-day chromic gut.

The foot is then put in plaster, with the metatarsals in corrected position and the toes straight, with a thick felt pad under the sole. The plaster is worn for five weeks, when it is removed daily for exercises and massage. After seven weeks, the patient is permitted to walk without plaster, though massage and exercises are continued for six weeks longer.

The importance of not lengthening the Achilles tendon at this time is obvious; its resistance is a great aid in correcting the cavus. As has been indicated above, the Achilles tendon may be lengthened, if it seems necessary, after six months.

Our first operation for clawfoot was performed, April 24, 1917, and since then nineteen others have been performed: in fifteen cases, on one foot, and in five cases, on both feet. Operations, therefore, were performed on twenty-five feet, all at the New York Orthopaedic Hospital.

A sufficient length of time has elapsed in all of the cases referred to here, and especially in the earlier ones, to permit a fair estimate of the result. In every instance there has been shown a definite amount of improvement, and the effect of the common extensors' acting from their new point of attachment has been conspicuously shown to enhance their power in elevating the front foot, and their power as dorsal flexors at the ankle joint.

Figures 3 and 4 are photographs taken before and after operation in the case of a boy, aged 12, with a single claw foot, and are fairly representative.

It seems unnecessary to publish in detail a report of each case, as there have been no complications, and no failure of the tendons to hold in any case; nor has there been any reappearance of the deformity of the toes, nor any impairment of their control, as their control is sufficiently maintained by the short extensors.

#### ABSTRACT OF DISCUSSION

DR. BENJAMIN P. FARRELL, New York: I agree with Dr. Hibbs. The results from this operation are very satisfactory, and it was a surprise to me to find where the deformity took place. It was my opinion that the deformity was between



Fig. 3.—Claw foot of a boy, aged 12, before operation.



Fig. 4.—Same foot as in Figure 3, after operation.

the tarsal and metatarsal joints. The procedure gives very satisfactory results.

DR. FRED S. WILLIAMS, Bridgeport, Conn.: I wish to report two cases in which I followed the technic of Dr. Hibbs. One patient was a man, 23 years of age; and the other was a girl, 16 years of age. The results in both cases were as satisfactory as those described by Dr. Hibbs. If the Achilles tendon is lengthened, this condition should be corrected. In many cases, the tendon is not short, but merely has that appearance. This should not be overlooked.

DR. JOHN PRENTISS LORD, Omaha: I have been undertaking to cure these feet by separating the tendons from the toes, and preserving just as much of the length as possible,

<sup>1</sup> Stender, Arthur, *Operative Treatment of Pes Cavus*, Surg., Gynec. & Obs., 24: 611 (May) 1917.

boring holes through the heads of the metatarsals and putting the tendons through the holes, making a half hitch of the tendon, and usually suturing it. The results of the operation have been very gratifying; although it must be considered that in some persons, particularly in adults, the deformity is so extreme that a perfect foot cannot be hoped for. I have been undertaking, however, in some cases, to improve this badly shaped foot by doing a cuneiform osteotomy through the navicular region and removing as much bone as may be necessary in order to reshape the foot. That procedure has proved most effective in relieving the deformity and meeting, as far as may be, the other mechanical and functional conditions. It may be said in criticism of doing so radical a procedure as cuneiform osteotomy in adults, that the subjects are subsequently disabled for a considerable length of time, from three to four months or more.

DR. JOHN RIDLON, Chicago: I have done the operation advised by Dr. Lord, which, I understand, is the procedure devised by Dr. Sherman of San Francisco, in many cases, and have never found it of much use. I have been accustomed for many years to lengthen the dorsal tendons of the toes by tenotomy at the first operation, holding that lengthening by putting the foot in plaster of Paris for long periods, and then doing a second operation, the cuneiform operation advised by Dr. Hibbs. I think that is the only operation that will give a permanent result in these bad feet. In feet that are not very bad, many things can be done that will be satisfactory; but in bad cases in adults, the only thing is to destroy the deformity in the way mentioned by Dr. Hibbs.

DR. EDWIN W. RYERSON, Chicago: This work is, of course, a modification of the work originally done by Sherman of San Francisco, and published a number of years ago, in which the extensor tendons were fastened to the distal ends of the metatarsal bones. It is efficacious, if done well. The only way to do it successfully is to loosen the plantar structures at first. It is also well to destroy the astragalonavicular joint. Make an arthrodesis there. These cases are very numerous. It has been a constant surprise to me to find how many women and men have a hollow clawfoot. There is also apt to be an inward deviation, as Dr. Hibbs states. The one mistake is to think that there is a shortening of the Achilles tendon. As the pictures show, the posterior part of the os calcis is more apt to be dropped than raised. It was a pleasure to me to see the demonstration of the deformity that I had always considered to be a dropping of the metatarsal bones, but Dr. Hibbs has shown that it is at the astragalonavicular junction that the deformity occurs. The detail of whether we use silk or something else is unimportant. We must force the toes down into complete plantar flexion. If we do not, we shall be chagrined to see how dorsiflexed they will become after a while, and how rigidly they will persist in that position.

DR. JAMES W. SEVER, Boston: I think that it would be interesting if Dr. Hibbs, in closing the discussion, would give us some idea of the etiology of the cases. I believe that they represent what we have known as the nondeforming Shaffer clubfoot. At the Children's Hospital, in Boston, we have been operating on a number of these patients, but by no means doing as well as Dr. Hibbs has done. We have been using the extensor longus hallucis, transplanting it into the head of the first metatarsal. In view of what Dr. Ryerson has said, if you do an arthrodesis at the astragalonavicular junction, provided you get a loosening of the plantar fascia, I do not see the use in transplanting the tendons.

DR. SAMUEL W. BOORSTEIN, New York: We must remember that many cases of clawfoot are really due to spastic paralysis. It seems to me, therefore, that Dr. Ryerson's suggestion of destroying the joint at the astragalonavicular articulation is practical. If this is not done, the spasm of some muscles may cause a recurrence of the deformity. It is well to relieve the spasm of the muscles by the transplanting advocated by Dr. Hibbs and also destroy the joint, combining the two procedures.

DR. RUSSELL A. HIBBS, New York: In reply to Dr. Sever's question, as to the cause of this condition, there are two classes of cases; one, in which there is simply a limitation

of dorsal flexion in early life. The other class consists of cases with paralysis, perhaps poliomyelitis, probably undetected, as many cases have been; or perhaps the spastic form of paralysis. The whole point of my paper, if it had one, was that in the first class of cases the removal of the limit to dorsal flexion may prevent the development of the deformity and that in the second the performance of this operation earlier will prevent the necessity of an arthrodesis. I have operated on ten or twelve adult feet, and in all there has been a distinct improvement. I am not prepared to say whether I should have done an arthrodesis also or not; but if we can avoid doing that, at that articulation, it is most important to do so; for this articulation is important in maintaining the flexibility of the foot.

DR. JOHN L. PORTER, Chicago: I have been waiting to hear Dr. Hibbs tell us the advantage that his operation has over Sherman's operation which we have been doing, and he has failed to do that in his response.

DR. HIBBS: In my paper I said that that bone was selected for two reasons. One was that by attaching these tendons to the external cuneiform bone, you get a direct pull from these tendons at a concentrated point, as elevator of the front-foot. In the second place the inversion is corrected.

DR. ELLIS W. JONES, Los Angeles: We have studied a number of these cases and find that about 30 per cent. have an occult spina bifida. The remaining 70 per cent. of the cases of claw foot are due to infantile paralysis or spastic paralysis; but I think this etiology of spina bifida has a very definite place in claw foot.

## A CONSIDERATION OF SOME OF THE PROBLEMS PRESENTED BY AMPUTATIONS \*

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Lieutenant-Colonel, C. A. M. C.

OTTAWA, ONT.

Apart altogether from the psychologic factors pertaining to amputation cases, the desire of some to stay indefinitely in comfortable quarters, the effort of some to get all that is "coming to them," the anxiety of others to secure a "square deal," the personality of the individual, and other similar difficulties that will not be considered in this paper, the chief problems relate themselves to (1) the stump and (2) the artificial appliance to be used as a substitute for the member lost.

Up to the present time we have had slightly more than 3,000 amputations to deal with in the Canadian army medical corps.

The policy of the government has been to treat all amputation cases in a central depot, and to supply them with artificial limbs from a government controlled and operated factory in the same center, with subsidiary plants, to take care of alterations and repairs, in strategic points in various military districts of the dominion. The central treatment depot is at the Dominion Orthopedic Hospital, Toronto, and the limb factory is adjacent.

I am related to these two institutions as consultant and adviser, and therefore have had an opportunity seldom given to one person to study these cases, and to become acquainted with the problems presenting themselves.

### AN IDEAL STUMP

An ideal stump might be defined as one the length of which will best permit the instrument maker to fit

\* Read before the Section on Orthopedic Surgery at the Seventeenth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

the most suitable appliances for the portion of the limb amputated. It should have a linear scar free from puckering or infolding of the skin, with sufficient flap to cover readily the end of the bone, but without redundancy. It should have a pad of fat and subcutaneous tissue over the bone end, and should not be adherent. The joints above the amputation should have a full range of motion.

While this ideal may be kept before one at all times, it is seldom realized, and the ingenuity of the surgeon, and the mechanical skill of the artificial limb maker are therefore constantly taxed to make the most of the possibilities as they are presented.

In the early stages of the war the tremendous problem of infection, and the difficulty of dealing with it adequately, gave us a great many so-called guillotine amputations. These practically always made impossible stumps to which to fit artificial limbs, even if healing became complete; and a secondary amputation became necessary.

In the later stages, with a better knowledge of dealing with infection, and the methods of primary or delayed primary suture, much better stumps resulted.

At the present stage, the amputation cases seen are for the most part healed, but there are still some surgical conditions remaining, such as septic conditions, ulcerations and sinuses, as well as certain deformities and edemas, which must be cleared up before the artificial appliances may be usefully applied. Our problems at present, therefore, fall into several groups.

#### SURGICAL PROBLEMS

1. It is thoroughly established that all tissues harbor latent infection, which may be lighted up very easily. In some instances, massage and manipulation of the stump may be sufficient to start afresh a cellulitis which may become very troublesome. A traumatism, such as a fall or a bruise, may be the occasion of similar infection. This condition is usually cleared up by antiseptic baths or compresses and rest, and in some cases incision is required to drain local collections of pus.

2. Ulcers still remain in some cases after old, so-called guillotine operations, or may result from breaking down of scars. These ulcers and the scar tissue should be excised and a linear scar substituted. This is often possible without sacrificing any length of bone, if adhesive strips are attached to the skin above the ulcerated area, and extension made by means of weight and pulley, or by means of the modified Thomas knee splint. It is never good practice to attempt skin grafting in these ulcerated areas, as they almost invariably break down under the stress of the use of an artificial limb. If the scar or ulcer cannot be excised, and a good covering of the bone end accomplished without shortening of the bone, a reamputation becomes necessary.

3. A sinus or series of sinuses may combine, and are sometimes very difficult to get permanently healed. In my experience these sinuses persist as a result of either a foreign body at the bottom, or owing to the fact that they have developed a rigid, noncollapsible

wall of fibrous tissue, and on removal of the cause they will invariably heal promptly. The foreign body is most frequently a silk ligature, a bit of clothing, a shrapnel fragment, or a sequestrum. The careful removal of these, and cleaning out of the unhealthy granulation tissue of the sinus is followed by closure. I should like to urge the necessity of this being done thoroughly in order to be effective. It is often unfortunately the case that the medical officer simply goes after this with a curet, in a bleeding field, and he may or may not succeed in finding the cause of the persisting sinus. A tourniquet should be used, the sinus excised by an elliptic incision to its bottom, the edges of the wound retracted, so that the cavity may be inspected, and the foreign body removed by forceps. There is no need of using a scoop, and no new areas are opened up to infection. This same course should be followed in all cases of osteomyelitis with sequestrums, and if the bone sinus is properly beveled, so that the cavity left is funnel shaped with its base outward, healing will readily follow. If there is no foreign body, the excision of the rigid sinus wall will allow the sinus to collapse, and healing will take place.

4. Spurs of bone or exostoses are of frequent occurrence, and various explanations are given for their presence. The most common explanation given and accepted is that they are due to a tearing up and partial detachment of shreds of periosteum, from which new bone is developed in all sorts of irregular shapes. To those of us who do not believe that the periosteum of adult bone, as it is stripped in process of amputation, is capable of reproducing bone, the theory does not appeal. A much more reasonable theory is therefore offered that they are due to small bone fragments broken off by the saw, or

by snapping the last small bit before the saw cut is complete, or maybe by the sawdust itself carried into the soft tissues surrounding

the bone end, developing bone which in time becomes attached to the bone end. So

firmly am I impressed with the

last mentioned possibility that I have invariably followed the rule, in all amputations, of thoroughly washing off the cut surface of bone and soft tissues with an antiseptic solution previous to closure of the wounds. Roentgenograms of stumps so treated show in practically all instances no spur formation. The presence of spurs, on the other hand, is not sufficient justification for their removal, for we are convinced that in the great majority of cases they give no inconvenience, particularly if the patient has not seen the roentgenogram, and is therefore not aware of their existence.

5. Nerve buds or fibromas are not infrequently found, and being tender to touch, and often a source of discomfort to the patient, call for treatment. These neuromas are formed by the nerve fibers and sheath

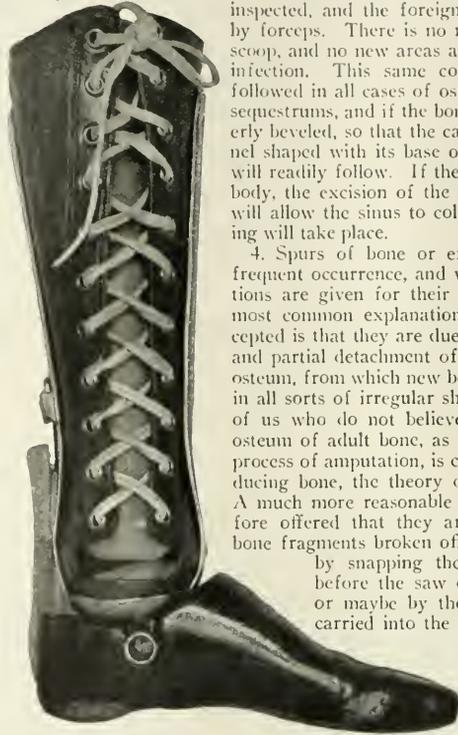


Fig. 1.—New Syme apparatus.

cells growing out from the cut end of a nerve and, finding resistance, curling back on themselves, forming a bundle or bulb which is always tender to touch, and refers pain to the terminal portion of the extremity supplied by such nerves. Numerous suggestions have been made for the prevention of the formation of these buds with only partial success. The oblique cutting of the nerve, the fish-tail section, the stripping back of the sheath, cutting the nerve at a higher level, and then tying the sheath over the cut ends—all these methods are advanced, with the greatest amount of success probably following the last named method. The nerve should always be cut back far enough to prevent its inclusion in the healing scar, and if deeply buried in muscle tissue will usually give no trouble. Attention is especially directed to the fact that the mere presence of nerve buds, tender to pressure, is not in itself sufficient reason for operative interference. Operation should be reserved for those cases in which the nerve is obviously caught in scar tissue, or is so placed that it will likely be pressed up by an artificial limb. Pain may be caused also by cutaneous nerves being caught in the scar, and the subsequent contraction produces irritation. This is overcome by the excision of a portion of the scar and the removal of the adherent nerve.

NONOPERATIVE PROBLEMS

1. Edema persists in most stumps for some weeks after all wounds are healed. No permanent appliance should be applied until this has subsided, and the atrophy of unused muscle tissue has taken place. The disappearance is hastened by suitable pressure by bandage, together with massage of stump. It is more efficiently treated, however, by the additional use of a temporary peg, with plaster or leather bucket. Deformity is nearly always present in a greater or lesser degree in the joint above the amputation. This is due to contraction of the muscles controlling the joint, to long continued flexion position, to adhesion of opposing muscles to one another and to the bone, to infection or infiltration with blood, or it may be due to adhesion from infection or blood in the joint itself. The milder degree of this deformity may be corrected by massage or by manipulation with the leverage obtained from the use of a temporary peg or skeleton arm in the gymnasium or therapeutic workshops. The severe degrees of deformity, especially of the knees, may require forcible manipulation by means of a hinged plaster cut across on the flexed side and wedged after daily manipulation. The various types of elastic pressure, and hinged steel braces with reverse screws have not proved as satisfactory as the well padded plaster splint with wedging.

2. Loss of muscle power as a result of disease exists in all amputation stumps, and a considerable training is necessary before the stump is in a good condition to swing an artificial appliance, and make good use of it. For the purpose of improving muscle tone, regular classes are formed in the gymnasium and work-

shops. At this stage all men with amputations carry on certain work in gymnasium or therapeutic workshops, to encourage confidence and balance, and to strengthen muscles. Special exercises with wall weight and pulley machines, walking in pegs, between parallel bars, leg bowling with specially constructed peg, racquets, and badminton with skeleton arms are all part of the scheme to develop better stumps. In the workshops, wood work, steel metal work, leather work, boot making and repairing, painting, drafting and printing are all found of value along similar lines. The foregoing exercises and games are not only physically developmental, but they tend to improve the morale, and successfully bridge the gap between hospital life and civilian occupation. In order to insure systematic and uniform treatment of this class of patients, when there were so many that one officer could not personally supervise and control the treatment of each patient, a circular of instruction was issued to each medical officer who had anything to do with amputation cases. I give herewith the copy of instruction.



Fig. 2.—A useful leg for long stumps below the knee.

FITTING OF AMPUTATION CASES WITH SATISFACTORY ARTIFICIAL LIMBS

It is desired that soldiers being fitted with artificial limbs should not be discharged until they have been fitted with a limb to the satisfaction of the surgeon concerned, and that the soldier at the time of discharge should have sufficient training in the use of the artificial limb to establish its suitability and a reasonable amount of dexterity in its use prior to his entering employment in civil life. For this purpose it has been decided that such cases will be graded as shown below and that the soldier will progress from one class to another as rapidly as his physical condition and adaptability to the new appliance will warrant.

1. Cases requiring surgical treatment, such as reamputation, removal of sequestrum, etc.
2. Cases in which the stump is healed, but which have some joint stiffness or edema of the stump. This class will be given passive treatment, such as massage and manipulation of the joint, to improve the action.
3. Graduates of Class 2, both upper and lower extremities equipped with skeleton arm and peg leg who may be given active treatment, such as gymnasium work, playing rackets, bowling, etc.
4. Cases of Class 3 who have improved to such an extent that they may be allowed to use the skeleton arms and peg legs in the workshop.
5. Cases supplied with permanent artificial limbs continuing work as in Class 4 for one month prior to their discharge.

A CONSIDERATION OF THE VARIOUS TYPES OF AMPUTATIONS

The necessarily brief character of this paper makes it impossible to consider the problems associated with each individual type of amputation; but some of the amputations may be dealt with to serve as examples.

In the lower extremity, an amputation of the toes, provided the plantar flap is brought up on top, is almost no disability. One toe should never be left, as it soon becomes distorted, and adds no element of usefulness. The tarsometatarsal amputation can be made very satisfactory if the peronei are left intact on the outside, and the tibials on the inside. The midtarsal amputation results in an unbalanced foot with elevation

of the heel, and downward pointing of the foot. This form of amputation cannot be properly fitted with either artificial foot or boot, and should under all circumstances be reamputated and made into a Syme amputation.

The Syme amputation is theoretically and practically the best in the lower extremity, and yet it is surprising how many of these are faulty. The chief defect is too long a flap, or too much bone removed from the end of the tibia and fibula, resulting in a bearing end which is not stable, and which rolls forward or to one side. This can be remedied by taking a cuneiform section of soft tissue from the anterior portion of the flap, thus diminishing the size of the walking pad. If the surfaces of the malleoli are trimmed down at the same time, a better artificial appliance may be fitted.

In the leg an amputation should not be done within a hand-breadth of the ankle, in order to give ample room for an ankle joint properly placed in an artificial leg. Above this point the longer the stump can be made, the better leverage is given, and consequently the easier the man will walk, and the less limp is developed.

The term "seat of election" as applied to leg amputations should be dropped, as it is a constant source of confusion. Below the knee there is a point at which the stump is so short as to be useless. The test of this point is the complete flexion of the stump; and if the continuation of the line of hamstrings is in the same plane with the face of the amputation stump, a suitable artificial appliance cannot be applied to utilize the natural movements of the knee.

A knee-bearing apparatus for this type of amputation, or a disarticulation at the knee, is a clumsy type, and not easily or firmly fitted, and as a consequence a supra-condylar amputation is preferable. In the thigh, as in the leg, the longer the lever the better the artificial limb may be used. The Gritti-Stokes is the best of the thigh amputations, and is to be selected in preference to the knee-bearing. This gives a very good end-bearing stump when the operation has been well done, and yet there are a good many of these stumps which are not good. The chief fault is a lack of close approximation of the patella to the cut end of the femur, and in consequence a nonunion with slipping or unstable surface, or a malunion, the patella becoming united in an oblique plane. These defects should be remedied before attempting to fit an artificial limb.

All other amputations of the thigh give no serious problems, other than those already considered in general problems, until the upper part of the thigh is reached. A stump under 5 inches in length from the perineum can scarcely ever be fitted with an artificial leg without a pelvic band, and all such should be so

fitted. Amputations at the level of the trochanter minor or above, including disarticulation at the hip, have insufficient leverage to use a thigh bucket, and a pelvic cradle, the so-called "tilting table" of the English manufacturers, must be adopted, with automatic lock joints both at hip and knee.

The end-bearing stump is of great assistance in permitting the easy locomotion of the wearer of an artificial limb, but aside from the two types, a Syme in the leg and a Gritti-Stokes in the thigh, a complete end-bearing stump is never possible. It is possible both in the leg and in the thigh to get a partial end-bearing stump in a good many cases, properly supplied with a good pad over the end of the bone. This partial end-bearing stump is best accomplished by means of the hammock suspended in the bucket, by means of which the wearer may graduate his weight bearing.

In the upper extremity, problems present themselves, chiefly from the fact that up to the present time mechanical appliances have not yet been devised which satisfactorily act as substitutes for the lost member. Any of the digits which can be saved in a useful position may be found of great assistance as an opposing factor to a mechanical appliance. On the other hand, fingers whose tendons,

both flexors and extensors, are hopelessly tied up, and the joints of which are destroyed by the overgrowth of the fibrous capsule, may be advantageously sacrificed to make way for a hook or some similar device. At the wrist, the whole carpus is rather a detriment than a benefit, and should not be saved, especially when the carpal joints are fixed. The

artificial appliance supplied to such a hand will be long and cumbersome and not easily manipulated.

When possible, the radio-ulnar articulation at the wrist should be maintained, as it permits of the most useful movement of pronation and supination. In the forearm, the length of stump is the chief factor in determining the usefulness of the arm, as each inch of stump adds materially to the leverage, and therefore to the power of such arm. A stump of  $1\frac{1}{2}$  inches or less below the fold of the elbow is useless, as it pulls out of the bucket in attempts at flexion. When movement alone is of value, even if no power can be developed, a leather cap over the short stump with a compound lever may be utilized successfully.

As in the knee, a disarticulation at the elbow is not so readily fitted with an appliance, as an amputation just above the condyles of the humerus. With a stump shorter than 3 inches in the upper arm, a controlled artificial appliance is not yet supplied, although attempts are being made to reach a solution of the difficulty.

For disarticulation at the shoulder, only a sleeve filler may be supplied, and it is found that very few of the men with such amputation care to wear the appliance, as it is difficult of adjustment, and adds materially to the time it takes a man to dress.

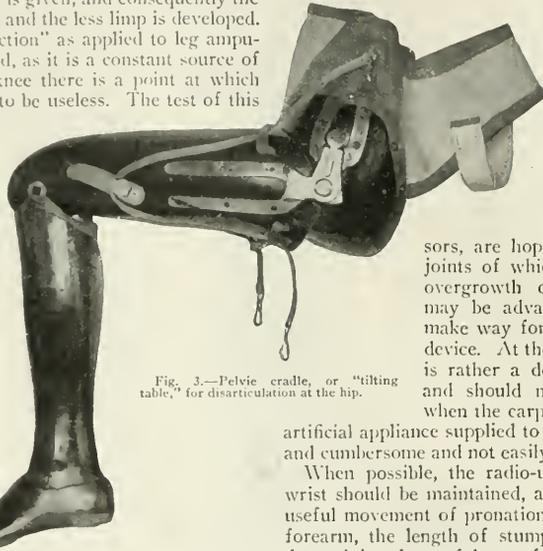


Fig. 3.—Pelvic cradle, or "tilting table," for disarticulation at the hip.

ARTIFICIAL LIMBS

As previously indicated, the supply of all artificial limbs and orthopedic appliances is under the department of Soldiers' Civil Reestablishment, and the policy of the department, in cooperation with the consultant in orthopedic surgery, has been to establish a standard limb for all types of amputations. This has been possible of accomplishment most successfully in regard to the lower extremity, but unfortunately the difficulties of finding any appliances suitable for amputations of the upper extremity has been so great that constant changes have been necessary, and it is only just now that the department is arriving at a point that permits that the arms may be more or less standardized.

A rather important development of the work has been the establishment of a mechanical research department, which has nothing to do with the factory output, and the mechanics devote their whole time to the study of problems, and working out of mechanical ideas, brought to them from any source through a central research committee. This laboratory has already resulted in much good, and as fast as any improvements are made, which have passed the test of the committee, these are incorporated as part of the standard type. The policy has been to furnish a permanent peg and an artificial limb to each man who has an amputation of the lower extremity, and a working arm and a so-called dress arm to those who have an amputation in the upper extremity. The attempt to combine the two arms in one appliance has not been satisfactory.

THE PEG LEG

The peg leg is a temporary appliance based on the Thomas knee splint. It has a shaped ring at the top, taking the top of the bucket of the artificial leg as a pattern. This takes the bulk of weight on the tuberosity of the ischium, and eliminates the troublesome pressure on the perineum. The ring is well padded and leather covered. A little behind the center of the ring, two steel bars drop to a point well below the stump, where they unite in a ferrule, into which is fitted a wooden peg ending in a wide rubber walking pad. A leather bucket is attached to the posterior half of the ring only, and by a loop around each side bar. The lacing is made smaller than the circumference of the thigh, so as to permit snug fitting, for the purpose of shrinking the stump. A hammock is slung in the lower part of the bucket to permit of padding to encourage weight bearing, or short of that to keep up even pressure on the stump to prevent local edema. This whole splint is suspended from the opposite or both shoulders by the usual webbing braces. The peg without joint at the knee for above-knee amputations has been selected because, from the evidence of the men themselves, it has been established that they get about more securely, and walk better and with more confidence than they do with either a peg with flexible knee joint, or with a temporary leg of the usual pattern. In the more or less shaky condition that these men

are, when they first start out to walk with artificial appliances, it is easily observed that they walk with much more confidence in the peg than with the knee joint. A lock joint at the knee may easily be added, if thought desirable, so that the man may sit without the peg sticking out too far in front. The statement often made that men who learn to walk with a peg get a bad gait, and tend to throw the peg to the outside, and carry the foot around the circumference of a half circle, is not borne out by facts. If a man walks in such fashion with a peg it is an evidence of the fact that the peg is too long, and he must either swing it round, or elevate his pelvis on that side to permit of its coming through straight. All pegs should be at least three-fourths inch shorter than the corresponding leg.

The plaster pegs were used at first in our work, and proved very satisfactory for purposes of shrinking, but the lifetime of the average plaster peg was only three months, and had nothing artistic about it to recommend it to the average soldier. There was an evident necessity also for a permanent peg, as on occasions the permanent leg requires repairs, and the peg acts as a substitute. Some men with amputations also find it the greatest comfort to exchange the artificial leg for a light peg at some part of the day to rest the stump, and many men doing heavy work prefer to work with the peg, and change to the artificial leg in the evenings or on Sundays. A flat sandal affair or wooden foot is sometimes attached to the peg to facilitate walking in soft earth.

Wood was selected for the bucket of the standard limb because it appeared that it is worn the most comfortably of any of the materials used for the purpose. It does not sweat and macerate the skin; it is lighter than leather, and once having been fitted accurately, does not change its shape. This is especially true of the below-the-knee type.

The standard limb is made of seasoned willow, in a general way, after the Hanger type; the toes are of felt, the foot of maple, the ankle bushing is of bronze working in leather, and is bolted through the bottom of the foot. The knee is of the usual type with control from inside the bucket, of the modified Rowley pattern. Below the knee a wooden bucket is always used for 4 inch stumps or longer, and a slip-socket double leather bucket for shorter stumps.



Fig. 4.—Permanent peg for above-knee amputation

ARTIFICIAL ARMS

After thorough trial it has been found that the very complex mechanical arms are not satisfactory, and they have been eliminated. They are found heavy, with the greatest weight at the point farthest from the body, namely, in the hand. They are for the most part of metal, and in our western country are claimed to be very cold. Their complexity makes repairs frequent, so that the limb spends a great part of its life in the workshop. Simplicity has been aimed at, and the nearer we can come to this ideal, the better the product. A light dress arm of wool controlled at the elbow from the opposite shoulder with a catch lock that will fix the joint in three positions, or released, will allow the joint to play free, with a detachable hand and

controlled spring thumb, is the type supplied for all above-elbow amputations. For the forearm, the same pattern without elbow control, and a leather corset about the upper arm is substituted. The working arm is a simple leather bucket, reinforced with band steel to which is attached a short steel tube into which may be inserted a special clasp hook, devised in our workshops, or a lighter hook of the Dorrance type.

A recent development has been what we call the "Canada" arm, which, in addition to the arm described above, may carry an elbow joint controlled from the opposite shoulder, and a short forearm steel tube into which may be fitted the utensils noted above. As the appliances, such as forks, knives, hooks, safety razors or similar appliances, all are of standard type, they will fit any arm either above or below the elbow. This short forearm device may carry a hand on a long stem with gauntlet, so as to obviate the necessity of changing to the dress arm on completion of work. For long forearm stumps, a bucket with soft leather sleeve to lace above the elbow, after the Williams type, into which our standard appliances may be fitted, is found the most serviceable.

After all one's ingenuity is exhausted, and every device has been tried, it is still found that it is difficult to fit some men with apparatus with which they can "carry on" in civilian life, unless one can instil into them that element which seems to be lacking, namely, personality or character. On the other hand, it is impossible to prevent others who have this character in large measure from doing anything that "any white man can do," as one of them expressed it, even if their appliances are crude or home-made.

For this reason every effort is made by encouragement, by example, by contact with others similarly afflicted who are able to accomplish useful tasks, and by training and enthusiastic support of the medical officers to improve the morale of this type of afflicted patient.

**Poisoning with Potassium Chromate.**—A pharmacist at Breblaau made up a salve for treatment of scabies at the public clinic for skin diseases, and by mistake used potassium chromate instead of the sulphur ordered. A number of persons were severely poisoned by it and twelve are said to have died, according to the *Nederlandsch Tijdschrift*. Burning pain was complained of at once and some vomited. Two soldiers developed serious symptoms, fever, dark brown and bloody urine and albuminuria the twenty-seventh hour after the application. A number of those affected developed anisocoria and retinal hemorrhages, but the most threatening symptom was the inhibition of kidney function. The employment of venesection, diuretics, intravenous injections of sugar and decapsulation of the kidneys failed to display any favorable influence.

## AMPUTATION STUMPS IN RELATION TO THE FITTING OF ARTIFICIAL LIMBS\*

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One of the most useful by-products (if we may use the term) of the unhappy war just closing would be the proper recording and preservation of all experiences—especially in surgery—that may be of future value to humanity. The object of this paper is to open for discussion some of the observations made during the present war.

There is very little published information on the subject of amputation. Volumes have been written on surgery with only a casual reference to this most important branch of orthopedic surgery.

It is recognized that in the field many amputations must be primarily life saving operations; but the dominating idea in the performance of every amputation, next to that of saving life, must be the suitability of the resulting stump for the fitting of an artificial limb. The site and often the method of a primary amputation are mainly determined by the injury, the amount of shock, the severity of the septic infection, and the environment. Rapidity of operation must occasionally be the dominating consideration. Amputations undertaken under war conditions cannot, therefore, always yield the stumps best suited for the fitting of artificial limbs and subsequent operations often become necessary.

While the exigencies of military practice are responsible for many unsatisfactory stumps, some, it is to be feared, are due to an insufficient appreciation by the surgeon of the qualities necessary in a stump if the greatest possible benefit is to be obtained from an artificial limb. It is necessary that the

surgeon should not only be concerned with the amputation itself, but also should have a knowledge of what the fitter of an artificial limb requires of a stump, so that the combined efforts of surgeon and fitter may obtain better results than they have been able to do in the past working separately. As a rule, the surgeon gives little attention to the fitting of artificial limbs and rarely sees his patient after the healing of the wound, but turns him over, usually without supervision, to the artificial limb maker. Thus the surgeon loses one of the most valuable means of control in the perfection of his technic, and



Fig. 5.—Permanent peg for below-knee amputation.

\* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

frequently errs in comparatively small details which a knowledge of the fundamental points of the artificial limb maker's art would enable him to avoid. In brief, if the surgeon had clearly in mind, from the prosthetic point of view, the essentials of a good stump he would be better equipped to carry out that system of treatment which will restore a man who has suffered an amputation to the greatest functional efficiency.

An ideal amputation should be of such a length as to enable the artificial limb maker to fit the most useful type of limb built to perform as nearly as possible the function of the absent member. The stump should be covered by skin and subcutaneous tissue just slack over the end, and freely movable. There should be no redundant skin or pointed corners. There should be a firm nonadherent scar or cicatrix, the scar should be linear and placed where it will not be subjected to pressure or irritation by the artificial limb. The edges of the skin about the scar should not be turned in. The stump must be entirely free from pain or tenderness. The principal nerves should be cut as short as possible at the primary amputation. There should be no superficial or deep edema. There should be shrinkage and consolidation of all parts of the stump. The joint next above the amputation should possess full range of voluntary movement. The integument must become so hardened as to be able to bear subsequent pressure and especially is this true of stumps of the lower extremity whose duty is primarily that of a support, and secondarily acting as a lever for moving the apparatus. This leads us to a very brief discussion of the sites of amputations best suited for the fitting of an artificial limb.

#### AMPUTATIONS OF THE UPPER EXTREMITY

The importance of preserving as much as possible of the thumb or even of one finger can scarcely be insisted on too emphatically. A thumb or part of a thumb, or finger with fair range of motion and nerve supply intact though there be no portion of the hand to which it can be opposed, is very much more useful than any artificial contrivance. Amputation at the wrist should never be done if it is at all possible to retain any portion of the hand or carpus. Amputation through the pronator quadratus is preferable to a disarticulation of the wrist.

From the prosthetic point of view probably the best site for amputation in the forearm is at the junction of the middle and lower thirds. However, if an appliance is not to be worn, as long a stump as possible should be preserved. The minimum forearm stump measured from the tip of the olecranon process is 3 inches. A forearm stump less than this ceases to exist as a stump anteriorly when flexed. When it is possible to retain only such short portion of the bone, the flexor muscles of the wrist and fingers, the supinator longus and the extensores carpi radialis longior and brevior should be removed at their humeral attachments so as to leave the anterior surface of the forearm stump as flat as possible. Amputation through the elbow joint offers no advantage over amputation immediately above it, since in the former case the satisfactory fitting of an artificial arm is more difficult.

The point best suited for amputation in the upper arm is about 1 inch above the condyles of the humerus. Above this point it is particularly desirable to secure as long a stump as possible. Some power of movement over an artificial arm can be obtained with a

stump containing 1 inch of humerus below the anterior axillary fold, but a stump with less than 3 inches of bone forms a poor lever for moving an artificial arm. A short arm stump may be lengthened by dividing a portion of the pectoralis major and teres minor tendons and thus raise the anterior axillary fold. It seems advisable to retain any portion of the upper end of the humerus even if only the head, rather than remove it since the appliance is fitted much more easily when the glenoid cavity is filled.

#### AMPUTATIONS OF THE LOWER EXTREMITY

Amputation of the toes requires a "Planter flap" to get a good result and this is rarely available. A single toe should never be left as it will become deformed and painful. Amputation just back of the head of the metatarsal bones, in front of the attachment of the tibialis and peronei muscles, gives a very useful foot. The tarsometatarsal disarticulation (Lisfranc's operation) sometimes gives a very useful foot provided the ends of the tarsal bones are well covered with a Planter flap. A midtarsal disarticulation (Chopart amputation) is usually unsatisfactory and sooner or later a condition of equinus is likely to result, due to contraction of the unopposed calf muscles, and walking becomes difficult or impossible. Both Pirogoff's and subastragaloid amputations give stumps which make very difficult the fitting of effective artificial limbs. The Syme amputation is preferable to a Pirogoff as it gives more room for an ankle joint mechanism and avoids the difficulty frequently encountered in keeping the end of the os calcis in position. A Syme which is not entirely end-bearing is inferior for functional purposes to an amputation through the leg. The most favorable site for amputation in the leg is the middle third with a from 8 to 9 inch stump. Below this point the stump is not so satisfactory for end-bearing and the fitting of an artificial appliance is more difficult and the flaps are usually wanting in vitality. Above this point the leverage power is diminished. With proper surgical precautions an end-bearing stump should be secured at this level, and with a good modern artificial leg the gait should be practically normal. Many artificial limb makers prefer amputation at this site of the leg to any amputation back of the toes. Fair results have been obtained in fitting in a case with as little as 2 inches of tibia; but a stump as short as this is usually inadvisable, as it ordinarily will have to be fitted with the older type of knee-bearing leg, with the tibial stump bent to a right angle. However, a below knee appliance supplemented with perineal bearing, has given very satisfactory results in this type of case.

Amputation through the knee gives a very satisfactory stump with good end-bearing, provided the condyles are amply covered, preferably with an anterior flap. Under septic war conditions implantation of the patella on the cut surface of the divided condyles (Stokes-Griffith) is apt to be followed by displacement of the patella, by nonunion, or necrosis. When the union between patella and femur is complete, the results have been very gratifying. In the thigh the best amputation is one just above the condyles. Above this point all the length possible should be saved.

Unless 2 or 3 inches of bone below the lesser trochanter is left, a very unsatisfactory thigh stump results and it is practically impossible to fit the stump with a thigh bucket. If 2 inches of bone below the lesser trochanter cannot be saved, reamputation should be

done through the neck of the femur or through the hip joint. It is now possible to fit an exarticulation of the hip with a very satisfactory appliance called the "tilting table." In many cases the gait is even better than the shorter thigh stumps fitted with the thigh bucket.

In fitting an appliance one should make the amputation stump and the artificial limb one. This can best be done by the cone principle. Every stump through a smaller or greater part of its extent resembles a cone with a base upward. When this condition is utilized every change in the form of the stump, through pressure, only tends to make the fit more secure and perfect.

The American artificial legs are efficient since the beginning of the war little effort has been expended on this feature of the problem. However, considerable has been done in attempting to improve provisional appliances. In the treatment of civilians with amputations the artificial limb makers recommend the use of numerous stump shrinkers. This is merely an admission by them of the advisability and necessity for the early fitting of a provisional limb. During this period the amputation stump is constantly changing in size and shape. To fit a man at this time with a permanent type of prosthetic appliance would be a costly and unprofitable procedure. The artificial limb makers have recognized this difficulty but have not been able to solve it satisfactorily. It has been the practice of those with an amputation of the lower extremity to use crutches for ambulatory purposes. In so doing the stump is left hanging as a useless appendage, not participating in the movement of walking and if sufficient time elapses disuse and atrophy result. The use of crutches always results in a bad postural attitude which is very difficult to correct, to say nothing of crutch palsy and other complications which may develop. A provisional limb, under the plan now followed, is fitted at a very early date after the amputation, often before the complete cicatrization of the wound. In so doing the stump comes quickly to participate in the action of walking, thereby developing its muscles and nerves under the control of the spinal and cerebral centers. The parts of the stump are energized thereby and their new functions developed. The balance of the body is adjusted to the new condition and the equilibrium is established. The shrinkage of the amputation stump to its new dimensions is rapidly secured. The mental effect is likewise of service, so that from all points of view the early application of the provisional limb is desirable. The cost of the provisional limb should be as low as is consistent with effective service, because the rapid changes in the dimensions of the stump necessitate frequent changes in the provisional appliance.

Probably the most satisfactory all around provisional appliance so far devised has been made of plaster-of-Paris. With moderate skill practically every amputation stump can be fitted with this form of provisional appliance. The materials needed are simple and are available to practically every surgeon.

The bucket or socket is made of plaster of Paris, applied in the form of bandages carefully molded to the stump, so it supports the usual bony prominences and in addition exerts even pressure on the entire contour of the stump. It has the advantage that the pressure can be modified to comply with the characteristics of any particular amputation stump. Artificial

legs or set-ups without sockets (either for above-knee or below-knee cases), to which the plaster socket can be attached, can be purchased from the artificial limb makers and should be kept in stock.

The chief difficulty in devising an appliance capable of performing the work done by the lost hand is due to the high degree of differentiation in the hand functions. When a leg is lost the chief requirement to be met is support and hence no complicated mechanism is required. An artificial arm of similar construction would serve little more than a cosmetic purpose. The usefulness of a natural hand depends on these factors: First, rapidity and precision of movements; second, strength, and third, a sense of touch.

Strength is the only one of these requirements for which it is possible to make adequate provision in the artificial arm. Since only two pulls are usually practical in an artificial hand it is evident that its usefulness will be necessarily restricted to grasping movements of a very simple nature. Thus, it is obvious that the one-armed man will use an artificial arm only for a few and relatively simple acts. Most important acts will be done with the remaining hand. In an armless person the problem is entirely different. Instead of provision for the few and relatively simple acts required by the one-armed, the demand now is provision for every act possible, yet the means at our disposal are the same. Practically every armless person wears very simple artificial appliances with various forms of attachments designed to do the simple things which will make him independent after he has obtained sufficient skill in their use.

#### CONCLUSIONS

1. The amputation stump should have a satisfactory length, a good mobile covering, a firm nonadherent cicatrix so placed as not to be subjected to pressure or irritation by the artificial limb, a freedom from pain and tenderness, and absence from edema, a shrinkage and consolidation of all parts of the stump, and a free normal mobility of the joints above.

2. The surgeon should have clearly in mind the sites of amputation best suited for the fitting of an artificial appliance.

3. The surgeon should have a knowledge of the artificial limb makers' requirements of a stump and also a knowledge of the fundamental points of the artificial limb maker's art.

4. Experience has proved the value and wisdom of using provisional appliances in the early treatment of men with amputations, and it is hoped that there will be a universal acceptance, by surgeons, of this as the approved method of treatment.

5. However perfect a prosthetic appliance may be, it must be remembered that it will never reproduce the anatomic and physiologic characteristics of the amputated limb, and will never actually replace the lost member, but observation of many cases shows that faithful and intelligent practice, under guidance, will add immeasurably to the effectiveness of the artificial limb.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STARR AND ROSE

DR. PHILIP D. WILSON, Columbus, Ohio: I wish to commend particularly the remarks Dr. Rose made about the necessity of surgeons learning the sites of amputation that will give the best results with artificial limbs. I should like

to comment on the forearm amputation. It has been found that a stump less than 3 inches below the elbow is not useful. The biceps tendon has a tendency to work off the bucket in contractions of the forearm. Against this must be urged the fact that artificial arms are not successful. The experience in foreign countries is that less than 20 per cent. of those who have artificial arms wear them, if they have one good hand. We must consider that against the advisability of converting a short forearm stump into an upper arm amputation. A forearm stump without apparatus is useful as a support for paper, and in many other ways. We have seen demonstrations of how men with double forearm amputations can, without wearing appliances, do a number of things by using their forearm stump as a kind of large finger.

The plan of lengthening an upper arm stump by cutting the pectoralis major and the anterior and posterior axillary folds has been suggested; but it seems to me doubtful whether such a stump can be lengthened sufficiently in this way to make the operation worth a great deal. In the foot, I would speak of Symes' amputation, which is being developed principally by the English. The results with it have been exceedingly good, but they are dependent on making this stump fully 100 per cent. end bearing. It usually is made with two redundant flaps, which have a tendency to evert, turn over and, in the end, produce a painful stump. By a little careful tailoring and attention to detail, this can be remedied; and attention to the nerve endings is extremely important. The site of election for an amputation of the leg is said in the textbooks to be 4 inches below the knee. That is based on the idea that such mutilees should walk with the knee bent. The modern conception is that they should never walk with the knee bent. A man is better off with an amputation above the knee than he is walking around on one of those old bent knee affairs. When the stump is less than 9 inches below the knee, we should try to save every inch we can. The Stokes-Gritti amputation is not necessary. The matter of end bearing of a stump is more a question of the after-treatment of the patient than of the type of operation. By the inauguration of gradually increasing end pressure exercise, as described by Lyle, three or four years ago, the stump can gradually be toughened so that full pressure can be borne on the stump end. Even when this is done, however, the value of such a procedure is very doubtful. The artificial limb makers, in actual practice, do not utilize it. That is partly their fault, but there is a reason for it. It is almost impossible to fit an artificial limb in such a way as to divide the pressure equally between the end of the stump and the tuberosity of the ischium. Unless pressure is put on the latter, the leg lacks stability and there is a tendency to turn. The introduction of plaster-of-Paris legs should be generalized. Getting the patients up as early as possible on these provisional legs, the functional results will be improved 50 per cent. and will be reached in one-third the time.

DR. REGINALD H. SAYRE, New York: One of the bothers with amputations is the old ulcerated stump. In a case of edematous stump with a large ulcerated area, which had existed for four years, I operated just as I would on any varicose area, slitting it all around and applying pressure to prevent the edema. I found difficulty in keeping pressure on the end of the stump, and I employed a procedure that was then new to me. After scarifying the ulcer, I made compression and put adhesive plaster on the sides, front and back of the thighs, with eyelet holes at the lower extremity. I then made a cross of adhesive with eyelets at the four ends and put a dab of balsam of Peru on the ulcer. I fastened the cross of adhesive to the other adhesive strips by means of elastic strings passing through the eyelets and pulled as tight as possible on the side. In the course of six months, the thigh had healed up and the patient had a perfectly good stump. Just as in ulcers of the shin, the fundamental necessity of relieving the edematous condition of the leg by equitable pressure does not seem to be appreciated. I have brought this forward as a practical method of getting rid of it in these ulcerated stumps. Another man had been

operated on three times before he came under my observation, for thrombo-angiitis obliterans. This man had an unhealthy and crooked stump. At the last operation, his stump had contracted at an angle of 45 degrees, and it was impracticable for him to wear the curiously contrived artificial leg with the wobbling bucket, as he had to let this rudder stick out at the back while walking. I straightened the knee. A plaster-of-Paris bandage was applied around the thigh and stump, the plaster being held in position by adhesive running up the thigh and then incorporated in the plaster of Paris to keep it from turning over. When it was hard, the plaster shell was sawed in two, and a wedge of wood was put in behind the knee with a band of plaster of Paris around it to hold it in position. It was removed in four days, and a larger wedge of wood was inserted. This was repeated at intervals, until we got the leg into a straight position. I have found this a practical way of getting these legs straight. Later, as the scar tended to open every time he stretched it by using the artificial leg, a piece of adhesive plaster was put across the scar after it had been pulled together to relieve the tension on the cicatrix until it healed up.

DR. JABEZ N. JACKSON, Kansas City, Mo.: It is striking how little attention is paid to anatomy in the ordinary textbook description of amputation, and, I think, that a great deal of dissatisfaction with the stumps is dependent on this. We are told to cut down to the fascia. I think it is better to cut through the fascia and lift up the fascia with the skin. Do not close the wound by a through and through stitch. Suture accurately the aponeurosis of the muscles and close the skin separately. If this fascia is brought over and sutured separately, you can close the skin with any kind of stitch.

DR. REGINALD H. SAYRE, New York: I should like to hear whether any one has had experience with Vanghetti's kinoplastic operation for getting muscles and tendons that will be able to manipulate the fingers in upper arm amputation.

DR. EDWIN W. RYERSON, Chicago: Huber, of the University of Michigan, has shown that if the last three fourths of an inch or 1 inch of nerve be injected with alcohol at amputation, no neuroma will be formed. As Dr. Starr says, the neuroma is formed by the growing down of the neurofibrillae and the formation of a painful bulb. If this simple technic of injecting with alcohol is observed, there will be no growing down and no neuroma. No neuroma is formed above the site of the injection, because the neurofibrillae do not proliferate except at the cut end. I think that this method is worthy of a trial, because painful nerve bulbs are frequent.

DR. C. W. HOPKINS, Chicago: One point that I was glad to hear brought out in the discussion was in regard to the site of amputation in the leg in cases where the doctor can use his discretion, when the injury is low down. The general tendency for many years has been to save all of a leg possible, giving the patient a very long stump, by performing the amputation just above the ankle. In my railroad work I have had many men come to me who were operated on years before, requesting that a reamputation be done higher up, stating that the long stump caused a very unsightly bulge in the lower end of the artificial limb, just above the ankle, and that the long stump seemed to suffer considerably from cold and to be in the way generally, and many times developed ulceration on account of poor circulation. We must remember that in wearing an artificial leg, the weight bearing is entirely on the condyles, the length of the stump making very little difference if it extends 8 or 9 inches below the knee. For that reason I have been doing all amputations of the leg at about that point even where the injuries consisted of a destroyed foot or lower end of the leg, and since that time I have found that the patients have had very little trouble and seldom ever return for any further work. There is one point in leg amputations which has not been brought out, and that is the removal of the head of the fibula where the stump is very short. If the leg stump is not over 4 or 5 inches long, or does not leave more

than 4 inches of the fibula, the fibular head should always be removed at the time of the amputation otherwise the patient will invariably experience discomfort by the fibula being pushed toward the tibia which keeps up a constant irritation. I was very glad to hear the remarks made by Dr. Jackson and will say that my own experience has proven him to be correct. I also heartily approve of the early weight bearing or use of a leg soon after amputation by some good method which prevents a long drawn out employment of a crutch, raising the morale of the patient 100 per cent.

DR. CLARENCE L. STARR, Toronto, Ont.: All the amputation cases I spoke of were in war conditions. As almost all the men had had anywhere from twelve to fifteen operations, I could not suggest the idea of a reamputation for the formation of an ideal stump. We had to take the material presented and make the best of it. Take the question of peg legs. We all agree that in the treatment of these conditions, the sooner you get the men into temporary apparatus of some sort for walking, the better; and yet the psychology of the situation is so marked that it is difficult to get these men into pegs. For instance, a man appearing with his leg tied up and his trousers leg pinned up, and walking on crutches, does not go far before he is picked up by some kind hearted woman in an automobile and given a ride. If he has a leg on, however, this will not happen. That is a difficult thing in itself to overcome. It is not a question of ideal types, but a question of some of the difficulties that we meet in attempting to deal with these amputation cases. The subject is so large that it is almost impossible to touch the fringe of it. In the question of a double arm amputation, one arm being an amputation 1½ inches below the elbow. One of the speakers said that this would not produce a movable arm. We had that difficulty until we put a small cap over the end of the bucket and ran a compound lever up the arm and then back to the forearm piece. That gives him a double lever, by which he can use a safety razor, a comb and brush, a knife and fork, etc., and he is capable of taking care of himself. He can travel, if necessary, without a valet. A double amputation with that sort of apparatus is in a fairly good condition. It is such problems that we try to meet with the material that we have on hand.

DR. PHILIP D. WILSON, Columbus, Ohio: With reference to Dr. Sayre's question about the Vanghetti amputation—my observations in Italy were not such as to convince me that this is a useful procedure. It offers hope from the experimental standpoint, but is not far enough along for us to take it over and make it practical. It cannot be done unless a man has a prosthetic workshop that he is controlling. Tendon and muscle loops are made, the movement of which is to be used to actuate artificial hands; so it is necessary to have in mind the apparatus that is to be made to fit on it. It is not enough to do the operation and say that we have a fine result because the tendon moves an inch. It is necessary to harness it up and make it practicable. Three or four such amputations have been made in the American army, and the three that I know of had to be removed as not practicable.

DR. E. J. ROSE, Gallipolis, Ohio: In civilian practice we do not see the ulcerated stumps that we see in war amputations. In the front area work in France practically all amputations following gunshot injuries were of the guillotine type and the stumps were left wide open. As a result of this method, even if the best secondary method is carried out, large central scars with varying sized ulcers will persist and often times refuse to heal. It has been our procedure in General Hospital No. 3 to treat these ulcers and granulating areas until a sterile culture is obtained. If there is no bone involvement, an excision of scar tissue and a plastic closure is done; however, many cases require excision of a small portion of bone before closure is done. The length of the stump determines to a great degree the mode of operative procedure because the object for which we are working is to obtain the best possible stump for the fitting of an artificial limb.

## UROLOGIC FINDINGS IN DISEASES OF THE CENTRAL NERVOUS SYSTEM

A STUDY OF FIVE HUNDRED CASES\*

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Urologic recognition of disease of the central nervous system is a phase of medicine of such magnitude that physicians should be keenly alert to it. For this reason we have made a comprehensive urologic study of 500 cases of nervous and mental diseases, in the hope of determining definite facts which might serve, in conjunction with our previous knowledge, to insure our intimate acquaintance with this phase of urology and enable us to be an important aid to a thorough neurologic investigation. To be of value an investigation must result in definite findings concerning factors constantly present in organic disease of the central nervous system. These we seem to have made. We have known it for some time, yet, when one reviews the recent urologic textbooks, it is notable that there is a shocking absence of the slightest reference to the fact, though the findings constitute, certainly, one of the most important chapters in urology.

Of the significant urologic observations, the most important of which are loss of sexual power, relaxation of the rectal sphincter and the bladder picture

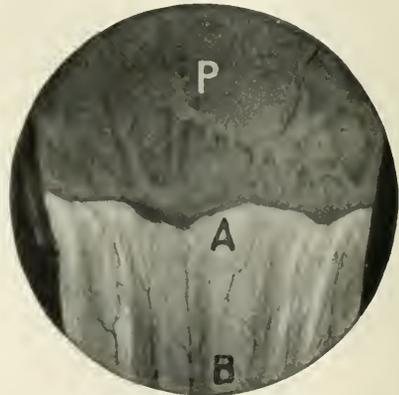


Fig. 1.—This and the accompanying illustrations are drawings from a cystoscopic examination: A, internal sphincter muscle; B, floor of urethra; P, bladder wall, showing trabeculation.

as revealed by the cystoscope, the last named is the most reliable. Cystoscopic findings in disease of the central nervous system, particularly those affecting the lower segments of the spinal cord, of which tabes dorsalis is the most notable example, are definite, constant and characteristic to a degree that stamps them as being of very considerable diagnostic importance.

\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Since such a large percentage of diseases of the central nervous system manifest themselves initially by disturbances of bladder function, and since so many surgical diseases presenting bladder disturbances are either complicated by or associated with tabes, it is apparent that the recognition of this type of bladder is extremely important.

Owing to the confusion in the interpretation of the term "tabetic bladder," which would seem, as its name implies, to indicate only the bladder associated with

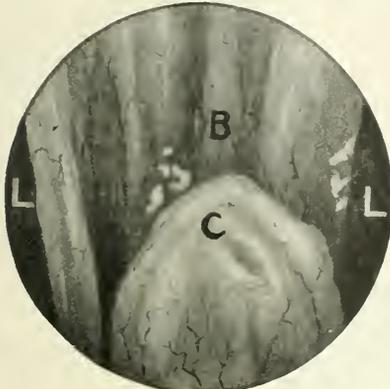


Fig. 2.—B, floor of urethra; C, verumontanum, showing orifice of utricle; L, lateral urethral walls.

locomotor ataxia, we have designated recently the condition in which there is bladder disturbance complicated by or associated with tabes, as the neurogenous bladder, because we feel confident that the findings in the bladder are strikingly suggestive, if not absolutely positive, of neurologic disease, even though in many of our cases there has not been a neurologic substantiation.

Among urologists, there has been considerable discussion as to the characteristic findings in the bladder in disease of the central nervous system, and most of the previous reports on this subject have dealt with the great importance of trabeculation as being pathognomonic, without regard to the internal sphincter. It is our belief that the internal orifice is equally decisive. The combination of the two, however, really forms the definite cystoscopic picture.

#### CYSTOSCOPIC EXAMINATION

With the cystoscope in the normal position, there is a feeling of relaxation which one does not get in normal cases. Furthermore, the posterior urethra is usually more tolerant, and in definite tabetics, as is well known, often anesthetic. In a great many instances, the external sphincter is spastic, and if one has passed a catheter before the cystoscope, urine is frequently withdrawn on entering the posterior urethra. The sphincter margin has been found to be without striking appearance, above and laterally; but as one approaches the floor, the striae of the urethra can easily be seen, external to the sphincter. On depressing the eyepiece of the cystoscope and withdrawing the instrument, one may inspect the posterior urethral floor or the supramontane urethra, its folds, the guttered appearance of the urethra, and the lateral urethral walls being shown (Fig. 1).

On further withdrawal, the verumontanum may be brought plainly into view, the orifices of the utricle and ejaculatory ducts inspected; and, very frequently, seminal ejaculation from the orifices may be observed (Fig. 2). Various degrees of relaxation of the sphincter and prostatic urethra are seen: In some instances, only the first part of the urethra is visible; in others, the whole urethra permits inspection, but indistinctly, and still others show considerable relaxation but do not allow vision.

The first type of pronounced relaxation, with the guttering of the urethra and visibility of the verumontanum, is the characteristic and significant finding in cases of definite nerve lesions. The other types are less positive and seem to occur quite frequently in the presence of a negative neurologic examination, frequently in certain psychoses, but rarely in pronounced organic disease. This group, which may be termed minor relaxations, offers a very interesting series of cases and one about which considerable confusion exists at present. While cystoscopic findings are not positive, they are highly suggestive, and in many instances individuals showing these changes have later presented definite neurologic developments.

These findings are commonly associated with functional disorders, neurasthenias, reflected pains in the perineum, groins and testicles, and general atonic conditions, and it may be that they are representative of a general let-down in physical tone. As previously stated, however, we should always be careful in construing this picture and offering a prognosis to the patient. We have frequently observed these slight relaxations in early syphilitics, in fact, such changes have prompted us, in many instances, to have Wassermann tests taken.

Associated with this orifice picture, the trigon (Fig. 3) is usually elevated, but seldom husky and



Fig. 3. I, top of trigon, showing elevation and fanlike appearance of trabeculation; T, trabeculation.

hypertrophic, as when behind mechanical obstructions; the interureteric bar is usually lifted and thin. Laterally, the trigon at its tips frequently fans out into trabeculae, which spread out over the lateral walls of the bladder. The ureteral orifices show nothing in particular, except that in some cases they are sluggish in their ejaculation of urine. With this picture of relaxation at the internal orifice of the bladder, there is usually bladder trabeculation (Fig. 4), which does not always show particular characteristics, except that pos-

sibly it may be a little more delicate than trabeculation seen back of mechanical obstructions. Koll believes that it has a predilection for the lateral fornices and has a specific appearance; but our cases have not been so definite in this respect, as they have all been more or less generalized, and various grades of trabeculation were assumed.

In the female, the diagnosis is somewhat more difficult, since we miss the anatomic landmarks which serve to illustrate this relaxation. Nevertheless, there is always considerable relaxation of the sphincter, and this, coupled with the trabeculation of the bladder, suggests the diagnosis.

The roentgen-ray findings of the bladder have been interesting. We have made cystograms with thorium, collargol and argyrol. These cystograms have usually shown a clean-cut line below, in the internal sphincter region, while in several of the very relaxed cases there has been a funneling due to the material in the deep urethra, as has been observed at the Johns Hopkins Clinic also. It is quite surprising that this funneling is not more uniform, since one would expect from the cystoscopic appearance of the urethra that it would be so. It is evident that the sphincter tone is sufficient to resist intervesical pressure until some mechanical instrument holds it open. There has been one observation in particular that has been of interest to us. If the bladder is filled with a solution, and comparative plates are taken with the patient lying and then standing, there is noticed in tabetics a dropping down, with forward toppling, of the bladder. This is probably due to the marked relaxation of the various bladder and prostate supports, namely, the ligaments and muscular supports in this region.

#### RESULTS IN FIRST SERIES

In the series of 500 cases observed by us, 188 were studied

with Dr. Francis Barnes, psychiatrist at the St. Louis City Sanitarium, and were cases representing various types of psychoses. In this series, we had no tabulated record of the symptoms, but confined ourselves to an investigation of the urologic findings in the individual patients and checked them with the diagnoses in the sanatorium. In carrying out this part of the work, we were very careful that the cystoscopic and other examinations should be made without prejudice.

All knowledge of the character of these cases was therefore concealed from Drs. Greditzer and Caulk, who made the urologic examinations. This series, including, exclusively, cases of mental disorders, embraced 158 males and thirty females. There were eighty cases of paresis, two cases of tabes dorsalis with psychosis, nine cases of cerebro-spinal syphilis, thirteen cases of organic brain disease, not syphilitic, eleven cases of alcoholic psychosis, eleven cases of epilepsy with psychosis, forty-four cases of dementia praecox, six cases of defective states with psychosis, and twelve cases of manic depressive insanity.

In the cases of paresis, 50 per cent. showed typical positive cystoscopic pictures, 38 per cent. of the cases having present or exaggerated knee jerks were cystoscopically positive; while in 74 per cent. of the cases with diminished or absent knee jerks, the picture was positive. Concerning the 38 per cent. of cases in which the cystoscopic examination was positive and the neurologic examination negative, it should be stated that it is claimed that 99 per cent. of all paretics have pathologically demonstrable lesions of the posterior columns of the spinal cord, such as are found in tabetics. It is possible that these posterior column changes may not be of sufficient intensity to produce general clinical signs, but of such character as to involve the segment which would give rise to the bladder changes above described. Cases of tabes with paresis were 100 per cent. urologically positive. Of cerebrospinal syphilis, 55 per cent. gave urologically positive pictures. We wish to call attention to the invariable positive cystoscopic picture in hemiplegias. Of the organic nonsyphilitic brain diseases, including arteriosclerotic dementia, senile dementia, multiple sclerosis and Huntington's chorea, 30 per cent. were cystoscopically positive,

these being the cases of arteriosclerotic dementia and those of multiple sclerosis. Of the eleven cases of alcoholic psychoses, including Korsakoff's syndrome, alcoholic dementia and chronic alcoholism, only that of Korsakoff's syndrome was positive; and it is interesting that the knee jerks were absent, although there were no other signs of neuritis.

Epilepsy with psychosis showed 27 per cent. positive bladder findings.

Of the cases of dementia praecox, the findings were positive in 22 per cent. One of these cases, associated with alcoholism, is interesting because of the positive finding, in view of the fact that at the time of the patient's admission the diagnosis had been paresis but later observation did not confirm it.

The percentage of positive cases in this group, more than one fifth, seems high, but we must remember in this connection that there are those who argue for the organic basis of dementia praecox. There were six cases of defective state. In one of these, an imbecile who had had a severe syphilitic meningitis in infancy, there was a positive picture.

Manic depressive insanity contributed twelve cases with negative bladder findings.

In summary of this study of 188 cases of psychoses, it may be said that the neurologic findings were such as to lead us to suspect a positive bladder picture in 25 per cent., whereas this positive picture was found in 50 per cent. If we separate these cases into organic and functional groups, we find that the neurologic and urologic observations practically tally. In other words, the cystoscope reveals bladder findings in a large proportion of so-called functional cases. Dr. Barnes has recently reviewed the cases studied in this series, two years after the previous examination: There has been no change in their neurologic status.

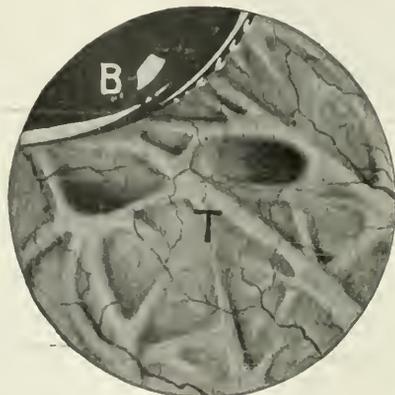


Fig. 4.—B, air bubble; T, trabeculation at dome of bladder.

## DIAGNOSIS IN THE SECOND SERIES

The remaining 312 cases were studied in the Washington University Medical School Clinic, at Barnes Hospital and in private practice, and comprise the routine types of organic and functional nerve disorders. Of the previous diseases, syphilis and gonorrhea stand at the head. Forty per cent. of the patients gave a previous history of syphilis, and the same percentage showed positive Wassermann reactions. Seventy-five per cent. of these patients, with cord lesions, gave positive spinal fluid tests.

Definite neurologic diseases, such as tabes, cerebrospinal syphilis, postapoplectic conditions, spinal cord tumor, and paresis, occurred in 46 per cent. of the series. Of this number, the diagnosis was made first in the urologic clinic in 46 per cent. of the cases, a fact demonstrating the frequency with which such diseases manifest themselves by bladder symptoms, and lead the patient to consult the urologist first for bladder disturbances. In 54 per cent. of the cases, patients consulted the neurologic clinic first. Of the cases positively diagnosed by the cystoscopic examination, in only 50 per cent. was the diagnosis confirmed by the neurologist. In about 5 per cent. of the 50 per cent. of unconfirmed cases, lesions have since developed. In this group there were two cord tumors, eventually diagnosed neurologically, in one case a year after we had found a definite picture. The remaining 45 per cent. of unconfirmed cases we have tried to trace, but have experienced great difficulty in getting any replies. Only a few replies have come to our inquiries; the majority of cards read "wrong address." Patients who have returned have remained neurologically negative, but still definitely cystoscopically positive—the smaller group—and cystoscopically suggestive, of the larger.

## DIAGNOSTIC SYMPTOMS AND FINDINGS

A. *Urinary Symptoms.*—Ninety-three per cent. of the patients had urinary symptoms. Seven per cent. presented no urinary symptoms. Of the 93 per cent. half were definitely neurologic and half unconfirmed. Of the 7 per cent., it was again half and half.

1. Frequency: Frequency of urination occurred in about 60 per cent., equally divided between the confirmed and unconfirmed.

2. Incontinence: Incontinence of urine occurred in 38 per cent. of the series, of which the patients in 63 per cent. proved to be those with definite central nervous system disease. One of the patients with incontinence, who showed a positive picture, but in whom the diagnosis was not confirmed by the neurologist, later proved to have had a spinal cord tumor. Our findings were confirmed at necropsy.

3. Urinary Obstruction: This occurred in 36 per cent. of the cases. Of these, one half were neurologic. In one of the negative cases, however, paresis later developed. Other causes of obstruction associated with this group were stricture, prostatic hypertrophy, bladder tumors, cancer of the rectum, cystocele, etc.

4. Pain, Burning and Urgency of Urination: This condition occurred in 41 per cent., and, of these, the diagnosis in 41 per cent. was confirmed.

B. *Sexual Powers.*—One of the very important and most uniform findings was disturbed sexual capacity. In about 80 per cent. of the cases of organic lesions of the central nervous system there was either complete loss or considerable disturbance of the sexual

powers. Of the nonconfirmed cases, 50 per cent. showed this disturbance.

C. *Pain.*—Pain was present in about 70 per cent. of all the cases, being the lightning pains of tabes, and pains in the back, legs, perineum, pubis, scrotum and rectum. A very suggestive pain has been a puckering, pulling pain in the perineum and in the rectum. These are often ascribed to prostatitis and vesiculitis, but frequently indicate nerve lesions and not reflexes.

D. *Uremia.*—One of the chief factors in the production of toxicities in patients suffering from central nervous system disease is uremia. It not only manifests itself with the ordinary obstructive type symptoms, but also serves to augment many of the toxic pains from which these patients suffer. A great deal of the pallor, weakness and dizziness also emanates from this cause. We have noted repeatedly that the relief of the uremic condition of a patient has improved his appearance and symptoms to a surprising degree. Therefore, we feel that the correction of uremia is one of the most important phases in the treatment of the pronounced tabetics.

E. *Hematuria.*—This occurred in 15 per cent. of the series, one third being in tabetics and two thirds in nontabetics. The hemorrhages occurring in tabes are very interesting, and, indeed, very alarming. Hemorrhage often occurs with vesical crisis, and is so profuse that several of the patients have looked almost exsanguinated. These hemorrhages seem to come from both the urethra and the bladder wall, and have been controlled with epinephrin. One patient in this series bled to death from a small incision in the back for the drainage of a perinephritic abscess. With relaxation of pressure, there was profuse hemorrhage, which could not be controlled and which was probably due to a vasomotor phenomenon.

## EXAMINATION

*External Genitals.*—These are frequently flabby. Varicocele is common. Various degrees of penile atrophy have been noticed, and in several instances there have been marked spasms of the whole anterior urethra, so that it was difficult to insert a catheter, and more difficult to remove it.

*Urine.*—Thirty-two per cent. of the patients in all the cases had infected urines; 66 per cent. of these were tabetics; the remainder, the unconfirmed. Furthermore, 40 per cent. of all tabetics had infected urines; 60 per cent. had not. The infections were almost entirely of the colon bacillus group.

*Prostate and Vesicles.*—Sixty-eight per cent. of the patients had prostatitis and vesiculitis. This percentage was divided equally between the confirmed and the unconfirmed. About 5 per cent. of the patients with definite cord lesions had an associated prostatic hypertrophy. This is very important, and serves to emphasize the necessity of thorough recognition of this bladder picture and the advisability of always making a cystoscopic examination prior to prostatic surgery, since the symptoms which seem to be due to the prostate may have their origin in a nerve lesion. It seems certain that many of the unfavorable results following prostatectomy, particularly incontinence, are due to the fact that the prostate has been removed from patients suffering with nervous diseases. Otherwise, incontinence would not result, for it is hard to produce.

*Rectal Sphincter.*—This offers itself as an extremely important symptom, and often creates the first inling

of suspicion. In our series, we have found it to be relaxed in 88 per cent. of the cases. Indeed, in regard to several patients who were in the medical ward with obscure symptoms, we were able to predict, by the rectal examination, a possibility of nerve lesion, and in several of these cases the predictions have been fulfilled. About an equal proportion of the patients were in the confirmed group. There was normal tone in 8 per cent. In only two instances did this normal sphincter occur in tabetics. Associated with the relaxed sphincter there is frequently a ballooning of the rectum. At times it is very spacious, and, invariably, this combination of relaxation and ballooning is a very important monitor of cord lesions.

*Internal Sphincter and Verumontanum.*—In this series we found the internal sphincter relaxed to various degrees in 98 per cent. of the cases. About 79 per cent. of these relaxations were of such a degree as to allow cystoscopic inspection of the verumontanum. The diagnosis, in 40 per cent. of these cases, was neurologically confirmed; in the remainder it was not. But 80 per cent. of the tabetics had sufficiently relaxed sphincters to allow inspection of the verumontanum, and 20 per cent. had not. This high percentage of relaxation of the internal sphincter in diseases of the nervous system places it as one of the most important criteria. Twenty per cent. of the cases showed internal sphincter relaxation, but not of a sufficient degree to allow inspection of the verumontanum. The condition, in these cases, was associated also with a relaxed rectal sphincter. This group of cases must be repeatedly examined, as such a combination is highly suggestive of nerve lesions.

*Trigon.*—The trigon was elevated and spread out like a fan in 56 per cent. of the cases. Of this number, 56 per cent. occurred in diseases of the central nervous system. It was also observed that 75 per cent. of tabetics had elevated and veiled trigons, whereas, in 25 per cent. the trigon was normal.

*Trabeculation.*—Trabeculation was present in more than 90 per cent. of the cases. Of these, 46 per cent. were confirmed. On the other hand, trabeculation was reported in 96 per cent. of the patients with diseases of the central nervous system. This high percentage of trabeculation occurring in organic nerve lesions presents itself as a very important diagnostic finding.

#### TREATMENT

There is no type of urinary disease which has received in the past such meager attention as the bladder disorders associated with diseases of the central nervous system. This is particularly true of tabes. The treatment of the tabetic has been one of pity rather than one of therapeutics. And actually, proper treatment is rewarded with quite a degree of satisfaction in a large percentage of such patients. As such a proportion of these cases are secondary to syphilis, general treatment directed toward syphilis is one of our first considerations. From our observations, we are led to believe that patients with active blood Wassermann reactions, from ++ to ++++, are much more controllable than those with a negative or slightly positive reaction. It has been our principle to treat these patients quite actively with arsphenamin and mercury alternately, in order to stop further progress of neurologic involvement (of course one cannot hope to correct old nerve scars; but we believe that one can hope to allay certain nerve symptoms—for instance, light-

ning pains are often immediately stopped after the administration of arsphenamin)—and also to prevent the virus from involving further nerve structures.

These patients should be kept under very strict hygiene, and their diet and bowels carefully regulated. Urinary antiseptics, particularly acid sodium phosphate in 20 grain doses and hexamethylenamin in 10 grain doses, three times a day, are helpful in the infected cases, and serve as preventives in the uninfected.

*Local Treatment.*—It must be understood that the treatment of a bladder lesion secondary to an old nerve lesion is entirely different from that of one due to traumatic injury. It has been definitely shown that the latter group should be left alone, as the automatic bladder will usually develop, and the condition will frequently take care of itself. The lesion which is secondary to an old nerve lesion, on the contrary, demands a different therapeutic regimen. As has previously been said, this type of bladder has frequently passed unnoticed, the treatment has been neglected, and even patients with overflow have been allowed to go on dribbling. In our experience in handling this series of cases, we feel firmly convinced that these patients can be enormously benefited, many of them made comparatively comfortable, and some, particularly those with early involvements, entirely relieved of every bladder symptom.

The method of treating such bladders varies according to whether or not there is residual urine. This difference in treatment, of course, is in the employment of systematic catheterization in those patients with residual urine. Otherwise, the treatment is similar, consisting, in the first place, in relieving irritability, in keeping the patients clean and in training them to exercise their enfeebled musculature by regular, systematic attention to urination, and by practicing stopping and starting the urine at frequent intervals. This is designed to give more muscle tone and power to the fibers not involved, and, by means of such compensation, enable them to replace the loss of fibers which are destroyed, thereby preventing their injury from overstretching as a result of a chronically distended bladder.

These patients should all receive systematic treatment for the prostate and the bladder neck, such as massage, dilatation, instillations and applications to the urethra; and even though instrumentation has been tabooed for this class of patients, we feel that it has been on unjust grounds, since the benefit derived is entirely out of proportion to the occasional slight trouble that it may cause. When careful technic has been observed and gentle manipulation employed, we have seen very few instances of trouble following such treatment, and these slight upsets have been only temporary.

Patients with residual urine, whether infected or not, are treated by regular catheterization and irrigations or instillations. This, of course, for the purpose of relieving the internal pressure and allowing the overstretched muscles which are not neurologically involved to regain control, and it is surprising how promptly a bladder which has held a high residuum for a long period will empty itself. Indeed, in several instances after one or two catheterizations, the residuum has entirely disappeared, and several patients have for more than a year, carried only a few ounces of residuum after only a few catheterizations. The average patient, however, has to be catheterized regularly, that is, daily for a while, after which the interval between

catheterizations is gradually increased in length, the time depending on the results obtained. As a rule, after a course of treatment, the condition of such patients can be kept under control by weekly or fortnightly inspection. It is very comforting to see many such patients improve in general health. Their previous pallor, weakness and general toxic symptoms largely dissipate. We know of no more appreciative patients in the world than this class.

Since 80 per cent. of pronounced tabetics are suffering with uremia, systematic drainage has the same beneficial effects as in cases of mechanical obstruction. Besides, it allays, in many instances, the toxic nerve pains which are so frequently magnified by toxemia.

We hope the profession, therefore, confronted with these gratifying results of local, general and specific treatment, will divert from the previous conception of the treatment for these patients, and animadvert to this form of therapy, which yields such relief.

SUMMARY

There are definite findings which enable urologists to diagnose early and late nerve lesions involving the bladder; and since the bladder is so frequently primarily symptomatically involved, it behooves us to appreciate these clinical features in order that many patients may have the advantage of an early reference for complete neurologic investigation, so that they may be protected against further progress of the disease, and also that we, as surgeons, may be protected against operating on an unsuspected central nervous system disease.

SHELL FRACTURES OF THE SPINE

WITH OBSERVATIONS ON KIDNEY AND  
BLADDER FUNCTION \*

H. W. PLAGGEMEYER, M.D.  
DETROIT

In the preparation of this brief report of a series of seventeen cases of shell fracture of the spine as observed at the Walter Reed General Hospital, the subject was approached with a full realization of the period of time that necessarily elapsed between the inflicting of the wound and our first clinical view, connoting the transition from the primary stage of spinal shock with depression and retention to the succeeding stages usually characterized as the stages of: (1) paradoxical, or passive incontinence; (2) periodic reflex micturition, or active incontinence, and (3) paralytic or complete incontinence, in which latter phase evacuation of the urinary bladder is continuous, automatic and complete.

It was in these later stages, with their bewildering array of signs and symptoms, that the cases first came to our attention, and it is on these phases only that we feel entitled to make comment, our primary approach having been made from an entirely agnostic point of view, with no prejudices and with no deliberately acquired knowledge of what one might expect to find.

The cases had been, in every instance, referred to the department of urology from the neurosurgical section, with a diagnosis of fracture of the spine and

urinary incontinence. The patients were all in the third decade, and in no case was there history of previous incontinence. The time between the inflicting of the injury and of the first observation varied from two and a half to eight months, with a mean average time of four and a half months. Every patient had been catheterized abroad, all of them were infected, and many of them demanded catheterization as their right. Needless to say, it was on this assumption only that we took the liberty of doing simple cystoscopy on the bladders examined.

All cases gave a history of complete retention following injury. The onset of incontinence varied from twenty-four hours in five cases to six months in one case, but this patient had an inlying catheter when admitted, and four others, in which the history was given as three, four, five and six weeks, respectively, had apparently been catheterized as a routine. Barring these, the mean average of onset of incontinence was forty-eight hours.

The site of the lesion varied from the sixth cervical to the cauda equina, the lumbar cord being the favored site in nine cases, the dorsal in five, the cervical in two, and the sacral in one. Several of these overlapped; thus two of the lower lumbar lesions involved the first sacral vertebra, one of the upper dorsal involved the seventh cervical, one lower dorsal included the first, second and third lumbar, and the sacral case evidently involved the emanation of the cauda equina and the conus.

Rectal involvement was general and ran a course symptomatically parallel to that of the bladder, as we should expect from the innervation and developmental analogy of their respective sphincters. Sexual desire and ability were absent in all. None of the cases showed edema while observed.

CLINICAL FINDINGS

In eleven of the cases of this series cystoscopy was performed after consultation, every care being taken to preclude further infection, and with no untoward results. The picture was practically unvarying, and the findings might be summed up in a composite group:

1. Normal or hypertonic contraction of the external sphincter.
2. Complete relaxation of the posterior urethra, the floor definitely falling away from the roof. The verumontanum is plainly seen, in most cases appearing to lie in the floor of the bladder. The internal sphincter is almost wholly obliterated as such, though its site is marked by a slight convexity in its antero-posterior aspect.
3. The trigon in six cases was definitely atrophic in appearance, one case presenting a right lateral congestion, sharply demarcated in the midline. Four cases gave a picture of raised trigon, the elevation being especially marked at the interureteric ridge, and being rather apparent than real, owing to the *bas fond* lying posterior to it.
4. Generally the ureteral orifices were within range of normal, as to position, excursion and mobility.
5. Trabeculations were found in every case, gigantic in size, as a rule transverse and coarse on the floor, rather evenly distributed on the lateral walls, and having their greatest complexity on all the faces surrounding the vertex. It is probable that here the greatest local attempt at facilitation was made, as this is the site of distribution of the nervous plexus from the sacral autonomic supply—the anterior branch of

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† Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

the pelvic nerve. These trabeculations are strikingly coarse throughout in comparison with the lacelike, insular picture presented (according to Koll) by tubes in its incipient state, and even at times after ataxia has first supervened, as we noted in three cases of tubes with beginning ataxia examined in the course of the series.

6. There was no case of diverticulitis, and no case of trophic ulceration of the bladder.

7. Nearly all the bladders had a general vasomotor disturbance particularly marked on the floor, and chiefly characterized by irregular, ill defined areas of venous congestion. This we should expect *a priori* from the work of Gaskell, Langley and Anderson, who showed that the motor nerves of the blood vessels of the entire body, the motor nerves of the sweat glands, and the internal vesical sphincter and posterior urethral muscles, all belong to the same system. In none of these cases, however, was there evidence of hematuria, during the period of observation.

8. The level of the lesion apparently had nothing to do with either the functional activity of the bladder, or the excreting power of the kidney. The most marked evidence of neurotrophic bladder disturbance was found in Case 10, with the lesion involving the seventh cervical and the first three dorsals only. This is a typical automatic bladder of the Head type. Here the involvement was cervical; in other words, the zone of distribution of analgesia was entirely above the ninth dorsal. In this case the passage of urine and feces is not only automatic but is a completely unconscious act.

9. In none of the cases could we discover hyperhidrosis on forcible distention of the bladder; nor could we, in a single case, establish a history of hyperhidrosis, though in every case except one there was a previous history of zonal hyperhidrosis confined within the segmental limits of the thoracolumbar outflow, and always below the segment involved.

10. Each presented residual urine in varying amounts, though there were intervals when some of them would give every evidence of true incontinence; that is, a spontaneous emptying of the bladder as soon as it had filled to a certain point. The same patients, however, would at other times, after an apparent evacuation, present as much as 250 c.c. residual. It was very evident from observing them that the summation of stimuli necessary to establish a peripheral reflex is a variable quantity in any given patient, certainly one of the three types of incontinence, after the incontinence has once been established. The residual retained varied from 0 to 810 c.c., with a mean average of 180 c.c.

#### OBSERVATIONS IN FOUR SERIES

With the universal picture of residual urine present, even in those cases offering, at times, a picture of true incontinence, during which the bladder automatically emptied itself, the possibility of back pressure was considered. Retention was studied through estimation of urea nitrogen, nonprotein nitrogen, creatinin and uric acid in the blood, and excretion was determined by means of phenolsulphonephthalein, with examination of carefully collected twenty-four hour specimens of urine for urea nitrogen, sodium chloride, uric acid and creatinin with regard to milligrams per pound of body weight. The first series showed as follows:

Controls on a 1,500 calory diet at 135 pounds averaged 12.5 mg., urea nitrogen per hundred c.c. plasma, with a nonprotein nitrogen of 38 mg. The spinal cases exhibited a range of urea nitrogen from 13.8 in the lowest, the patients at that time appearing in excellent condition and giving a two hour phenolsulphonephthalein test of 60 per cent. plus 12 per cent., to 113 mg. in the highest (nine times normal), with a bare trace of phenolsulphonephthalein, the mean average urea nitrogen being 64.6 mg., or about five times normal for the diet. Phenolsulphonephthalein tests in this series ranged from 35 per cent. to 65 per cent. for two hours, with a mean of 45 per cent., the majority of cases in this group showing a lower output in the first hour than in the second, evidencing a lack of facility on the part of the kidney to resume function.

Creatinin in the blood stood at normal throughout, averaging 1.52 mg. per hundred c.c. We desire at this point to emphasize the fact that even in the very serious cases the blood creatinin stood at normal, the highest being 2.2 mg.; this in spite of the previous wide excursions of urea nitrogen. The practical point to be borne in mind here is that by the time creatinin has registered a serious rise in its curve, the patient is critically ill, whereas the urea nitrogen curve and the excretory function have long since given the prognostic sign.

The patients were kept on practically the same food values for a month, given free access to water, and given massage of the whole body daily, especially over the region of the hypogastric and inferior mesenteric plexus, with the triple idea of adding to the general tone of the organism, stimulating peripheral mass reflexes, and expediting the vicarious compensatory activity of the skin for urea and uric acid. At the reading of the next series, one month later, the following results obtained: The blood urea was: lowest, 11.98 mg.; highest, 67.2; mean, 26.82, or only twice normal. Creatinin averaged 1.1 mg.

In this series was a case of previous left nephrectomy with suprapubic drainage. This patient was improving rapidly, had a urea nitrogen concentration of 13.8 (normal), creatinin normal, phenolsulphonephthalein test of 72 per cent., when suddenly his blood urea nitrogen shot up to 67.2, his excretory function became practically nil, and death resulted with all signs of acute pyonephrosis and uremia. Aside from this adventitious circumstance the mean average urea nitrogen would be 23.71 mg. The average phenolsulphonephthalein test for this series was 60 per cent. for two hours, the first hour averaging 37 per cent., the second 22 per cent., with a distinct tendency in all cases for the first hour to take up the bulk of function.

The third series, done one month later, showed a blood urea concentration averaging 15.10 mg. per hundred c.c. plasma, the lowest being 8.2 mg. in a patient clinically improving with a phenolsulphonephthalein test of 61 plus 28 per cent. and the highest being 32.6 mg. with a phenolsulphonephthalein test of 6 plus 9 per cent. equaling 15 per cent. The average phenolsulphonephthalein test was 48 per cent., which included two very septic patients (aside from these the average would be 57 per cent.), the average of the first hour being now appreciably increased over that of the second, except in the two patients who were still very sick.

The fourth series, done one month later, showed an average blood urea of 14.27 mg., the highest being 31.6 mg., the lowest 5.6 mg. All of the phenolsulphonephthalein tests were distinctly good as regards the relationship of the first and second hours, except in Case 10, in which the blood urea was still 31.6 per cent, and the condition was not good.

It had been suggested in noting the very high urea nitrogen retention that possibly the marked cases of trophic ulceration seen in six of the soldiers could be

TABLE 1.—THE MONTHLY RELATIONS BETWEEN RETENTION OF UREA NITROGEN AND EXCRETION OF PHENOL-SULPHONEPHTHALEIN\*

Case	February	March	April	May
1.....	23.3 30 + 15	16.8 45 + 30	40 + 16	
2.....	14.0 25 + 10	19.8 20 + 25	10.2 32 + 20	5.6 30 + 20
3.....	8.0 15 + 20	15.8 55 + 25	8.4 42 + 10	
4.....	50.0 25 + 15	19.0 30 + 15	8.2 35 + 15	15.3 12 + 18
5.....	15.4 20 + 20	20.6	30.0 5 + 15 (sick)	
6.....	103.0 20 + 15	Dead		
7.....	18.0 20 + 30	26.0 50 + 25	18.2 12 + 17	11.2 62 + 19
8.....	.....	65.0 50 + 35	12.8 50 + 22	11.18 48 + 12
9.....	105.0 Lost	21.0 22 + 15	16.0 20 + 22	10.2 58 + 28
10 <sup>†</sup> .....	113.0 0	28.4 2 + 2	32.6 6 + 0	31.6 2 + 7 (very sick)
11.....	13.8 60 + 12	67.2 0	Dead	
12.....	.....	24.0 50 + 20	14.0 42 + 19	
13.....	.....	68.0 20 + 15	24.2 13 + 6	
14.....	93.0 4	11.4 11 + 18	8.4 10 + 16	
15.....	.....	11.08 20 + 20	22.1 38 + 15	
16.....	.....	.....	0.32 42 + 16	
17.....	.....	.....	14.2 37 + 17	

\* In each monthly block the upper figure represents milligrams of urea nitrogen per hundred c.c. of blood plasma, the lower figures showing the output of phenolsulphonephthalein in two periods of seventy and sixty minutes, respectively.

† Fifth reading, June 2, 1919, 25 mg. urea nitrogen per 100 c.c. blood plasma, output of phenolsulphonephthalein for seventy and sixty minutes = 12; improved. No. 10 was slowly improving when the fifth reading was done. The rise in phenolsulphonephthalein as urea nitrogen decreases should be noted. This was an automatic bladder, with profound disturbance. The persistent retention of nitrogen in Case 10, even after careful daily removal of the residual, should be noted. This is probably due to renal infection, and would be a better indication of the power of operation on the lower tract than the creatinin which remained persistently at 2 mg. per 100 c.c. plasma.

accounted for by urea poisoning, the necrosing effect of quinii urea hydrochlorid in wounds operated on by anacriassation being used as an analogy. This is scarcely tenable, as all the cases showed the trophic disturbance below the zone of distribution of the spinal involvement, which would not be so if the trophism were the result of a toxic agent in the blood stream. Moreover, they were all normal as to blood sugar, and to carbon dioxide tension in the blood, and the urines were persistently negative to a reducing agent, on ferred carbohydrate diet.

COMMENT

We have, then, for our consideration a general picture of unusually high urea nitrogen, with high non-protein nitrogen, and persistent normal creatinin in the blood, balanced by a comparatively low renal concentrating power for urea, with a low output of creatinin in twenty-four hours, and low uric acid output; and collaterally, a colorimetric curve rising, as a whole, where the retention curve falls.

That there is not an essentially reciprocal curve existing between urea retention and phenolsulphonephthalein excretion would seem, however, to be borne out frequently in studying individual histories, though the number in this series is certainly too small to form a basis for dogmatic statement. At one time, the phenolsulphonephthalein curve rises more rapidly than the urea curve drops, and vice versa, but the curves always crossed sooner or later, and, taken altogether, gave an astonishingly good prognostic picture of the clinical change that later supervened, even though the curve changes have not always been synchronously reciprocal. Also in the stage of high urea retention, the renal function, though it appears fairly high in the total, is much lower the first hour than the second, which is an important point in interpretation.

It was at first assumed that the retention phenomena observed were caused by back pressure leading to hydronephrosis. That this need not necessarily be true is shown in one case on which we obtained necropsy. This soldier had 103 mg. of urea nitrogen before death, and 68 mg. of nonprotein nitrogen. His phenolsulphonephthalein test was fairly high, 20 and 45 per cent., but the first hour was less than half the second, and the appearance time was twenty-one minutes (gluteal). His average residual was 135 c.c., with a relaxed bladder, and a bullet in the spine at the emanation level of the ninth, tenth and eleventh thoracic vertebrae which would certainly be expected to involve the ureters. Nevertheless, at necropsy there was found no evidence of hydro-ureters or hydronephrosis, as the specimens will show. There was evidently a distinct protective tendency seen in the local compensatory activity of the bladder, even with a spinal cord on which complete transection was diagnosed clinically in England, in which case necropsy disclosed the posterior half of the cord completely shot away.

Another case in a collateral series of nontraumatic spines showed at operation a giant-cell sarcoma involving the lower dorsal and the upper lumbar vertebrae. This case showed the same bladder picture described above, but there was no evidence of back pressure on the kidneys, the blood urea being 11.2 mg. per hundred c.c. of plasma, the nonprotein nitrogen 36.6 mg., and the creatinin 1.2 mg.

This early protective tendency may possibly be explained by the work of Elliott, who found in his decentralized bladders an overgrowth of mesenture associated with an increase in the number of unstriated muscle fibers, as well as an increase in the cross section of each fiber, with an increased suppleness and irritability of the muscle itself. This increased thickness of the bladder wall was observed many times at the operating table by Thompson Walker. In the one case in our series that came to necropsy this was also demonstrated, and clinically we have noted a repeated tendency for the residual or contained urine to be greater than the capacity, showing a decided tendency

on the part of the bladder to resist suddenly injected fluid.

There must be some other ground than hydronephrosis for the retention phenomena exhibited, for otherwise the high nitrogen concentration would have been relieved by the previous catheterization.

The architectural incompetence of the kidneys to withstand long continued back pressure is recognized in the domain of prostatic obstruction; but here we are dealing with a sudden shock, with a tendency for the musculature of the lower tract to compensate quickly, and, at least for many months, to protect the higher tract. If hydronephrosis supervenes it certainly must be at a much later stage than in the cases we have observed. In addition to possible hydronephrosis I would be inclined to ascribe retention to several other factors. In the cases, as first seen, the blood urea nitrogen was inordinately high; first, because of the tremendous tissue waste resulting from neurotropicism,

The urea nitrogen and the nonprotein nitrogen decreased month by month, and the kidney excretory and concentrating capacity increased absolutely if not relatively for any given point of the curve.

It is aside from the province of this report to discuss at length the early care of these cases. I would simply suggest, if possible, entire abstention from catheterization, for catheterization means ure infection, and the replacement fibrosis following renal infection is more lasting and more dangerous to the patient than a hydronephrosis, even granting a permanent hydronephrosis to exist in these cases.

The first retention is a shock phenomenon and undoubtedly involves both sphincters, the internal sphincter playing the dominant rôle. Later on, the internal sphincter relaxes and the external sphincter takes up its compensatory hypertonic action. The problem is to evoke an automatic activity at the earliest possible moment, and resolves itself down to an inhibi-

TABLE 2.—STATISTICAL RESULTS IN SELECTED CASES

Case	Reg. No.	Age	Rank	Date	Catal. Urea		Character of Urine	Total Amount Excreted (Hrs., g.)	Body Weight, Pounds	Phenyl-sulphonic-methidein		Urea N.		Creatin.		Uric Acid		Food Calories							
					First Hour	Second Hour				First Hour	Second Hour	Non-protein Creatin.	Uric Acid	Uric Acid	Uric Acid	First Day	Second Day								
4	25602	23	2d Lt.	4/1/19	100	70	Clear	1,600	114	0	1	113	66.6	2.0	3.4	18.0	395	912	727	1,918	1,064				
4	22700	25	Pvt.	4/7/19	45	75	Reddish alkaline	1,150	110	25	15	40	56	46.0	1.5	0.2	6.1	432	310	100	1,014	1,289			
2	24001	23	Pvt.	5/1/19	70	105	Reddish alkaline	830	153	25	10	35	94	60.0	1.5	0.0	5.0	592	470	1,000	1,357	1,347			
9	25691	20	2d Lt.	5/2/19	180	85	Reddish alkaline	1,750	111	30	20	50	5.67												
8	25018	23	Pvt.	5/3/19	175	100	Cloudy	2,690	131½	22	15	37	105	41.0	1.4	1.9	10.3	526	1,130	...	1,766	1,838			
7	22710	27	Pvt.	5/4/19	275	115	Reddish alkaline	2,000	122	52	28	80	10.2	48	12	65	46.0	1.3	1.4	11.0	561	577	260	1,312	1,504
Controls																									
1		23	Pvt.	4/28/19	250	70	Clear	1,200	140	40	14	54	12.1	36.6	1.0	2.0	11.4	696	2,172	852	1,700	1,500			
2		25	PFC	4/2/19	255	70	Clear	1,000	132	14	11	55	13.0	40.0	1.15	2.2	11.8	617	912	850	1,700	1,500			

\* At the time the report of these cases was prepared, the first three patients were in distinctly bad condition; the last three were distinctly "proving." The results, as tabulated, were rather surprising, but one may say that they are all steadily progressing upward. Patient 10, with persistent high urea did not improve, as we were able to progress from these cases.

† In cases 9, 10, 11, and 12, the upper figures show values obtained when first seen; the lower figures show values at end of third month of convalescence. The phenyl-sulphonic-methidein tests in this series were all intramuscular, either deltoid or gluteal.

‡ Was the blood urea low and the urinary urea also low, the patients are showing marked clinical improvement, and the greater the blood urea the more marked is the picture of tissue re-absorption. This is specially true of Patients 2 and 3. Patients 7 and 8 have had a surprising so long they are no longer reabsorbing into the tissues.

tion of this internal sphincteric hypertonicity. This shock phenomenon is probably due to the inhibiting action of the brain. Even a decentralized bladder will functionate on reception of noxious stimuli, after cerebral inhibition is relaxed. This, as Head has shown, is due to a peripheral mass reflex, and as these patients are all hyperesthetic, it may be effected in various ways, from stimulation of the plantar flexor spasm, to irritation of the prostatic plexus, the most direct approach, however, being anatomically by way of the hypogastric plexus. The first problem is to relax this tension by working backward from the periphery, and observations abroad by Young, Keyes, McCague, Besley, Horrax and others have proved that this method has merit.

If intervention has to be, there is surely no contra-indication to the use of the aspirating needle until incontinence is established. Thompson Walker even advocates the use of suprapubic cystostomy as preferable to the continued use of the catheter. This would hardly be necessary if immediate resort were had to the use of general sedatives, with careful atten-

is evidenced in the body weight and general appearance of emaciation; secondly, these patients while abroad, and in transit, lacked free access to water, in the attempt to avoid too frequent catheterization, until they were almost completely dehydrated. Consequently, with a low fluid content in the blood stream, the solid content would rise proportionately. Add to this the neurotropic hyperhidrosis that takes place in all these cases, which would further increase the concentration, and augment this with the steady addition of tissue nitrogen, the whole being offset by a resistance on the part of the kidneys to concentrate adequately for excretion, owing to infection or inhibition of neuropathic origin (as seen in the bladder), and the explanation would seem complete. Certain it is that with free access to water (which they drank copiously at first), daily massage, and attention generally to peripheral stimulation, and to the reestablishment of normal skin function, with particular attention to stimulation of peripheral areas segmentally involving the inferior mesenteric and hypogastric plexus, the picture changed markedly.

tion to stimulation of mass reflexes, by irritating the periphery, especially over the hypogastric plexus, with the idea of relaxing immediately the floor of the bladder and the internal sphincter. The external sphincter will relax very shortly thereafter, as the pudic nerve has been proved by repeated experiments to fatigue very rapidly after continuous stimulation.

Strange to say, these bladders do not rupture; and as they are insensate, no discomfort is experienced. The extent of their dilatation can be readily determined, and if by judicious use of extravasical stimuli the onset of incontinence can be established early without the use of the catheter, the patient is further protected from the otherwise inevitable infection, which abroad has resulted in a mortality of 50 per cent.

## REPORT OF CASES

CASE 1.—B. B., Pvt., G., 120th Inf., Reg. No. 25920, Serial No. 198164, aged 28. No previous history of incontinence. Injured, Oct. 10, 1918. Catheterized four times. Subsequent pressure over bladder to facilitate extrusion, during four weeks, followed by use of inlying catheter till Nov. 26, 1918. Onset of incontinence: Vague, Nov. 26, 1918 (?). Lesion: Third and fourth lumbar (?). Roentgenogram, C. C. S. 41.

Operation, Oct. 10, 1918. Entrance through fifth lumbar; rifle bullet removed from "center of canal," Base Hospital No. 29.

Blood urea (Walter Reed General Hospital), Feb. 7, 1919: 23.3 mg. per hundred c.c. plasma, urea nitrogen: Feb. 10, 1919: 16.8 mg.; March 25, 1919: 20.0 mg.; April 18, 1919: 10.2 mg. Creatinin in blood, March 25, 1919: 2.22 mg. per hundred c.c.; April 18, 1919: 1.2 mg. Phenolsulphonephthalein output, Feb. 18, 1919: 30 per cent. first seventy minutes plus 15 per cent. next sixty minutes, total 45 per cent.; March 26, 1919: 45 per cent. first seventy minutes plus 30 per cent. next sixty minutes, total 75 per cent.; April 18, 1919: 38 per cent. first seventy minutes plus 29 per cent. next sixty minutes, total 67 per cent. Hemoglobin, March 1, 1919: 70 per cent. Blood count, March 25, 1919: leukocytes, 11,260; March 21, 1919: leukocytes, 12,350; erythrocytes, 3,261,000.

Cystoscopy, Feb. 8, 1919: Residual urine, 200 c.c.; capacity, 420 c.c. Sensation on pressure present; expulsive force with cystoscope in situ, good. Internal sphincter relaxed completely, posterior urethra practically part of floor of bladder, with verumontanum plainly seen with Brown-Bueger simple examining cystoscope; trigon atrophied; interureteric ridge not seen as such. Left ureteral orifice rather wide and gaping, right not seen. Fine trabeculations on the lateral walls; none on the floor.

Residual urine, Feb. 8, 1919: 200 c.c., cloudy, full of pus and colon organisms; March 1, 1919: 150 c.c.; March 3, 1919: 375 c.c.; April 8, 1919: 530 c.c., heavy sediment of pus; April 19, 1919: 370 c.c., slightly cloudy with pus.

Trophic ulcers: Right heel, small size, present, Feb. 8, 1919. Urine: Albumin trace; pus ++; casts negative; B. P. 135-110. Rectal involvement: Yes. Sexual powers: Absent; sexual desire absent. Hyperhidrosis: Extensive areas involved at times, notably for three days, about March 13, 1919. No relation to fulness of bladder.

Clinical course: Generally good; improving slowly.

Neurologic findings: Motor: This is a root lesion, not a cord lesion—extending from cauda up to and including first lumbar. Left penis, left scrotum dead to tactile sense. Right perineal touch partially gone on right, all gone on left, showing conus involvement. Plantars, Achilles and patellars all lacking. Diagnosis: Root lesion including conus up to first lumbar inclusive on left side.

Comment: This soldier was first seen four months after injury, at which time he had a definite paradoxical incontinence, with poor rectal control. There is no control of bladder, and practically no sensation, even on forced distention. Would come under the general head of automatic bladder. The difference in residual urine at various times should be noted, evidently due to irregular action of mass

reflexes of which the patient is not aware at the time. The blood urea dropped from 23.3 mg. to 10.2 mg. in two months on the same diet, during which time phenolsulphonephthalein rose from 45 to 75 per cent., creatinin remaining normal.

CASE 2.—R. S., Cpl., E., 48th Inf., Reg. No. 24931. Serial No. 2260123, aged 22. Injured, Oct. 31, 1918. Machine gun bullet, .32 caliber, still in spine. Previous history: incontinence negative. Paralysis of both legs at once. Tingling and burning in feet and legs ever since. Catheterized: For five weeks after injury, since which time has "emptied" freely and without control. Incontinence (?).

Lesion: Bullet at level eleventh dorsal; roentgenogram, Walter Reed General Hospital, Jan. 14, 1919.

Blood urea nitrogen, Feb. 4, 1919: 94.0 mg. per hundred c.c. plasma; March 25, 1919: 19.5 mg.; April 19, 1919: 10.2 mg. Blood creatinin, March 25, 1919: 1.66 mg. per hundred c.c. plasma; April 19, 1919: 0.90 mg. Glucose, May 15, 1919: 0.14 per cent.; carbon dioxide tension, 65 per cent. Renal function, Feb. 18, 1919: 25 per cent. plus 10 per cent. total, 35 per cent., two hours and ten minutes; March 26, 1919: 20 per cent. plus 25 per cent., total, 45 per cent., two hours and ten minutes; April 19, 1919: 34 per cent. plus 10 per cent., total, 44 per cent., two hours and ten minutes.

Blood pressure, April 19, 1919: 110—65, Tyco's auscultatory test. Hemoglobin, March 3, 1919: 60 per cent. Blood count, Jan. 24, 1919: Whites, 4,800; March 3, 1919: Whites, 14,200.

Cystoscopy: Contraindicated.

Residual urine, Feb. 18, 1919: 160 c.c., cloudy; March 1, 1919: 90 c.c., cloudy; April 19, 1919: 100 c.c., cloudy.

Trophic ulcers: Right hip, right crest; left hip, left crest; right and left heels, sacrum; right and left knees, mesially; all severe: the areas over both anterior superior spines being 20 by 10 cm.

Urine: Yellow, turbid, alkaline, 1,018, albumin +++, much mucus, no blood or casts. Triple phosphate crystals, and large amount of amorphous phosphates. Rectal involvement: Yes; no sensation; diarrhea. Sexual powers: Absent. Bladder: Urine collects in bladder for an hour or more, then passes without sensation of fullness and without awareness by the patient. No sensation on forced distention, nor any change in sensation on emptying. Hyperhidrosis: Continuous sweating, body and upper extremities; onset about Feb. 1, 1919. Five to six changes of pajamas nightly until recently. Examination, April 22, 1919, 9 p. m.: Moist over whole back, chest and abdomen; legs and feet dry. No relation to fulness of bladder according to statement.

Clinical course: Very sick patient.

Comment: This is paradoxical incontinence, but it is also a case of automatic bladder. Rising blood count is probably due to infection from trophic ulcers, which grew steadily worse in spite of all care. Phenolsulphonephthalein output slowly rising as urea decreases. The third series of functions (44 per cent.) is decidedly better than the second (45 per cent.) because of the relative values in the first and second hours. Creatinin remains normal throughout up to April 9, 1919. Patient slightly improving.

CASE 3.—J. H., Cpl., D., 362d Inf., Reg. No. 24408, Serial No. 2260123, aged 31. Previous history of incontinence negative. Injured, Sept. 26, 1918, Argonne. Catheterized three or four times after injury. Incontinence began in two days. Unconscious after injury.

Lesion: Single plates, Jan. 7, 1919, reveal no bony changes. Bullet wound on back to right of eighth dorsal. Roentgenogram, Feb. 1, 1919: hypertrophic osseous changes of fifth lumbar (old injury). Gunshot wound, third dorsal.

Blood urea nitrogen, Feb. 4, 1919: 80.0 mg. per hundred c.c. plasma; March 25, 1919: 15.8 mg.; April 23, 1919: 8.4 mg. Glucose: May 15, 1919: 0.17 per cent.; carbon dioxide tension, 51 per cent. Blood creatinin, March 25, 1919: 1.63 mg. per hundred c.c. plasma. Renal function, Feb. 18, 1919: 15 per cent. plus 20 per cent.; totals, 35 per cent., two hours and ten minutes; March 25, 1919: 55 per cent. plus 25 per cent.; totals, 80 per cent., two hours and ten minutes; April 23, 1919: Not done on account of refusal of patient; hyperirritability. Hemoglobin, March 3, 1919: 60 per cent. Blood pressure, March 26, 1919: 112—65, Tyco's auscultatory test. Blood count: Whites, 7,800.

Cystoscopy. Contraindicated. Residual urine, Feb. 18, 1919: 210 c.c.; March 1, 1919, 60 c.c. Trophic ulcers: Back, left hip, both heels.

Urine, Feb. 24, 1919: Acid, 1.028; albumin ++; triple phosphate crystals. Rectal involvement: Slight control of rectum, for two or three minutes if stool is hard, but sphincter quickly fatigues. Bladder: Was catheterized four times to his knowledge. Unconscious for unknown period of time after injury, does not know how many times he was catheterized in hiatus. Slight control; calls for urinal. Sexual power: Desire absent; no erections. Hyperhidrosis: Denies sweating up to April 22, 1919. No sweating on fullness of bladder.

Clinical progress: Very poor, May 1, 1919. Urine: Albumin trace, pus ++; no casts. Blood pressure: 140-110, Tyco's auscultatory test.

Comment: This is a case of hyperirritability, with general hyperesthesia. In this type of case, when the peripheral involvement has an equal or greater signature than the central involvement, there is no sweating. Also this type has focal registration of bladder and bowel distention reflex, and does not present cases of true incontinence. The rise in phenylsulfonphthalein both as to total and also as to hourly relationship compared with fall in urea nitrogen should be noted.

CASE 6.—R. O., Pvt., E., 9th Inf., Serial No. 293922, aged 29. Previous history of incontinence negative. Injured, Sept. 14, 1918: Struck with shrapnel right hip, and almost immediately thereafter with rifle ball which entered about tenth dorsal. Catheterization: None, according to statement (?). Onset of incontinence: Two days from time of injury—constant dribbling. Lesion: Seventh, eighth and ninth spinal vertebrae.

Operation, Evacuation Hospital No. 1, Sept. 14, 1918: Diagnosis, gunshot wound, battle, penetrating lumbar region, posteriorly severing spinal cord. Wound debrided and closed.

Blood urea nitrogen, Feb. 4, 1919: 103 mg. per hundred c.c. plasma. Renal function, Feb. 18, 1919: 20 per cent. plus 45 per cent.; total, 65 per cent.

Cystoscopy: Not done; patient died, Feb. 28, 1919. Residual urine, Feb. 18, 1919: 135 c.c., cloudy; Jan. 5, 1919: Alkaline, specific gravity 1.012, albumin trace, sugar and acetone negative, occasional red cell, no casts, many pus cells. Blood count, Jan. 3, 1919: White blood count, 10,000.

Trophic ulcers, report from Base Hospital No. 26, Sept. 21, 1918: Both feet, legs, left hip and buttocks. Base Hospital No. 8, Oct. 23, 1918: Large suppurating wound on back, sacral and gluteal regions; gangrenous. Deep suppurating ulcers, right hip. Rectal involvement: Yes; involuntary and without knowledge of patient. Bladder: Report from Base Hospital No. 26, Sept. 20, 1918, says there was retention of urine; catheterized twice daily; this was evidently not residual, and not complete retention. Sexual power: Desire and ability absent since injury. Hyperhidrosis: No history.

Clinical course: Terminated fatally, Feb. 28, 1919; diagnosis, asbestosis.

Comment: In this case there was an involvement of the ureters, with encroachment of bladder as demonstrated at autopsy, in the very level where one would expect involvement of the ureters with dilatation and secondary hydro-nephrosis from negative ureteritis. Also from the history obtained from Base Hospital No. 26 it would seem that at some time there must have been some considerable back pressure. He had a blood urea of 103 mg. per hundred c.c., but his post-mortem report states within ten days of death was 65 per cent. for two hours and ten minutes, with an appearance time of twenty-one minutes, pointing to a paralytic rather than type of involvement. The bladder is mildly typical of the kind we are dealing with dilatation of the posterior urethra, universal trabeculation, etc., and yet there was no evidence of hydro-ureter, and no sign of hydronephrosis, or of pyonephrosis present, even with a practical transection myelitis at the region of the ninth dorsal. This proves that high blood urea, at least, does not necessarily prove hydronephrosis, and that retention, with involvement of the lower

thoracic spine is not necessarily accompanied by hydro-ureter and hydronephrosis. Possibly if this case had gone on a hydronephrosis might later have resulted, but even at this stage the patient had all the clinical findings assumed to lead to this condition, with negative necropsy.

CASE 10.—McL., L.; 1st Lieut., K., 309th Inf., Reg. No. 25002, Serial No. 1173172, aged 27. Previous history of incontinence negative. Injured, July 18, 1918. Catheterization: None. Onset of incontinence: At once. Lesion: Seventh cervical and first to fourth dorsal.

Operation, Oct. 19, 1918.

Blood urea nitrogen, Feb. 4, 1919: 113 mg. per hundred c.c. plasma; March 25, 1919: 28.4 mg.; April 24, 1919: 32.6 mg. Blood glucose, May 15, 1919: 0.14 per cent.; carbon dioxide tension, 57.9 per cent. Creatinin, March 25, 1919: 2.0 mg. per hundred c.c. plasma; April 24, 1919: 2.0 mg.

Renal function, March 25: 3 per cent.; two hours and ten minutes; April 24: 6 per cent. plus 9 per cent.; total, 15 per cent. Blood pressure, April 24: 165-110, Tyco's auscultatory test. Residual, Jan. 27, 1919: 375 c.c.; April 24: 175 c.c.

Cystoscopy, Jan. 27, 1919: Residual, 375 c.c. After this is withdrawn, bladder resists forcibly at 225 c.c. distention. Much washing necessary, to clear bladder of detritus and pus. Mild catarrhal cystitis throughout. Pain sense lacking in bladder on distention, but can tell the difference between hot and cold water injected. Beginning diverticulum on floor midline 1 cm. behind internretretric ridge. Catheter vaulting throughout. Trigon slightly congested in center. Roof particularly trabeculated. Prostatic outline in range of normal. No relaxation of posterior urethra.

Bladder: Emptied by pressure over lower abdomen for first three weeks after injury; then up to Feb. 1, 1919, dribbled a few drops at a time without knowledge of patient. Since being cystoscoped and washed at Walter Reed Hospital, he has sensation and desire to urinate at times, evidently verumontan irritation is increased; has, May 1, 1919, ability to hold water three or four minutes after desire to empty is manifest. Rectum: Did not know when bowels were moving until Oct. 1, 1918. Since that time gradually returning sensation in rectum and awareness of desire to defecate. Sexual powers, May 1, 1919, desire and ability returning slowly.

Trophic ulcers: One size of half dollar on sacrum. Hemoglobins, Feb. 3, 1919: 60 per cent.; white blood count, 16,900; March 3, 1919: 55 per cent.; white blood count, 14,600; March 21, 1919: 70 per cent.; white blood count, 12,350; reds, 3,216,000; March 25, 1919: White blood count, 11,500 (Polymorphonuclears, 75 per cent.).

Hyperhidrosis: Onset, Feb. 1, 1919; genuine chills with sweating. During the month of February he ran a septic chart and high leukocyte count. This may have been from absorption from the ulcer. As this healed, the general picture of sepsis subsided. Urine: Albumin, plus +++; no casts. Blood pressure: 165-110.

Clinical progress: Poor.

Comment: His renal function did rise, it is true, concomitantly with the fall in urea nitrogen in the blood, but the general picture in this case is bad. His hyperhidrosis is not typical and is due undoubtedly to sepsis, but this, on the other hand, is not a typical retention case of the worst type. The lesion is so high that the area of hyperhidrosis is vast, and it is possible that fluid emanation by the skin may have been imperceptible, and still compensated for the mild retention left over from the almost constant dribbling. The patient has, however, an automatic bladder of the head type.

## ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. CAULK, GREITZER AND BARNES,  
AND PLAGGEMEYER

DR. BEND C. CORBUS, Chicago: Dr. Caulk presented a very interesting condition of the bladder as a result of syphilis. But this condition is only an incident in the general infection; I think, as far as general management goes, especially in relation to a cure, these findings come rather late for the benefit of the patient. The time to diagnose and treat syphilis of the bladder is long before it reaches the stage that the

picture described represents. Ogilvie said that if cerebrospinal syphilis is recognized long before the interstitial tissue or its coverings are involved, its treatment and cure is a possibility. Recently there has been formed in the state of New York a society whose sole aim is the early recognition of involvement of the central nervous system. There seems to be some confusion in regard to the blood Wassermann. A blood Wassermann has nothing to do with the spinal fluid, as 65 per cent. of all tabetics have negative blood Wassermanns, and positive spinal fluid Wassermanns. What are we going to do when we get a case of tabes? Is it our problem to make a diagnosis by cystoscopy? I do not think so. A recent speaker emphasized emphatically the dangers of infecting the urinary bladder in conditions where there is a paralysis due to fracture of the vertebrae. In syphilitic bladders we have practically the same condition. We have an injury to the cord and its coverings, and it seems to me just as unpractical to attempt to catheterize in these cases as it would be in the case where the paralysis was due to a direct traumatism. It is easy to do a spinal puncture and it is nearly absolutely diagnostic, being positive in about 98 per cent.; the bladder in cerebrospinal syphilis is paralyzed, and you are not going to improve that condition by daily prostatic massage, irrigations, or what not. The thing to do is to treat the condition *per se*, long before it gets to the paralytic stage.

DR. ABRAHAM L. WOLBARST, New York: One point in Dr. Caulk's paper that appealed to me very strongly is the possibility of differentiating between a nerve lesion and prostatic hypertrophy. In the former I have observed that a man may have a great deal of residual urine one day and none whatever the next day. I have never been able to explain it, but I have seen it a number of times. I have under observation now a case of tumor of the lower spinal cord, which illustrates this point; some days I can withdraw from 500 to 800 c.c. of foul smelling urine, and a few days later there will be no more than a few drams of residuum. Nevertheless, the patient has incontinence all the time. In prostatic hypertrophy the residuum is constant. It is well to remember this difference. As regards trabeculations in early tabes, I do not think Dr. Caulk intended to convey the impression that he would look into the bladder in order to make a diagnosis of syphilis. Many of these cases come to us solely with urinary symptoms, and when we find these trabeculations, we are at once brought face to face with an unsuspected case of syphilis. This is a very important fact to remember, for it will help us out of many difficult situations if we bear it in mind. Within the past few weeks I saw a man who had been treated for cystitis for nine months without relief. When I cystoscoped him, I found the typical tabetic bladder. This led to further examination, and the man was found to have a well-advanced case of tabes.

DR. FRANCIS R. HAGNER, Washington, D. C.: Nine months ago a man was sent to me with supposed prostatic obstruction. This man had complete obstruction for almost a year and had been catheterizing himself. A slight spasm of one leg was present and there was some loss of reflexes on that side. On rectal examination a definite diagnosis of cancer of the prostate could be made. It was a typical, hard, infiltrated prostate, with extension along the urethra and upper edge of the prostate. On cystoscopic examination there was absolutely no evidence of obstruction at all. This man had fine trabeculations of the bladder, and had the typical picture seen in tabes. The roentgen ray showed a mass in the third or fourth dorsal vertebra, involving two vertebrae. The carcinomatous infiltration could be seen distinctly. The patient died two or three months after I saw him, the paralysis of both legs being complete. This is the first case of the kind I have seen and I think it was rather unusual.

DR. V. D. LESPINASSE, Chicago: Last year I made a diagnosis of the nerve lesion through examination of the bladder. This patient complained one day that he had trouble urinating and that he could not see very well. He entered a hospital. They examined him as regards his vision, and found it normal. He was then referred to me. I examined his

bladder, and found the typical picture of a nervous bladder and referred him to the neurologist. There were no other complaints at that time that would have given an indication for a neurologic examination. The next day he began to complain of headache, and he went on and finally died of a complicated involvement of the meninges of the brain and cord. The neurologists got into quite a discussion as to just what the lesion was, but the patient died. From this experience one can see that this picture of nervous bladder is of value as a diagnostic picture, and when it is interpreted properly I think it will lead occasionally to early diagnoses of nerve lesions that otherwise would not be made till later.

DR. HUGH H. YOUNG, Baltimore: Dr. Plagemeier has made the first very comprehensive study from all standpoints of those very remarkable bladder conditions following wounds of war. It was a subject in which we were greatly interested in France, because, as we made our preliminary studies with the French and with the British, we saw them reporting high mortalities as the result of renal infections from all spinal lesions. Thompson Walker, for instance, was reporting anywhere from 60 to 80 per cent. of deaths as the result of infection of the spinal cord from the urinary tract. It was recognized that infection carried off these patients. In the French army it had been made a rule that all these patients had to have a suprapubic cystotomy done on them promptly. This was also done in the British army without waiting to catheterize. That was often done in the advance surgical stations. Besley for years had been treating these cases by a nonoperative treatment, allowing the bladder to distend until finally it would overflow, the residual urine would gradually decrease until the condition was not at all dangerous. Many of those patients would go on for years without any infection of the bladder or kidneys, and although they might have incontinence, the incontinence was no worse than a suprapubic drain, which was often more difficult to manage. The Canadians had adopted that method and were using it in several of their advance hospitals. A few British and French surgeons were also using the same method. The result was that in the manual of military urology we laid down the rule that if possible in all surgical formations, men with wounds or injuries of the spine, associated with complete retention of urine, were not to be operated on and not to be catheterized, but simply allowed to distend, watched carefully, with the hope that most of them would have involuntary incontinence and would get along without any great difficulty. When the time comes that we can get all these cases together we will find that our results, so far as the element of fatalities is concerned, will be very much better than was the case in the earlier times. There are certain cases in which the beginning of that incontinence was very difficult. In those cases massage of the abdomen, of the prostate, rectal irrigations, irrigations by urethra, and stimulation of various sorts were induced, and in some cases it did hasten the beginning of the incontinence. As Dr. Plagemeier pointed out in those cases of dilated internal sphincter, the trabeculations which developed were really due to extreme efforts of the bladder to empty itself. But the main thing brought out was the fact that the bladders could distend very greatly, without rupturing, and with eventual diminution in size, and in some cases restoration of normal urination. The important point brought out by Dr. Plagemeier was the remarkable ability of the body to take care of the great retention of urine.

DR. WILLIAM E. LOWEY, Cleveland: In many of these patients that have been operated on for all sorts of things, the real seat of the trouble was entirely missed. This work is epoch making. It will put cystotomy on its proper basis as a means of diagnosis in these cases. Cystotomy will probably come to be the very best method for early recognition of the beginning of some cord lesions.

DR. JOHN R. CAULK, St. Louis: I thought I had made it clear in the paper, that we were not endeavoring to diagnose syphilis by means of the cystoscope. But the fact that we have so frequently observed this orifice with the cystoscope in individuals who had been treated for all sorts of diseases without improvement and who had never been neurologically

mgs, and from this observation had a Wassermann made which proved to be positive, made me suggest that in such instances recognition of this picture is extremely important. Furthermore, since such a large number of these individuals consult the urologist first it behooves him to be acquainted with this picture. I endeavored to impress you with the fact that we have not sufficiently directed our attention to this phase of urology, as a complete absence of any mention of it in the textbooks will testify. As far as the treatment goes, there is quite a decided difference in the handling of an acute bladder from trauma and the bladder of the old progressive tabetic, or some other chronic central nervous system disease. I said in the paper that the automatic bladder would develop, and this type of case did not need systematic catheterization. But for the old tabetic, whose symptoms are in such great measure magnified by absorption and anemia, catheter drainage offers as much benefit as in any other type of urinary obstruction; he improves as well as the prostatic, not in every instance, but in the great majority. So then, we have a picture we must all recognize in order to protect both our patients and ourselves.

Dr. HARRY W. PLAGGEMEYER, Detroit: I wish to reiterate almost word for word what Dr. Caulk said. Our two studies, done individually and, of course, without any knowledge of what the other was doing, represent almost identical points on the subject. In addition he has been studying a chronic, or at least, a subacute condition, and I have been studying acute shock. These bladders had a very different type of trabeculation from the type we have been discussing previously, which simply corroborates what he says, that close observation will aid us in differentiating the underlying causes.

In the bladders that we have studied there is a very apparent attempt to compensate. Cross section of the muscle of the bladders we have been studying shows the diameter increased about five times over the normal. I dare say that in the type Dr. Caulk has been studying we would find that the individual muscle fiber is atrophied. But here we are studying what is termed a torpid bladder in England. I think that word is a misnomer. Here we have an increased suppleness or reaction to the electric current, and there is a distinct local attempt, irrespective of the integrity of the spinal cord, to facilitate the reflex through what are termed peripheral masses. Sheridan showed, on his dysanurized bladders in dogs, that the ones that were not catheterized were not infected. But Golds had shown in 1906 that every one of his cases that were catheterized were infected. These bladders attempt to compensate for this sudden shock. As far as I can determine hydronephrosis is not an early sequel, consequently we have to do catheterization, with inevitable infection, inevitable insult to the kidney and replacement tissue in the kidney. Why do that to an already nephrotrophic organism which is struggling for life?

**Epidemics of Poliomyelitis.**—The first great epidemic of infantile paralysis of modern times occurred in Norway and Sweden in 1945, 2,000 cases being reported in Norway and Sweden together. In 1907 the first great American epidemic occurred, 2,800 cases being reported in and about New York City (the largest epidemic on record); about 2,900 cases were reported that year. Infantile paralysis first appeared in the United States to any considerable extent in 1894, when Scribn of Rutland reported 132 cases in the Otter Creek Valley, Vermont. In 1908 the disease was apparently quiescent, only 392 cases being reported in the United States. In 1909 there were outbreaks in various parts of the country and in Canada for the first time, with a total for the year of 2,243 cases in all. In 1910 the disease assumed much more serious proportions. It was present in forty-three states. Several states had epidemics, 500 or more cases occurring in the District of Columbia, Iowa, Massachusetts, Minnesota, Indiana and Pennsylvania, and from 200 to 500 in Kansas, Maryland, New Hampshire, New York, Rhode Island, Virginia, Washington and Wisconsin.—Infantile Paralysis in Massachusetts During 1915. Report by Massachusetts State Board of Health.

## THE ACTIVITY OF AMERICAN DIGITALIS\*

J. H. PRATT, M.D., AND HYMAN MORRISON, M.D.  
BOSTON

Before the world war the greater part of the digitalis used in this country came from Germany and Austria. Some digitalis was imported from England; but, in the vicinity of Boston at least, the preference for the high grade German leaf in the three or four years before the war was so pronounced that the use of selected English leaf, previously held in high favor, greatly diminished. Biologic tests made in this laboratory in 1909<sup>1</sup> showed that the best German digitalis on sale in Boston was of greater activity than the best English digitalis obtainable here.

Our attention was directed to the possibility of using American digitalis as early as 1910, when a tincture of digitalis made from leaf grown in the Rocky Mountains was found by Wesselhoeft, working in this laboratory, to be nearly twice as strong as the tincture in use at that time in the Massachusetts General Hospital. This tincture from American digitalis was prepared by E. R. Squibb & Sons in January, 1909; and as it was not tested until December, 1910, it was nearly two years old and had probably lost some of its original potency.

Duffield,<sup>2</sup> as early as 1868, had made tests of American grown digitalis, prepared by the Shakers of Mount Lebanon, and had found, by crude chemical methods, that the percentage of active principles was higher than in samples of English leaf, and these in turn higher than in German leaves that he examined at the same time. "I am compelled," he says, "to claim for our own home-grown digitalis, if rightly dried and gathered, superiority instead of inferiority." His work seems to have led no one to study and report the therapeutic value of American digitalis leaf.

For many years American leaf was unused. In spite of the shortage in the supply of digitalis caused by the war, several unsuccessful attempts were made to obtain American digitalis from wholesale drug houses as late as 1916. It should be mentioned, however, that for a number of years the H. K. Mulford Company has grown in their drug garden at Glenolden, Pa., the digitalis used by them.

Hale,<sup>3</sup> in 1911, published assays which showed that first year leaves from American digitalis grown at Arlington, Va., Madison, Wis., and Seattle, Wash., were stronger than the select English leaves that he tested at the same time for comparison. Second year leaves grown in Seattle were somewhat weaker than the English digitalis.

We retested leaf put up by Caesar & Loretz which, when examined in Germany, had a value of  $V = 5$ . This value is approximately equal to fifty frog units per gram, but it was found in our assay to contain only twenty-four units measured by Gottlieb's scale. As the leaf had been carefully dried and preserved in a tightly corked bottle, deterioration of the leaf probably does not explain this difference. As no digitalis leaf in our series tested at that time contained more than twenty-four units, and as Gottlieb found that

\* From the Laboratory of Medicine, Medical School of Harvard University.

1. Pratt: Boston M. & S. J. 143: 279, 1910.

2. Duffield, Am. J. Pharm., 41: 55, 1869.

3. Hale: Bull. 74 Hyg. Lab., U. S. P. H. S., 1911, p. 27.

good leaf contained fifty or more units, the most plausible explanation of our lower values is that *Rana temporaria*, used by European investigators is killed by smaller doses than the common American grass frog, *Rana pipiens*, which was used in our tests. We have found that *Rana viridens* is more susceptible to digitalis than *Rana pipiens*. Apparent variation in toxicity due to different species of frog used in England and America is worthy of more attention than it

was kept at about 20 C. After the injection had been made, each frog was put in a jar containing a little water, and this jar was placed in a large pan partly filled with water, the temperature of which was maintained at 20 C. The temperature of the air of the room was noted and recorded. It usually ranged from 18 to 21 C. Healthy frogs of medium size were selected. They were weighed immediately before the injections were made. Few weighed less than 20 or more than 35 gm. The injections were made into the ventral lymph sac. A 1 c.c. syringe graduated into hundredths of a cubic centimeter was used. The needle was inserted through the skin of the thigh just below the groin and passed upward into the lymph sac. Incomplete absorption was found to be the most frequent source of error in the assays. Careful scrutiny should be made for unabsorbed fluid after the lymph sac has been opened up at the end of the hour. The degree of absorption was noted in the protocols. If more than one or two drops were found, the test, if negative, was repeated with the same dose.

TABLE 1.—RESULTS OF A TEST OF SAMPLES OF AMERICAN GROWN DIGITALIS

Description of Sample	Lethal Dose of Syntal Tinctures in C.c. per Gram Frog Weight
1. Oregon, wild, 1916.....	0.004
2. Oregon.....	0.004
3. Oregon.....	0.004
4. Oregon.....	0.002
5. Washington, wild, 1916.....	0.001
6. Washington, cultivated, 1916.....	0.007
7. Wisconsin, cultivated, 1914.....	0.003
8. Ohio, cultivated, 1914.....	0.006

As a control, the dose of strophanthin necessary to produce systolic standstill was determined for each lot of frogs at 20 C. This varied from 0.000004 gm. to 0.0000015 gm. per gram frog weight. Usually from eight to ten frogs were used in testing a single sample of digitalis. In one series twenty-two frogs were required to determine with sufficient accuracy the minimal dose required to produce systolic standstill. The temperature of the water in which the frogs are kept before and during the experiment was carefully regulated, and the temperature of the air in the room was noted and recorded.

has received. If we are correct in our belief that *Rana temporaria* is killed by a smaller amount of digitalis than *Rana pipiens*, then leaf tested in England and found to be equal to the standard of 0.006 c.c. of tincture per gram frog weight of the American Pharmacopœia would actually be considerably below this standard when tested on the American frog, *Rana pipiens*.

Rowntree and Macht,<sup>4</sup> using the cat method of Hatcher and Brody,<sup>5</sup> found that digitalis from the drug garden of the University of Wisconsin was more active than any of four lots of Allen's English leaves tested, and far stronger than an old stock of German leaf. One of us (J. H. P.) obtained some of this same lot of Wisconsin digitalis from Dr. Rowntree at the Johns Hopkins Hospital. A 10 per cent. infusion was prepared. The minimum lethal dose of this was 0.012 c.c. per gram frog weight. This was stronger than the majority of English and German leaves examined in this laboratory.

TABLE 2.—ASSAYS OF TINCTURES. MINIMAL DOSE OF TINCTURES REQUIRED TO PRODUCE SYSTOLIC STANDSTILL OF VENTRICLE

Sample No.	Source and Description of Sample	Minimal Dose in C.c. per Gram Frog Weight
1	Washington (Hobart), 1st year leaf, 1916 crop, wild.....	0.004
2	Virginia (Ballston), 1st crop.....	0.004
3	Wisconsin (Madison), university drug farm, 1916.....	0.004
4	Maine (Mt. Pleasant), 1st crop, university drug farm.....	0.004
5	Nbraska (Lincoln), university drug farm.....	0.004
6	Virginia (Clinton), 1918.....	0.004
7	Virginia (Arlington), Bureau of Plant Industry.....	0.004
8	Indiana (Cromwell), Oregon seed.....	0.004
9	Maine (Fortley).....	0.004
10	Nbraska (Lincoln), 1915 crop, first year.....	0.004
11	Minnesota (Annapolis), 1915 crop, first year.....	0.004
12	Virginia (Ballston), 1917.....	0.004
13	Washington (Hobart), second year leaf, 1st crop, wild.....	0.004
14	"Rocky Mountain," 4th Sample & Seed.....	0.004
15	Pennsylvania (Wes. Union), 1st crop.....	0.004
16	Nbr. sea (Lincoln), university drug garden, 1st crop.....	0.004
17	Washington (Hobart), 1st year leaf, 1st crop, wild.....	0.004
18	Oregon (Linton), wild, 1st year.....	0.004
19	Oregon (Hobart), wild, 1st year.....	0.004
20	Massachusetts (Andover).....	0.004
21	Washington (Hobart), 1st year leaf, 1st crop.....	0.004
22	Oregon, wild, 1915.....	0.004
23	Washington (Seattle), Sample A.....	0.004
24	Oregon (Linton), wild, 1st year, 1917.....	0.004
25	Washington (Seattle), Sample B.....	0.004

Roth<sup>6</sup> tested samples of American-grown digitalis with the results shown in Table 1.

Out of these eight samples, six fulfilled the requirements of the Pharmacopœia. Two of these were twice the standard strength, and all the specimens of wild Oregon leaf were above the standard. The first six samples were air-dried. The method of drying the last two samples was not known. Roth concluded "that the wild digitalis which is found in the Northwestern States may be utilized as a source of supply for making the various preparations of digitalis and that by using ordinary methods in handling and preparing the leaves we may secure a highly active product, which compares favorably with the activity of cultivated leaves grown under more favorable conditions."

METHOD OF TESTING

The one-hour frog method recommended by the Pharmacopœia was used in our work. The comparative tests were all made at a temperature of 20 C. The frogs were brought into the laboratory from the storage tank at least several hours before they were used, and placed in a small tank, the water in which

We have tested in all twenty-eight samples of American grown digitalis. Tinctures of twenty-five of these were prepared and assayed. Freely made 10 per cent. infusion were used in testing the other three specimens. In obtaining digitalis from various sources we were aided by Dr. C. L. Alsborg, chief of the Bureau of Chemistry, Department of Agriculture, Washington, D. C. A summary of the assays of tinctures is given in Table 2.

All the tinctures were tested soon after they were made, except the "Rocky Mountain" tincture, which was nearly two years old when first assayed. Only

4. Rowntree, L. G., and Macht, D. I.: The Standardization of Digitalis and the Potency of American Grown Digitalis, J. A. M. A. 60: 870 (March 18) 1916.

5. Hatcher and Brody: Am. J. Pharm. 82: 36, 1910.

6. Roth, G. B.: Pub. Health Rep. 32: 377 (March 9) 1917.

eight of the twenty-five, or 32 per cent. of the samples of digitalis, yielded tinctures that equaled the standard set by the United States Pharmacopeia IX.<sup>7</sup> With one or two exceptions they had been carefully collected and dried. Most of the cultivated samples had been grown in drug gardens. The series is large enough and representative enough to justify the conclusion that most of the digitalis grown in the United States is below the pharmacopeial standard. As we have shown earlier in the paper, this is true of most of the digitalis imported from England and Germany. The standard set by the Pharmacopeia is a high one. Clinical investigations in the future may show that it is unnecessarily high.

Six samples of American digitalis were stronger than the standard, and two of these were twice the strength required. One of these was from wild first year plants from the state of Washington and the other from cultivated plants grown on a commercial drug farm in Virginia. The former was assayed in February and the latter in April. These two lots were stronger than any imported digitalis tested in this laboratory. They were more active than the samples of American digitalis assayed by Hale.<sup>8</sup> Roth<sup>9</sup> reported assays on one sample of wild Oregon digitalis and one of cultivated Wisconsin leaf that equaled them in strength.

From Prof. Edward Kremers of the University of Wisconsin we obtained digitalis grown on the university drug farm at Madison that was of very high activity, and from Prof. Edwin L. Newcomb we secured cultivated digitalis from the drug farm of the University of Minnesota that was of nearly equal strength. The slight difference of 1 mg. in the minimal dose required to stop the heart in systole might be due to errors inherent in the method of assay, especially as the tests were not made on the same lot of frogs. Samples of digitalis from the drug farm of the University of Nebraska, and from Marion, Va., crop of 1918, were also found to be more active than the Pharmacopeia requires. The lot of digitalis from Virginia was secured from a Boston pharmacist who obtained it from a wholesale dealer in drugs. It is seen from this study that digitalis of great toxicity has been produced in widely different parts of the country.

Hale found that digitalis from the government drug garden at Arlington, Va., harvest of 1907, was of high potency. Our sample from this source also had a high assay value. It was obtained from the Bureau of Plant Industry in the fall of 1916.

Digitalis grown by Mr. F. A. Miller at Greenfield, Ind., from Oregon seed, was equal to the pharmacopeial standard. Another sample of digitalis grown on the same farm from Oregon seed was tested by Miller and Baker,<sup>9</sup> and found to have a value of 0.000 c.c.

Roth, as we have already stated, examined four samples of wild Oregon leaf and all yielded tinctures that were found on biologic assay to be stronger than the Pharmacopeia demands. That large quantities of wild Oregon leaf is strong enough to be of therapeutic value in the usual dosage is a view apparently widely held, not only in Oregon but also in other parts of the country. It seems to be based largely on Roth's studies.

Three samples of wild Oregon leaf examined by us were all weak. One of these was a well mixed sample from a lot of 840 pounds gathered in the summer of 1918. A tincture made from this was only a little more than half the strength demanded by the Pharmacopeia. Two samples of wild leaf from Linton, Ore., were obtained for us by Dr. A. E. P. Rockwell of Worcester, Mass. One lot was gathered in May, 1917; the other in June, 1917. The two tinctures prepared from these were of the same strength. The amount necessary to produce systolic standstill was 0.01 c.c. per gram frog weight, or 60 per cent. of standard strength. A sample of cultivated digitalis was gathered in April, 1917, in the same locality. The leaves were the first shoots of spring. Most of them were less than 4 inches in length. A 10 per cent. infusion prepared from this had a value of 0.01 c.c. As only five out of nineteen lots of American digitalis yielded stronger infusions, it is probable that a tincture of this leaf would have equaled the pharmacopeial standard. Leaves from second year cultivated plants growing in the same neighborhood were gathered in July just before flowering. The buds were fully developed and would have unfolded within a few days. Some of the leaves were 27 inches long. A tincture from these plants had a value of 0.014 c.c., or 43 per cent. of the standard. All of these four lots were grown on similar soil with the exception of a small application of fertilizer in the garden samples and were developed under the same general conditions. The leaves were artificially dried.

Six lots of leaf grown in the state of Washington were examined. The strongest and the weakest digitalis in our series of twenty-five samples came from this state. Only one of the six tinctures prepared from the Washington grown digitalis equaled the pharmacopeial standard. The strongest leaf from Washington (crop of 1916) had a value of 0.003 c.c. In 1917 the collector who furnished this gathered and preserved for us a quantity of Washington leaf that had a value of only 0.011 c.c.

Three lots of digitalis grown in Nebraska were assayed. One of these yielded a tincture that was stronger than the standard, the value being 0.005 c.c. The other two were not quite up to the required strength. Tinctures from these had values of 0.007 and 0.008 c.c.

Three of the four lots grown in Virginia were above the standard. Leaf from Balleston, Va., of the harvest of 1916, had a value of 0.003 c.c. No one, to our knowledge, making biologic assays on *Rana pipiens*, has reported any observations on digitalis of greater toxicity. A sample of digitalis from the same locality, the following year, had a strength of only 0.007 c.c.

A specimen of "digitol" furnished by the H. K. Mulford Company and made from leaf grown at Glen Olden, Pa., was slightly below the pharmacopeial standard.

Three lots of digitalis grown in Massachusetts have been tested. All were of poor strength. The one tested in Table 2 was obtained from mature second year plants. Wesselhoeft tested a homeopathic tincture (10 per cent.) made from fresh, undried digitalis grown in Hyde Park, a suburb of Boston. This had a value of 0.040 c.c., or 15 per cent. of the standard. A 10 per cent. infusion of digitalis put up by the "Shakers of Ayer" yielded a negative result when a dose of 0.050 c.c. was given.

7. The Pharmacopeia requires that digitalis leaf should be of such strength that 0.036 c.c. of a tincture prepared from it per gram frog weight will produce systolic standstill of the heart in one hour.

8. Miller and Baker, J. Am. Pharm. A. 131: 304, 1914.

A lot of digitalis grown in Portland, Maine, was found to be fairly strong, but not quite up to standard strength.

DIFFERENCE IN STRENGTH DUE TO SOIL  
AND CLIMATE

*Digitalis purpurea* is a European wild plant that is found in Portugal, Spain, France, Germany, England and the Madeira Islands. In some of these countries it grows much more profusely than in others. Brought to America for cultivation in flower gardens, it has in some sections become a weed and is now found growing wild in great abundance in California, Oregon, Washington, and to some extent in West Virginia. Prof. J. U. Lloyd<sup>9</sup> says that in the valley of the Honeoye River, N. Y., digitalis planted in 1820 in a flower garden was growing in 1912 as a great wild weed, self sown from year to year. It will grow in Oregon, according to information obtained by Roth, on practically any soil that will absorb moisture. The samples he tested grew on clayey soil. Digitalis does not do well on limestone lands, as Lloyd learned from personal observation, when he attempted to cultivate the drug in Kentucky. It is found generally on soil containing iron and manganese. The latter is assumed to be essential for the growth of the plant. It is said that digitalis does not grow in Switzerland, and this is attributed to lack of iron and manganese in the soil.

The toxicity of the leaf may vary with the locality in which it grows. It has been long known that the digitalis from the neighborhood of Strassburg is so strong that when given in the usual doses poisonous effects are quickly manifested. By biologic tests on frogs, Alsatian digitalis has been found to be twice as strong as the standard value established by Focke,  $V=5$ . Gottlieb used a frog unit similar to a diphtheria antitoxin unit. The amount of digitalis that will produce systolic standstill in a frog of 30 gm. weight within thirty minutes was taken as the unit. Good leaf, according to Gottlieb, should contain fifty units. Digitalis grown in the Vosges Mountains obtained from the pharmacy of the Strassburg Medical Clinic contained from 100 to 120 frog units.<sup>10</sup>

Cushny, according to Symes,<sup>11</sup> has found only small variations in different samples obtained from the same source.

Symes<sup>12</sup> examined a large number of samples of English digitalis grown in three successive years. The average activity of tinctures made in 1911 was about twice the standard adopted; namely, that of Dixon and Haynes,<sup>13</sup> a minimal lethal dose of 0.75 c.c. per hundred gm. (Houghton's<sup>14</sup> twelve-hour method, using *Rana temporaria*). Samples from the same sources in 1912 were notably weaker than those collected in 1911, but still 40 per cent. above standard. Samples of the harvest of 1913 were less active, but averaged 10 per cent. above the standard. The weather in the spring and summer of 1910 in Great Britain was dry, dull and variably warm; in 1911 bright and hot; in 1912 wet, dull and cold, and in 1913 dry, dull and warm. Only leaves of second year plants were gathered, so that two years of weather should be considered

in comparing strength of leaves to weather conditions. It would seem as if the good year 1911 influenced the activity of the leaf of that harvest and also, by its effect on first year plants, the harvest of the following year.

Our studies show that digitalis of the highest activity has been grown in Washington, Virginia, Nebraska, Oregon and Wisconsin. Digitalis that yielded tinctures of standard strength have been obtained from Indiana and Minnesota. Leaf of very poor quality, grown apparently under similar conditions, has been found in the same states (Oregon and Washington) that have yielded the best digitalis. The three samples of Massachusetts digitalis assayed were weak. Apparently the soil here is not favorable for the growth of active digitalis, although more samples should be studied.

That soil and climatic conditions are more important than the selection of seed, is suggested by the experiments of Miller and Baker. Seed of *Digitalis purpurea* from Japan, England and Oregon were planted in the drug farm at Greenfield, Ind. All three yielded leaves of the same strength. Tinctures made from each produced systolic arrest of the heart with a minimal dose of 0.009 c.c.

DIFFERENCE IN STRENGTH DUE TO METHOD  
OF DRYING

The relation of the method of drying to activity of leaf is not clearly brought out by our studies. Focke<sup>15</sup> maintains that the leaf should be dried within three days of gathering at a temperature between 60 and 80 C., until the moisture content is reduced to 1.5 per cent. He directs that it should be then packed in air-tight containers. Newcomb,<sup>16</sup> of the University of Minnesota, dries the leaf at a temperature of 100 C. for eight-hour periods on three successive days. It will be seen in Table 3 that the University of Minnesota leaf we examined contained considerable moisture, although less than the other samples. It was sent to us in a closed container.

TABLE 3—PERCENTAGE OF MOISTURE IN DIGITALIS LEAF

University of Minnesota, 1915 crop	6.8
Washington state, received from Department of Agriculture	6.8
Graciel College, Graciel, Iowa	6.4
Washington (Hobart), second year leaf	7.3
Washington (Hobart), first year leaf	7.6
Pennsylvania (Glen Olden), received from the H. K. Mulford Co.	8.7

One of the two strongest samples in our series, the first year digitalis leaves from Hobart, Wash., had 7.6 per cent. of moisture. It should be remembered that the leaves take up considerable water after they are dried, unless kept in air-tight receptacles.

It has never, to our knowledge, been demonstrated by biologic assay that leaves dried at room temperature are less potent than the leaves from the same plants dried rapidly at a high temperature. It is possible that they deteriorate more quickly, as Focke maintains. Most of the lots of digitalis studied by us were artificially dried. The air-dried samples of Oregon leaves assayed by Roth were stronger than the Pharmacopoeia requires. Our sample of air-dried Oregon digitalis, harvest of 1918, contained considerable moisture and was of low strength, the value of the tincture being 0.011 c.c.

<sup>9</sup> Lloyd, J. U.: *Am. J. Pharm.*, 85: 214, 1913.  
<sup>10</sup> Fraenkel: *Ergebn. d. inner. Med. u. Kinderh.*, 1908, p. 89.  
<sup>11</sup> Symes: *Brit. M. J.*, 1: 1343 (June 20), 1911.  
<sup>12</sup> Symes: *Pharm. J. & Pharmacol.*, 29: 192, 1914.  
<sup>13</sup> Dixon and Haynes: *Med. Mag. London*, Jan., 1906, p. 1, quoted by Symes.  
<sup>14</sup> Houghton, G. M.: *The Pharmacologic Assay of the Heart: Times J. N. Y.*, 31: 959 (Oct. 22), 1908; Houghton and Hamilton: *Am. J. Pharm.*, 1: 341 (Oct.), 1909.  
<sup>15</sup> Focke: *Arch. d. Pharm.*, 241: 13, 1887; *Pharm. J. Germany*, 45: 284, 1894.  
<sup>16</sup> Newcomb: *Am. J. Pharm.*, 84: 201, 1912.

ACTIVITY OF WATER-SOLUBLE GLUCOSIDS IN  
AMERICAN DIGITALIS

The active principles in digitalis leaves have not been obtained in a pure state. The view is held by Cushny<sup>17</sup> that there are two active glucosids present. These are digitoxin and digitalein. The former is insoluble in water. Kiliani's studies<sup>18</sup> have inclined him to the view that a pure digitalein existed in the leaves that was easily soluble in water and very active. All attempts to isolate it were unsuccessful. Schmiedeberg and Kiliani believe that the digitalein that has been obtained from both the seed and the leaves is a mixture of substances. They have used the term for the water-soluble glucosids that are certainly present in digitalis.

Kraft<sup>19</sup> obtained a water-soluble substance which he maintained was the pure digitalein that chemists had been seeking. He calls it "gitalin." It is easily decomposed by heat and reagents. The hydrate of gitalin was obtained in a crystalline state. It was almost insoluble in water. The so-called digitoxin obtained by Keller's method of quantitative analysis consists chiefly of gitalin with a little pure digitoxin. After a watery extract of the leaves had been made, a small amount of pure digitoxin and a considerable amount of gitalin was obtained from the residue by treatment with alcohol. Kiliani, after carefully examining a number of specimens of gitalin, concluded that it was not a chemically pure body, but a mixture. The crystalline gitalin "hydrate" closely resembled a substance Kiliani has studied and named  $\beta$ -digitoxin.

This brief summary of recent chemical studies shows how meager is the present knowledge of the subject. It indicates the importance of studying, by biologic methods, the aqueous as well as the alcoholic extracts of the leaves.

The activity of the water-soluble substances has been studied in nineteen samples of American digitalis by injecting frogs with freshly prepared 10 per cent. infusions. The samples are arranged in order of their strength in Table 4.

For comparison, the dose of tincture required to produce systolic standstill is also given. Some of the 10 per cent. infusions were stronger than the majority of tinctures examined. The greatest strength in water-soluble principles was exhibited by the samples of first year leaf from Hobart, Wash., which furnished also one of the two strongest tinctures. The 10 per cent. infusion of this leaf was exceeded in toxicity by only five of the tinctures in our series. No imported digitalis examined in this laboratory has yielded an infusion as strong as this. All the leaves that equaled or exceeded the requirements of the Pharmacopœia were found to be strong in water-soluble principles.

There was, however, no fixed relation between the activity of the tincture and the infusion, even when the tests were made on the same lot of frog. If the tincture is taken as a measure of this total toxicity, then the aqueous extract of the Minnesota leaf tested, March 20, 1917, which gave a value of 0.007 c.c., was 71 per cent. of the strength of the leaf, as the tinctures tested, March 22, 1917, had a value of 0.005 c.c. On the other hand, the strength of the aqueous extract made from Washington leaf obtained from the Department of Agriculture was found to be 0.028, March 1, 1917, which was only 38 per cent. of the activity of

the tincture of the same leaf tested, March 15, 1917. The results of these comparative tests show that the proportion of water-soluble principles differ widely in different lots of digitalis. Most of the lots of imported

TABLE 4.—ARRANGEMENT OF SAMPLES OF DIGITALIS IN  
THE ORDER OF THEIR STRENGTH

Sample No.	Source and Description of Sample	Infused Dose Required to Produce Systolic Standstill	
		10 per Cent. Infusion Date	10 per Cent. Tincture Date
1	Washington (Hobart), first year leaf	3 13/17 0.006	3 12/17 0.003
2	Virginia (Balleston), 1916 crop	4 13/17 0.007	4/ 6/17 0.003
3	Minnesota (Finnepolis), university drug farm, 1916 crop	3 20/17 0.007	3/22/17 0.005
4	Wisconsin (Madison), 1916, university drug farm	10/30/16 0.007	3/ 6/17 0.001
5	Virginia (Marion), harvest of 1918	12 2/18 0.008	4/ 4/19 0.005
6	Virginia (Arlington), Bureau of Plant Industry	3/ 5/17 0.008	4/17/17 0.006
7	Nebraska (Lincoln), university drug farm	5 17/17 0.008	10 26/17 0.005
8	Indiana (Crawf), from Oregon seed, second year leaf	5 23/17 0.008	10/ 3/17 0.003
9	Nebraska (Lincoln), first year leaf, 1915	5 29/17 0.010	10 15/17 0.007
10	Oregon (Linton), 1917, cultivated, gathered in April	5 19/17 0.010	
11	Pennsylvania (Alden Olden)	5 19/17 0.011	
12	Wisconsin (Madison), university drug farm, obtained from Johns Hopkins Hospital, 1915	12/21, 15 0.012	
13	Nebraska (Lincoln), second year leaf, 1916	5 31/17 0.016	10 24/17 0.008
14	Oregon (Linton), 1917	8/ 2/18 0.016	8 2/18 0.011
15	Maine (Portland)	3 27/17 0.017	5 15/17 0.007
16	Washington (Hobart), second year leaf	3/ 2/17 0.020	4 18/17 0.008
17	Virginia (Balleston), 1917	5 31/17 0.023	9 27/17 0.007
18	Massachusetts (Andover)	5 31/17 0.025	9 27/17 0.011
19	Washington; obtained from the Department of Agriculture	3/ 1/17 0.028	3 15/17 0.001

leaf examined have contained less of the water-soluble principles than the majority of the samples of American digitalis we have assayed.

TOXICITY OF VARIOUS SPECIES AND VARIETIES  
OF DIGITALIS

There are twenty-three or more species of digitalis and numerous varieties. As early as 1888, Paschke<sup>20</sup> stated that *Digitalis ambigua* contained the same constituents as *Digitalis purpurea*, and that the medicinal properties of the two are identical. Boudgest<sup>21</sup> found that *Digitalis ambigua* was fully as active therapeutically as *Digitalis purpurea*.

Miller and Baker<sup>2</sup> tested on frogs a number of different species of digitalis that they had grown at Greenfield, Ind. Eighty-three per cent. of the samples tested had a greater toxicity than *Digitalis purpurea*. *Digitalis lanata*, a species quite distinct from *Digitalis purpurea*, had the highest value. The amount required to produce systolic standstill of the heart was 0.0003 gm. of leaf in the form of tincture, per gram frog weight. Only two of the lots of leaves of *Digitalis purpurea* tested in our laboratory have equaled this in strength (Table 2). The weakest leaf assayed by Miller and Baker was *Gloxinae flora alba*, which had a value of 0.0019. Haskell and Miller<sup>22</sup> found that the *Digitalis ambigua*, dried at 100 C., had a value of 0.00055 and *Digitalis grandiflora* a value of 0.0009.

R. E. Morris of the University of Minnesota tested *Digitalis lutea* on cats. He used tinctures and infusions from the leaves of Minnesota first year plants. He was impressed with the absence of irritating action on the nervous system and the quiet lethal

17. Conroy Textbook of Pharmacology and Therapeutics, Ed. 7, Philadelphia, 1916, p. 349.

18. Kiliani, Arch. d. Pharm., 252: 13, 1914.

19. Kraft, Arch. d. Pharm., 250: 118, 1912.

20. Paschke, Apoth. Ztg. 1888, p. 869, cited by Miller and Baker (Footnote 8).

21. Boudgest, Pharm. Ztg. 18: No. 42, 1913, cited by Miller and Baker (Footnote 8).

22. Haskell and Miller, J. Am. Pharm. A. 3, 1914.

period. With the hope that it would cause less gastrointestinal disturbance than *Digitalis purpurea*, he studied with S. M. White<sup>23</sup> its therapeutic action on patients, and found that it produced effects apparently the same as *Digitalis purpurea*, except that nausea and vomiting appeared to be less frequent.

We have tested on frogs the activity of a sample of *Digitalis lutea*, grown in 1913 on the drug farm of the University of Minnesota and furnished to us by Dr. Morris. The tincture made from this had a value of 0.004 c.c. per gram frog weight. This assay was made, May 18, 1917. Only two of our twenty-five samples of *Digitalis purpurea* were stronger.

Specimens of two hybrids were sent to us by F. A. Miller of Greenfield, Ind. Our results are given in Table 5.

TABLE 5.—DIGITALIS HYBRIDS TESTED BY ONE-HOUR FROG METHOD AT A TEMPERATURE OF 20 C.

	10 per Cent. Tincture	10 per Cent. Infusion
Hybrid digitalis ambigua × purpurea.....	0.008	0.010
Hybrid digitalis ambigua × lanata.....	0.007	0.008

Both were fairly strong in alcohol-soluble constituents, but not equal to the standard. The striking feature was the high percentage of water-soluble principles, amounting in the hybrid *Digitalis ambigua* × *lanata* to 88 per cent. Only three of the samples of *Digitalis purpurea* we studied yielded an aqueous extract of greater toxicity than *Digitalis ambigua* × *lanata*.

#### CONCLUSIONS

The best American digitalis, both wild and cultivated, is equal in activity to the best European digitalis. Specimens of high potency have been obtained from Virginia, Nebraska, Wisconsin, Minnesota, Oregon and Washington. The majority of samples of American digitalis examined were of low potency. No less than seventeen out of twenty-five samples of American digitalis were below the standard of strength established by the Pharmacopœia. The average strength of the American digitalis, however, was greater than that of the imported digitalis we have examined.

All digitalis should be tested biologically before it is gathered in large quantities for therapeutic use.

<sup>23</sup> Wike, S. M., and Morris, R. F.: The Eggleston Method of Administering Digitalis, *Arch. Int. Med.* 21: 740 (June) 1918.

**The Ravages of Smallpox.**—In the eighteenth century, smallpox was more common than is measles today. In 1802 a speaker in the British Parliament declared that "it is proved that in this United Kingdom alone 45,000 persons died annually of the smallpox, but throughout the world what is it? Not a second is struck by the hand of time but a victim is sacrificed on the altar of that most horrible of disorders, the smallpox." A few years later Lord Macaulay said of the disease: "Smallpox was always present, filling churchyards with corpses, tormenting with constant fear all whom it had not yet stricken, leaving in those whose lives it spoiled the hidden traces of its power, turning the babe into a changeling, at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden badges of horror to the lover." The history of smallpox in our own country tells the same story. In 1702, 14.4 per cent. of the population died from the disease. Nineteen years later, 5,989 out of the 11,000 inhabitants of Boston contracted the disease, 840 fatal. In 1730, it again ran riot in Boston, claiming nearly 500 victims out of a sick roll of 4,000. It stalked among the colonies like the instrument of a remorseless avenger.

## Clinical Notes, Suggestions, and New Instruments

### GANGRENE FOLLOWING AN INJECTION OF ARSPHENAMIN

L. A. SUTTER, M.D., WICHITA, KAN.  
Surgeon to Wesley Hospital

**History.**—O. P. M., aged 35, married, an American laborer, family history negative, had his first attack of gonorrhœa in 1903 and got over this in a short time. One year later he had a second attack, developing a double epididymitis, and was in the hospital five days. The next year he had a chancroid on the dorsum of the foreskin, which healed promptly. In June, 1917, when I saw him, he had a chancre on the right side of the shaft of the penis about 1 cm. from the pubis. I gave him an injection of 0.4 gm. of arspenamin and a second one a week later. About one month after this his wife was in the hospital for a double pyosalpinx. She also had an ulcer the size of a dime on the anterior part of the cervix uteri. I gave her one injection of arspenamin, after which she left the hospital, and I did not see either her or her husband again until Aug. 31, 1919.

In June, 1919, a soft chancre appeared on the penis. At this time the patient had a double adenitis. These did not need to be opened, however, and in two weeks he was able to resume work. In June, 1919, he had an attack of tonsillitis. His throat grew worse, and in August he had his tonsils removed. They were badly diseased. The next day at 9 a. m. he was given an injection of arspenamin in the vein of the left elbow. The physician who gave this injection describes his technic in a letter to me as follows:

The amount of solution used was about 250 c.c. and was given by the three-way cock method with a 10 c.c. syringe. First the syringe was filled with physiologic sodium chlorid solution and the needle filled and inserted into the vein. The blood flowed freely into the syringe, the salt solution basin was set aside, and the arspenamin substituted in its place. The syringe was filled by means of the three-way cock with the arspenamin solution and the solution injected into the vein. This process was repeated until the 250 c.c. solution of arspenamin had been given. The vein was entered by the needle at the first attempt. The patient complained of a severe pain in his hand at the time. In a few minutes after the injection his hand was white and death-like cold. He complained of anesthesia and inability to move the hand, and there was a decided wrist drop. Three hours later there was tonic contraction of all the fingers and the wrist. The peripheral circulation was poor. The hand was cold all the time. The next day the tonic contracture was somewhat less, and from that time until two weeks later, at which time he left the hospital, there was very little feeling in the hand. It was apparent that his fingers were becoming gangrenous. About twenty minutes were consumed in giving the injection.

The patient states that when the solution was started it felt as though a match had been touched to his fingers, or he had taken hold of an electric wire. The pain grew worse during the injection and was not relieved until the next afternoon. Within two hours after the injection his arm began to swell around the needle hole, the swelling extending down over the forearm and up over the biceps muscle. Hot applications were applied to the arm. These were used continuously for two days, after which warm alcoholic dressings were kept on the arm for forty-eight hours. At some time during the use of the hot applications the dorsal surface of the forearm, hand and fingers was quite badly burned. Owing to the anesthetic condition that prevailed he knew nothing about the burn until he saw the large blisters. After ninety-six hours a dry powdered dressing was used on his arm.

**Examination.**—He said he had lost 29 pounds. He was 6 feet tall, weighed 146 pounds. The eyes were sunken and he had an anxious expression. The left arm was carried at an angle of 45 degrees. It could be flexed until the hand was within 6 inches of the shoulder. This caused him considerable pain, however. The forearm could be extended to

within 15 degrees of a straight line. The teeth were in poor condition. The eyes showed normal reaction at the pupils to light and distance. The reflexes were lively throughout. The heart showed a soft mitral systolic murmur. The lungs and abdomen were negative.

The back of the left hand and forearm were covered with large blisters. There were also blisters over the dorsal surface of the fingers and thumb. The cutaneous covering had been removed from the blisters of the back of the hand, leaving a large oozing surface. All the nails were black. The thumb was black for 5 mm. on the palmar surface. The gangrenous area extended through to the nail. There was also a black ring extending around the thumb over the last joint. The skin over all the gangrenous area was extremely shriveled, dry and hard.

The index finger was dead and shrunken from the middle phalangeal joint. The middle finger was also dead, black and shrunken within 5 mm. of the middle phalangeal joint. The ring finger had a well marked line of gangrene midway between the second and third phalangeal joint. About one half of the last phalangeal joint of both little finger and thumb were gangrenous.

There were a number of blisters over the tops of the fingers and thumbs, each containing quite a little pus.

The muscles of the forearm were very hard, and the entire cutaneous covering of the forearm and hand, excepting where raw areas were, was shrunken, hard and thick. There was very slight sensation for hot and cold over the hand and fingers and very little pain sensation on being stuck with a pin.

The wrist could be moved slightly.

*Operation and Result.*—September 11, under ether anesthesia I amputated the thumb slightly distal to the end of the last phalanx. The index finger was amputated 1 cm. proximal to the middle phalangeal joint. The middle finger was disarticulated at the middle phalangeal joint. Owing to the desire to save as much of the fingers as possible, the ring finger was amputated 1 cm. distal to the middle phalangeal joint.

Five mm. of tissue were removed from the end of the little finger.

The wound healed in a surprisingly kind manner.

At this time there is increased motion of the elbow joint, the wrist and some of the finger stumps. Sensation has greatly improved. The oozing areas of the hand are entirely healed.

369 Schweiter Building.

#### AN EASY METHOD OF MARKING THE SKIN

WILLIAM ALLEN PUSEY, M.D., CHICAGO

It is often desirable to outline a figure on the skin, but it is not always easy to do so. A skin pencil is not always available and one, even of the best quality, marks the skin with some difficulty. According to a method suggested by Pusey the spot to be marked is wiped off with a bit of cotton wet with gasoline. This moistened surface can then very readily be marked with a "paper pencil." This method uses the solution that gasoline must be at hand, and also care of an inflamed or broken surface this preliminary application of gasoline is irritating or painful. A much simpler method without the objection of irritation, is to moisten the surface with water from a cotton sponge and then use an ordinary copying pencil. The lead of a copying pencil marks with ease on the moistened skin. With this method it is possible to outline with a distinct violet line any area on the skin. Such markings can be made even on a sterile surface by first washing the end of the pencil in a concentrated solution of mercuric chlorid, and by moistening the surface with a sterile solution. The mark can readily be wiped off with soap and water. The purple lines may be photographed, but not very well.

7 West Madison Street.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY.  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1529)

#### LIQUID PETROLATUM AS A LAXATIVE

The rapidity with which "mineral oil," one of the more recent additions to our materia medica, has conquered the globe has been phenomenal. It is now a most extensively used medicinal substance; and, if its sale were a real indication of its medicinal value, we should have to consider it one of the most valuable of medicaments. While not ready to grant this preeminence, we may at least view its popularity without alarm; for, of all substances with which mankind has belabored its system, petrolatum is surely the most inert and perhaps the most harmless.

Petrolatum is a bland, odorless, tasteless and colorless liquid, indigestible, as well as incapable of decomposition by bacteria; hence it cannot become rancid. It is not absorbed; therefore it cannot produce poisoning in any dose. A pint of liquid petrolatum has been given in a few hours without untoward results.

Owing to its innocuousness, this substance should be the laxative of first consideration. While it is merely of temporary value in habitual chronic constipation and possibly may still further increase the intestinal sluggishness by lessening the amount of work—of exercise—of the intestinal and abdominal muscles, it seems to have an actual curative effect in certain conditions, as, for instance, in spastic constipation, in which, by lessening the irritation, it may ultimately succeed in lessening the irritability.

Liquid petrolatum is indicated whenever it is desired to soften the feces. The oil, being indigestible, remains in the feces in the form of globules. To speak of this action as "lubrication," as is often done, is hardly correct. Lubrication depends on the formation of an oil film, and such a one it is impossible to apply to a water-soaked membrane like the intestinal mucosa, or to the ordinary moist fecal mass. When an excess of oil has been ingested it does not apply itself as a film to the surface, but remains separate from it, giving rise to the much complained of "leak" of oil through the anus, which may occur even with small doses.

As liquid petrolatum does not give rise to irritant products such as the fatty acids liberated by the digestion of fatty oils, especially of castor oil, it may be given with safety for irritation of the gastro-intestinal tract. By its softening effect on the stools it may even have a healing action on superficial lesions of the mucosa.

In intestinal stasis due to crippling of the intestine, be this from kinks or other forms of obstruction, or even malignant tumor, its softening effect on the feces is likely to prove valuable.

The dose varies from 15 to 90 c.c. When larger dosage is employed, there is likelihood of leakage of the oil. Sometimes free oil is passed in a bowel movement, or even without one. It was supposed that the

\* This is the sixth of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

1 Bécérel. H.: J. de radiol. d'électrol. 3: 272 (June) 1919; abstr. J. A. M. A. 73: 724 (Aug. 30) 1919.

"heavy" liquid petrolatum, by reason of its greater viscosity, would be less likely to give rise to leakage. That this is not the case was shown by a collective investigation carried on by Bastedo,<sup>2</sup> under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry. To ascertain whether any difference existed in the efficacy of the different varieties of liquid petrolatum, clinicians were furnished with specimens of light Russian liquid petrolatum, heavy Russian liquid petrolatum, and an American brand of light liquid petrolatum. To avoid bias, the specimens were designated by numbers or letters. The conclusion of this study was that the differences were too slight to be of importance. There was no difference in the dose required, in effect on stomach or stools, or in their tendency to give rise to leakage.

As a general proposition, when leakage occurs, it is an indication that the dose should be reduced. If such reduced dose is insufficient to act on the bowels, it may be reinforced by a specific stimulant to peristalsis, such as cascara sagrada. The oil seems to be devoid of any effect on the intestinal musculature except that it diminishes the work of the muscle by softening the feces. In cases in which synergistic use of cascara is contraindicated, as for example in spastic constipation, it might be well to try a petrolatum of higher melting point, like petrolatum, U. S. P., which it is reasonable to assume might be less likely to produce this undesirable effect.

Emulsification is another expedient that it seems ought to be capable of overcoming the tendency to leakage. The National Formulary contains the following formula:

EMULSUM PETROLATI, N. F.

	Gm. or Cc.
Petrolatum .....	25.5
Expressed oil of almond.....	22.5
Acacia .....	12.5
Syrup .....	10.0
Tincture of lemon peel .....	1.5
Water, to make .....	100.0

Average dose: one tablespoonful.

This preparation would be worth trying in such cases; and reports on its success or failure in meeting the requirements of activity, pleasantness, and absence of tendency to "leak" would be of interest.

Our choice among the different brands of petrolatum should be chiefly determined by palatability. This depends on the degree to which the refinement of the oil is carried out.<sup>3</sup>

Fancy named products should be avoided. Not only are such products more expensive, but when any one

of these half hundred brands is prescribed, the druggist, who may have half a dozen other brands that are just as good on his shelves, will have to buy a full bottle of the product specified and charge the patient the price of the whole bottle, even though the prescription calls for but part of it—the rest, probably, remaining on his shelf indefinitely. Such specifying is an injustice to the druggist and to the patient. Why not trust pharmacopoeal quality? If the druggist does not dispense U. S. P. quality, he can be legally prosecuted. Of course, if U. S. P. quality is not good enough, specifying may be necessary until the quality of the official product has been improved. The official quality of heavy liquid petrolatum (petrolatum liquidum grave) is satisfactory. If, however, one desired an extra fine product, and higher price is no object, one might specify the name of a distributor who promotes a possibly somewhat superior product in an ethical manner, for instance, Squibb, to mention one such.

As the oil is tasteless and odorless, it is probably best taken in its pure state. It may be floated in some pleasantly flavored fluid, such as orange juice or grape juice. Flavoring by means of a pleasant volatile oil may be resorted to, should the patient prefer a distinctive flavor to the insipidness of the liquid petrolatum. Hilton has experimented on this matter, and found that per 500 c.c. of oil, these quantities of one or the other flavoring oils are suitable: anethol, 10 drops; oil of almond, 15; oil of cloves, 10; oil of cinnamon, 5; oil of peppermint, 15; oil of spearmint, 15, and methyl salicylate (wintergreen), 25 drops. To him, peppermint seemed the most pleasant flavor, with cardamom a close second. We must recognize the fact, however, that there are people who abhor one flavor, such as peppermint, enjoyed by another; and that any one is liable to tire of a decided flavor used frequently. Combinations of flavors—bouquets—are often more acceptable than single flavors, and enjoyed for a longer time. Thus the oil combination used in the flavoring of aromatic elixir might be used to make liquid petrolatum aromatic: oil of orange, 2.00; oil of lemon, 0.50; oil of coriander, 0.20; oil of anise, 0.05; liquid petrolatum, 1.000.

As the oil, when taken after meals, is likely to lie heavily on the stomach and produce other gastric distress—in Bastedo's investigation 20 per cent. complained of nausea or tendency to repeat—it is best to take it in such a way that it will interfere least with gastric digestion. This is secured by giving a dose, from 15 to 60 c.c. of it, at bed time, or else administering 15 c.c. one hour before each meal.

Patients given this laxative for the first time should understand that it does not produce an immediate effect, but that it may have to be taken for several days before results will be noted. When the desired effect is not obtained with the initial dose, the quantity should be increased until the stools have been sufficiently softened. The efficient dose is then to be maintained for a while—several weeks, perhaps—and then gradually reduced until regularity of bowel action has been secured or the minimal dose has been ascertained that is required for satisfactory function. It must be remembered that if kept up for some time a habit may be formed. While it may not be a serious one so far as concerns harm to the system, it is an expense to the individual and especially a nuisance.

(To be continued)

2. Bastedo, W. A. Clinical Experience with Liquid Paraffin (Liquid Petrolatum). J. A. M. A. 44: 808 (March 9) 1915.

3. In 1914, THE JOURNAL (May 30, p. 1740) published the following list of names under which liquid petrolatum was then known: adepsine oil, amulec, atoleine, atolin, blandine, erysualin, deeline, glyco, glycoline, glymol, heavy petroleum oil, liquid alboline, liquid cosmoline, liquid fossoline, liquid geloline, liquid paraffin, liquid petrolatum, liquid waxoline, liquid vaseline, mineral glycerin, mineral oil, neutralol, oleo paraffin oil, paroline, petrolol, petro, petrolax, petrolax, petrolol, petroloso, rock oil, Russian liquid petrolatum, Russian mineral oil, Russian paraffin oil, Russol, saxol, terraline, terralibolia, usoline, water-white mineral oil, and white paraffin oil. To this list many more names, such as "nupol" and "puripetrol," would have to be added to bring it up to date. Here is a good illustration of the inexpediency of employing coded and copyrighted names in prescribing standard official products. S. I. Hilton (Petrolatum Liquidum, U. S. P. VII), J. Am. Pharmac. S. 1: 577, 1914) quoting the wholesale prices of various brands of liquid petrolatum, found that those with fancy named names commanded a very much higher price than other oils on the open market, and, nearly all, coming from the same source. Of course, manufacturers and dealers would not own names if they did not expect to obtain something substantial out of them.

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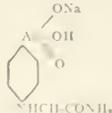
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SATURDAY, NOVEMBER 22, 1919

## THERAPY AND RESEARCH

Few persons who have occasion to use arsenamin (*salsarsan*) and its derivatives, or who contemplate the therapeutic usefulness which the introduction of these drugs into medical practice has embodied, realize the long and laborious scientific investigations that preceded the success inaugurated by Ehrlich. Modern chemotherapy of this sort has been the product of careful research in which ingenious and novel chemical syntheses were undertaken to evolve new compounds that were subsequently tested by animal experimentation before any attempt at clinical application was made. It is important to keep in mind the fundamental fact that the great discoveries of curative drugs were not made over night or by chance, as one may stumble on precious stones; they are rather the outcome of untiring effort directed by experimental genius. Each success is but the fortunate companion of almost innumerable preliminary or preparatory trials and many failures. Research is both the laborious and the continued search after truth, not the mere chance finding.

Some of the results of diligent and persistent researches in chemotherapy have recently been published from the Rockefeller Institute for Medical Research.<sup>1</sup> They involve the synthesis of certain new types of organic arsenic compounds intended to be applicable to the treatment of experimental trypanosome and spirochete infections. One of the promising products synthesized by Jacobs and Heidelberger<sup>2</sup> for trial is *N*-phenylglycinamide-*p*-arsonic acid,



in which the arsenic is present in the pentavalent form as presented by the arsenic acids. The aim has been

to attempt to eliminate certain of the well known practical disadvantages of the now familiar arseno compounds. Trypanosomiasis affects different species in unlike ways. Brown and Pearce point out that in some, as rats and mice, it is chiefly characterized by the constant and progressively increasing number of trypanosomes in the peripheral blood, by the lack of any clinical manifestations, and by the relatively early death of the infected animal. Consequently, an effective therapeutic compound for the treatment of trypanosomiasis in such species must be biologically available within a short time after its administration, and must have sufficient speed and duration of action to halt and overcome the rapidly increasing blood infection, which is comparable with a fatal bacteremia. The trypanosomiasis of many of the larger animals, like the rabbit, on the other hand, is preeminently a tissue infection. To combat this, an effective drug must possess tissue penetration as well as trypanocidal power. These illustrations are sufficient to indicate the varied practical conditions that must be met to solve the therapeutic problem. They are likely to tax the ingenuity and persistence of the most assiduous and intelligent investigator.

The first of the new compounds described by the workers at the Rockefeller Institute is extremely easily soluble in water, forming neutral solutions that are stable. The animal tests indicate that the toxic effects are confined to doses relatively close to the minimum lethal dose, and the recovery from sublethal doses is rapid and complete. The new arsenic acid has already given indications of being "an agent of marked therapeutic action in the treatment of experimental trypanosomiasis in mice, rats and guinea-pigs." The "curative ratio" or fraction of the minimum lethal dose is small. Therapeutic doses are not followed by signs of organic or functional disturbance, but, on the contrary, the general physical condition of the treated animals shows an immediate improvement. In the more penetrating invasion of trypanosomes in rabbits, therapeutic efficiency has also been recorded by Pearce and Brown. Finally, they have noted promising effects in experimental infections with spirochetes of the *recurrens* group and by *Spirochaeta pallida*. The infection is ameliorated even though the spirochetes are not immediately destroyed. The Rockefeller Institute pathologists summarize this by comparing the result with that produced by more powerful spirocheticidal agents. The infecting micro-organisms are either affected in such a way that they eventually die off, or are destroyed by the host in such a way that no lasting immunity is developed in consequence of their destruction. For the present, the investigators go no further than to state that the new arsenic acid acts somewhat differently from the usual spirocheticidal agents. While it does not possess a considerable degree of spirocheticidal action, its chief effect is seen in the peculiar way it modifies or controls the course of these infections.

1. Jacobs, W. A., and Heidelberger, M. Chemotherapy of Trypanosomiasis and Spirochetosis, Chemical Series, I, *N*-phenylglycinamide-*p*-arsonic acid, *J. Exp. Med.* 240:241 (Nov.) 1919; Brown, W. H., and Pearce, L. G. Chemotherapy of Trypanosomiasis and Spirochetosis, Biological Series, I, The Toxic Action of *N*-phenylglycinamide-*p*-arsonic Acid, *ibid.*, p. 317; II, The Therapeutic Action of *N*-phenylglycinamide-*p*-arsonic Acid in Experimental Trypanosomiasis of Mice, Rats and Guinea Pigs, *ibid.*, p. 437; III, The Therapeutic Action of *N*-phenylglycinamide-*p*-arsonic Acid in Experimental Trypanosomiasis of Rabbits, *ibid.*, p. 475; IV, The Action of *N*-phenylglycinamide-*p*-arsonic Acid on Spirochete Infections, *ibid.*, p. 483.  
2. Jacobs, W. A., and Heidelberger, M.: *J. Am. Chem. Soc.* 41: 1587, 1919.

It is not certain that these purely tentative experimental observations can be applied ultimately to the control of human infections. However, the persistence of the investigators, who have labored literally for years without signs of immediately successful results, needs appreciation and deserves high commendation. Such work is less conspicuous than brilliant feats of surgery or successful campaigns in public sanitation; it is none the less worthy of due recognition because it surely paves the way to permanent advances.

#### SYPHILITIC AORTITIS

Though a disease may spring suddenly into prominence, it is not always certain that there is an actual increase in its prevalence. In recent years the importance of syphilis of the aorta in the production of a variety of clinical pictures has been emphasized with increasing frequency. Probably this is due to the great advances that have been made in the methods of detecting syphilis, particularly the discovery of the causal organism and the perfecting and wide use of the complement fixation test.

Physicians generally have not realized the frequency and importance of syphilitic aortitis. Recognition of the disease at the earliest possible moment is essential because of the necessity for prompt and energetic treatment. Recent figures cited by Schrupf<sup>1</sup> indicate the frequency with which syphilitic aortitis occurs. Of more than 4,000 syphilitic males included in the report, about 10 per cent. presented definite evidence of syphilis of the internal organs, and half of this group of patients showed evidence of syphilis of the circulatory system. Over 5 per cent. of syphilitic males may therefore be expected to show definite changes in the circulatory organs. Three fourths of these will be cases of syphilis of the aorta, either with or without aneurysm.

Three common pictures are likely to be produced by syphilitic aortitis. These are aneurysm (particularly of the thoracic aorta), aortic regurgitation, and angina pectoris. Schrupf analyzes 140 cases of aortic regurgitation and shows that practically three fourths of them are of syphilitic origin, the other one fourth being due to rheumatic endocarditis or to ordinary arteriosclerosis.

It is questionable whether we have yet developed satisfactory criteria for the early recognition of these cases. Schrupf states that the average period elapsing between infection with syphilis and the development of aortic lesions is ten years. It is hardly likely that during these ten years the process in the aorta is entirely latent. The natural history of the disease would lead us to expect that there are periods of latency alternating with periods of activity. The chief early symptom is retrosternal pain, which is often most marked under the upper sternum, is not usually

dependent on exertion, and does not usually radiate to the neck or arms like the pain of true angina pectoris. This pain is accompanied by very few physical signs. There are no cardiac murmurs, but the first aortic sound may be dull and distant, and there may be so-called pulsatory plethora, namely, a marked pulsation of the peripheral vessels. During the active stages the Wassermann test is always strongly positive. The use of the roentgen ray may be valuable, particularly if local dilatations of parts of the aorta can thus be shown.

One may perhaps question whether such an outspoken symptom as substernal pain is associated with the early stages of a chronic process like syphilitic aortitis. It seems likely that by the time definite pain is produced the lesions are quite extensive, and it is questionable whether a really early diagnosis can be reached if symptoms are waited for. It seems highly probable that in the aorta, just as in the central nervous system, definite lesions may be present without any symptoms whatever, and it would seem that some method of diagnosing syphilitic aortitis during the presymptomatic period must be devised. Whether the use of the roentgen ray will furnish the solution is problematic, but at present no more promising method is in sight. Perhaps the most essential procedure is the return of syphilitic patients at stated intervals for thoracic roentgenography. Even in the absence of positive roentgenographic findings a syphilitic patient with a positive Wassermann reaction and no obvious evidence of the disease externally may be assumed to have a lesion in the aorta, especially if lumbar puncture shows that the nervous system is free from evidence of disease.

#### THE PITUITARY IN DIABETES INSIPIDUS

Extracts of the posterior lobe, or pars nervosa, of the pituitary structure provoke an unmistakable change in the secretion of urine when they are introduced directly into the circulation. This renal effect has been compared to the secretion-promoting effect exerted by extracts of the duodenum on the pancreatic cells. Because of such experimental observation the pituitary has been assumed to exercise a regulatory influence on the functions of the kidney. Such reasoning, often applied in connection with the ductless glands, has grave limitations and is rarely conclusive. As a recent writer has remarked, it is by no means logical to assume or infer that the functional importance of an organ is demonstrated by the properties of an extract of it. If one applies such an argument to the galactogogue substance in the pituitary of a fish, the absurdity is obvious.

Other evidence for the functional interrelation of kidney and pituitary has been sought in the domain of pathology. In the chronic polyuria most frequently referred to as diabetes insipidus, involvement of the

<sup>1</sup> S. Schrupf: *Arch. f. Dermat. u. Syph.* **126**, Part 3, 1919

pituitary, particularly of its junction with the brain, has been demonstrated repeatedly at necropsy; in fact, there are no records in which the pituitary was examined and found to be perfectly normal. Experimental pathology, by damaging the structures in the neighborhood of the posterior lobe of the pituitary, has frequently produced abnormalities in the flow of urine. Polyurias lasting from one to six months have followed the artificial lesions; yet such results have been exceptional and attained only by chance, apparently.

Kennaway and Mottram<sup>1</sup> of the Middlesex Hospital in London have added clinical evidence to the problem of pituitary function in connection with the kidney. The antidiuretic effect of pituitary extract given by subcutaneous injection was demonstrated both in a normal subject and in a case of diabetes insipidus. Administration of such preparations by mouth is ineffectual. It has been suggested that the antidiuretic effect is due to diminished absorption from the bowel so that less water is available for secretion through the kidneys. If we may trust the evidence of Korschegg and Schuster,<sup>2</sup> however, the effect is rather attributable to direct action on the kidneys. Kennaway and Mottram maintain that the immediate restoration of a normal state of the urine when pituitary extract is administered in diabetes insipidus provides the strongest evidence for the normal activity of the gland in regulating the secretion of urine. We must confess, however, that in view of the contradictions in the literature of the subject, and the indirect nature of both clinical and experimental evidence, it would be far-fetched to maintain without reserve that disorder of the pituitary is in all cases the cause of chronic polyuria. Injection of pituitary extracts now appears to be the most effectual mode of treatment. However, every day obvious examples of the limitations of such a procedure are encountered.

#### THE SURPRISING CALORIC VALUE OF DAINTIES EATEN BETWEEN MEALS

Now that the war is over, many of the restrictions imposed by governmental mandate, the exigencies of commerce, or a patriotic conscience need no longer apply to the behavior of our population. "Sugar and candy and everything nice" may once again be included in the diet of American homes. We may at length return to the consumption of those dietary luxuries that have attained great popularity in the United States. Candy is no longer tabooed, nor is purchase restricted by a food administration. Strangely enough, the enforcement of prohibition has apparently increased the use of candy, as it has augmented the consumption of

the sugar-containing temperance beverages. The caloric potency of alcohol is likely to be replaced by the fuel value of "sweets" eaten here and there between meals.

It is commonly believed that these "extra foods" consumed apart from our regular meals on the most varied occasions, frequently several times a day, play a relatively insignificant rôle in the total value of our food fuel. Not long ago, however, Benedict<sup>1</sup> called attention to the true value which ice cream, soda water and various comparable popular American extra foods really represent in terms of calories, the standard units of food energy. Some of the commonly served portions eaten in haphazard fashion on the spur of the moment may be equivalent to as much as 500 calories, while 100-calory portions are anything but unusual. In a more recent contribution,<sup>2</sup> the same investigators have brought further actual evidence of the unexpected food value of many of the items innocently consumed without thought of possible nourishment therein by thousands every day. Prior to the recent inflation of prices, from 50 to 60 calories were frequently obtainable in so-called penny candies; in some of the cheap nut candies the yield even exceeded 100 calories for the small coin that delights the child.

The eating of "extra food" is by no means confined to children. The adult man and woman who depend on the meal-time food fuel of from 2,000 to 3,000 calories a day indulge in candy as a pastime or eat an after-theater lunch for the sake of sociability—not because they feel the need of more food nor because they appreciate the magnitude of the diet intake. It will come as a surprise to most persons to learn on reliable authority that a single caramel, a nougatine or a penny's worth of candy may furnish sufficient energy to supply the extra heat needed for walking a mile or more. Equally startling will be the news that the ingestion of three seemingly insignificant, medium-sized olives can yield the amount of heat liberated in a half-mile walk. We are informed<sup>2</sup> that for a man of average weight to walk from the bottom to the top of Washington Monument would require an extra heat production of 80 calories. The energy expended in this not inconsiderable effort may be completely replaced by the consumption of less than half a doughnut, six walnuts, five large olives or four pretzels. Perhaps we shall learn from such facts how futile a "constitutional" walk is in any attempt to combat the accumulating energy from undue eating between meals. Or possibly, on the other hand, the doughnut will gain a reputation as a standby in times of muscular stress and thus retain in peace the unique favor that it won through the efforts of the Salvation Army in the days of military stress.

1. Kennaway, E. L., and Mottram, J. C.: Observations upon Two Cases of Diabetes Insipidus, with an Account of the Literature Relative to an Association Between the Pituitary Gland and This Disease. *Brit. J. Med.* 12: 221 (April) 1919.

2. Korschegg and Schuster: *Deutsch. med. Wochenschr.* 44: 1091, 1918.

1. Benedict, Cornelia G., and Benedict, F. G.: *Boston M. & S. J.* 179: 153, 1918. Candy and Calories, editorial, *J. A. M. A.* 72: 1297 (May 3) 1919.

2. Benedict, Cornelia G., and Benedict, F. G.: The Energy Content of Extra Foods, *Boston M. & S. J.* 181: 415 (Oct. 2) 1919.

## Current Comment

### THE COMPLEXITY AND COST OF MODERN DIAGNOSIS

It has frequently been stated that scientific medical diagnosis and treatment are a privilege accorded only to the very poor and the very rich. The recent establishment of diagnostic clinics and diagnostic institutes indicates that the principle of group practice is being recognized to a greater extent than has heretofore been the case. The general hospitals have for many years been diagnostic institutes for group practice, a fact which is sometimes not remembered by those who proclaim that group practice represents a new principle. The diagnostic institute of the present day is, however, not a hospital but an ambulatory clinic, the idea being that many patients who do not care to go to hospitals and who do not need to do so can have their ailments studied at such an institution. A perusal of the charges for service made by some of these institutions indicates that while they have doubtless solved the problem of medical cooperation they have not completely solved the financial problems of the patient. The fee for a general examination is a modest one well within the reach of the average citizen who falls into neither the pauper class nor the group of the wealthy. More complicated examinations, such as are necessary in patients with obscure diseases, cost a sum which in many instances would be quite beyond the means of the average wage-earner. The question of obtaining efficient medical diagnosis and treatment for cases of obscure disease among those who can pay only a modest fee is one of the live questions of the day. It is doubtful whether it can be met by diagnostic clinics unless they are heavily subsidized organizations along the lines of the existing dispensaries, but differing from them in the fact that a small fee is charged. Attempts have been made to meet the situation in this way, but as yet there has been no widespread effort to care for the man of moderate means. As individuals of this group furnish the great bulk of patients, some machinery must be devised which will enable them to receive inexpensive but adequate care when they develop obscure diseases.

### THE POPULATION OF THE WORLD AND THE RATE OF ITS INCREASE

Every so often, sociologists and statisticians begin to "view with alarm" the rapid increase in the world's population and to predict world catastrophe as an inevitable result. Recently the statistician for the Commonwealth of Australia, G. H. Knibbs, in a monograph on population,<sup>1</sup> stated some significant facts and estimates in regard to the present and the future population of the earth. Knibbs puts the population of the earth for the year 1914 at 1,649,000,000, or about thirty-nine million in excess of the estimate of Jaraschek, the French statistician, for 1910. The annual rate of increase in the world's population for the five-year period 1906 to 1911 Knibbs estimates at 0.01159, or

1.159 per cent. of the population. Should such a rate of increase be continued, it must result in a severe strain on the resources of Nature. Knibbs asks whether medical men in future will take a stand in favor of so colossal a population that the masses will scarcely be provided with the bare necessities of life, or will they favor birth control and a limitation of births in such a manner that the population of the earth shall never be greater than can be adequately provided for on a high plane of physical, mental and moral existence?

### VACANCIES IN ARMY AND NAVY MEDICAL CORPS

As stated elsewhere, there are 710 vacancies in the regular medical corps of the army and 429 vacancies in the regular medical corps of the navy for young physicians who wish to undertake this work. Under the present law, reserve officers on active duty may be continued on such duty with their consent until July 1, 1920. The departments are also permitted to assign officers for temporary service until that time. For this reason the large vacancy list does not indicate any distress on the part of the service or immediate need of men to fill these positions. However, with the passing of the emergency covered by the law, both services will require young men to fill these positions. The reason for these resignations is of course understood. It is not dissatisfaction with the service but the fact that the increasing cost of living makes the present pay absolutely inadequate. Fortunately, there are now in Congress bills for increased pay to officers of the military service which will permit the corps to offer more attractive opportunities to interested young men, and it is likely that as soon as these bills pass—which they undoubtedly will—numerous young men will wish to avail themselves of the opportunities offered by these permanent positions. Those interested should communicate at once with the Surgeon-General of the Army or Navy, with a view to having on hand complete information so as to carry through the application, examination and appointment with the least possible delay.

### CHANGING POTABILITY OF GROUND WATER SUPPLIES

A recent review by two experienced army officers, who have been specially engaged with problems of the quality of water supplies in the army camps, cantonments and posts in the United States, contains some interesting suggestions for future practice and procedure. The authors, Hyde and Haskins,<sup>1</sup> lay emphasis on the importance of making frequent examinations of ground water supplies. Considerable variability in bacterial quality has been observed in various places, and it is plain that unless a ground water supply can show consistently good quality throughout a considerable period of time, it should be regarded with suspicion and treated accordingly. They also conclude that except under extraordinary circumstances involy

1. Knibbs, G. H.: *Census of the Commonwealth of Australia, Appendix A, The Mathematical Theory of Population, of Its Character and Fluctuations, and of the Factors Which Influence Them*, Melbourne, Commonwealth Bureau of Census and Statistics, 1917.

1. Hyde, C. G., and Haskins, C. A.: *Notes on the Water Supplies of Army Camps, Cantonments, and Posts in the United States*, *J. Am. Water Works Assn.* 6:4: 60, 1919.

ing successful design and construction as well as vigilant and intelligent operation, the effluents of rapid sand filter plants, treating significantly polluted waters, cannot be considered to be uniformly safe and should receive further systematic treatment, as by adequate chlorination. It is noteworthy that the authors consider that all water supplies, from whatever source, should be regarded as potentially unsafe, and that they apparently believe chemical disinfection (chlorination) should be resorted to in many instances. A significant warning for civilian conditions is contained in the paragraph: "An extraordinary inefficiency and lack of intelligence is too frequently to be noted with respect to the operation of rapid sand filter plants, especially those of municipalities, and of these, naturally, the smaller communities in which the authorities do not recognize the value of expert services and the relative economy of the highest skill."

#### THE INFLUENZA PHOBIA

The influenza phobia has evidently not been limited entirely to this country; the following is from a recent issue of the *Medical Press and Circular*, London:

Mostly during the past two months the public have been deluged by would-be prophets predicting that the coming winter will herald another visitation of influenza. It is needless to say that these prognostications have been limited to the lay journals. The prophetic attempt would suggest that the idea is to angle for an honor of a "I told you so" type. Or it may be that the subject fills a gap when "copy" is short. The repeated reiteration of nursery rhyme precautions against chills, exposure to cold and changes in the weather must now be boring the public, should they happen not to be alarmed thereby. The inexpediency of all these warnings and suggestions of woes is that no one knows whether another influenza epidemic will or will not become an accomplished fact. Why, then, should prophets anticipate an evil which, as far as our knowledge goes, may not materialize? Why should the public be kept on tenter-hooks by continually reminding them of something which may never happen? We learnt last week from the *Times* that there had been under treatment some cases of influenza-pneumonia, and naively the remark was added that "So far, happily, there were not many in number." And so the ball is kept rolling to the injury of the public—of those, that is, who fail to recognize that the surest way to precipitate an evil is to become obsessed in the anticipation of it.

There is elemental truth in the last sentence. From the physician's point of view, the influenza phobia hangs to the danger that he may call any respiratory complaint seen in the course of his work "influenza." Many health authorities, reviewing the history of previous epidemics, would say that the three to four years following such epidemics were marked by recurrences of a milder character, yet there do not seem to be any reliable statistics to show that there had actually been such recurrences in epidemic form; there appears to have been more pneumonia in the years immediately following the epidemic. And that is all. To be forewarned is to be forearmed, and to be prepared is to be safe; but to be hysterical and to look for trouble is to invite catastrophe.

**Industrial Nursing.**—The trained nurse probably first entered industry in 1895, when the Vermont Marble Company engaged a nurse to visit the homes and care for the sick workers and their families.—Florence S. Wright.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Personal.**—Dr. William R. Molony, Los Angeles, has been appointed a member of the State Board of Medical Examiners.

**New Home for Nurses.**—A new home for nurses at the Agnew Sanatorium, consisting of two large residences near the hospital annex with a bridge connection, was ready for occupancy, November 1.

**Restoration of License Refused.**—Dr. George H. Richardson of Los Angeles is reported to have been unsuccessful in securing the restoration of his license which was revoked several months ago for unprofessional conduct.

**Hospital for Women Abandoned.**—The Mission Valley Hospital for Women, San Diego, was abandoned following a recommendation to the city council of the state health officer. Under the new plans the city health board will have all cases of venereal disease treated at the general clinic.

**Rehearing Denied.**—It is reported that the California State Board of Medical Examiners denied Dr. Gideon M. Freeman of Los Angeles the privilege of a rehearing. Freeman's license was revoked following his conviction in Los Angeles on a charge of using the mails to defraud, when he was fined \$1,500.

**Stanford Clinic to Study Mental Diseases.**—A clinic for the study of retardation and degeneration among children will be opened for advanced students of psychology at Stanford University in cooperation with the Good Cheer Club at San Jose, under the direction of Dr. G. C. Bassett. Subjects for study will be found in the Juvenile Court of San Jose.

**Physicians' Licenses Revoked.**—According to newspaper reports, the California State Board of Medical Examiners recently revoked the license of John Lafayette Berry, known as "Bloodless" Berry of Los Angeles and Modesto, for using a name other than his own.—The license of Dr. R. May Mmacker, San Francisco, it is reported, was also revoked on the charge of performing a criminal operation which resulted in the death of the patient.

### FLORIDA

**Personal.**—Dr. Samuel D. W. Light, acting quarantine inspector for Key West, was severely injured, October 25, by falling through a hatchway on the U. S. S. *Sialia*. Dr. Joseph Y. Porter, Sr., Key West, has taken over the duties of quarantine inspector until Dr. Light recovers.

**Examination of Schoolchildren.**—The state board of health, November 1, completed the examination of 9,600 schoolchildren in Escambia County. It was developed by the examination that trachoma and hookworm are considerably more prevalent among white than among negro children.

**Ambulatory Venereal Disease Clinic.**—The Florida State Board of Health has established an ambulatory clinic for the treatment of venereal disease, which went into operation the first week in November, under the charge of Dr. Daniel C. Campbell, Marianna, who will accompany it to all of the rural districts and labor centers in the state. In addition to giving treatment, Dr. Campbell will conduct an educational campaign against venereal disease.

### ILLINOIS

**Schools Closed by Diphtheria.**—The Granite City public schools were ordered closed indefinitely, October 27, as the result of the discovery of twenty-one cases of diphtheria and scarlet fever among the pupils.

**Personal.**—Dr. Carl E. Black, Jacksonville, has returned from Greece, and has resumed his work with the Professional Committee for medicine, connected with the Department of Registration and Education, succeeding Dr. Jonathan L. Wiggins, East St. Louis.

**Illegal Practitioners Fined.**—It has been reported that the Illinois Department of Registration and Education arrested P. J. Krackowski of 2339 West Twenty-First Street, Chi-

ago, and W. A. McLeod, a mechanotherapist of Joliet, for practicing medicine without a license. They were both fined \$25 and costs, and Krackowski was placed on parole for one year.—Dr. Berry S. Henderson, Quincy, whose license was revoked a few months ago by the Illinois Department of Registration and Education for unprofessional conduct, was found to be practicing medicine in Decatur. On being arrested for practicing medicine without a license he plead guilty and was fined \$75. State's Attorney Deck of Macon County was very active in the prosecution. Henderson agreed that if Mr. Deck did not recommend the maximum fine, he would never again practice medicine in Illinois unless he secured another bona fide license.—Andrew Henry, a chiropractor at Peoria, was also arrested by the Illinois Department of Registration and Education for practicing without a license and was fined \$25 and costs. Henry told the court he was going to leave Illinois.—A. Scott of Peoria, who styles himself "Dr." A. Scott, paid a fine of \$100 and costs for practicing medicine without a license. Scott asserted that since he is an Indian, he did not need a license to practice in Illinois. This is the second time Scott has paid a fine within the last year. He has now taken down his sign and says he will quit business.—Albert G. Dellenbaugh of 855 Oakwood Boulevard, Chicago, plead guilty to an information filed against him in the Municipal Court in Chicago by the Department of Registration and Education of Illinois and was fined \$25 and costs for violating the medical practice act. The records of the department at Springfield show that, in 1918, Dellenbaugh was arrested for writing a number of prescriptions as a physician which were filed at a drug store. The records also show that Dellenbaugh was arrested in San Antonio, Texas, in 1913, for violating the Texas Medical Practice Act and that he was fined \$50 and costs and was confined one day in jail. Furthermore, they show that Dellenbaugh was arrested for forgery in Boston, in 1909, for signing the name of a Dr. Gill to a death certificate.

#### CHICAGO

**Midwife Held for Abortion.**—Mrs. M. P. Urbanas, a midwife, is said to have been arrested recently and put in jail charged with performing an illegal operation.

**Professor McCollum to Address Institute of Medicine.**—At the meeting of the Institute of Medicine of Chicago, Nov. 25, 1919, at 8 o'clock, in the City Club, Prof. E. V. McCollum, Baltimore, will speak on "The Fundamental Principles Underlying Modern Nutrition Investigations." All interested are invited.

**Personal.**—Dr. Clarence W. Leigh was reappointed city physician by the mayor, November 10.—Dr. William Ardlur Clark, formerly a member of the staff of St. Luke's Hospital, has been discharged from the army and has left Chicago to work in the department of orthopedic surgery at the Mayo Clinic, Rochester, Minn.

**Physicians Named in Drug Trial.**—Drs. A. F. Zwih, Joseph E. King, Frank A. Butler, Harlon H. Gordan, Charles W. Wren and Wesley E. Burnett are said to have been arrested, charged with prescribing habit-forming drugs to drug addicts. One of these defendants is said to have issued 3,000 prescriptions for morphin and its derivatives.

**Wesley Hospital Adopts Insignia for Staff.**—The Wesley Memorial Hospital has adopted a key to be worn by members of the resident staff who have completed a satisfactory term of service. Former Wesley interns who completed one year of service with honorable record may secure keys on application to the superintendent or to Dr. D. W. Propst.

**Traveling Clinic.**—The Chicago Tuberculosis Institution has already one traveling clinic and hopes, through the sale of Red Cross Christmas Seals, to secure sufficient funds to purchase a second automobile. The car is a completely equipped clinic which travels a regular route through the county towns. It is to be accompanied by a physician and a nurse.

#### INDIANA

**Osteopath Sues Hospital.**—Kent S. Seaman, an osteopath of Fort Wayne, has filed suit for \$50,000 against the staff of St. Joseph's Hospital, Fort Wayne, alleging that his business has been greatly damaged because osteopaths and chiropractors have been barred from St. Joseph's and other local hospitals.

**Hospital Items.**—A maternity hospital, with a department for the feeding and care of infants, will be established at the Florence Crittenton Home, Indianapolis. There is no home of this sort nearer than Chicago or Detroit and the need is urgent. The hospital will have 150 beds and the

work of caring for babies will be in the hands of the trained nurses and nurses' aides. Most of the \$100,000 necessary has been pledged and a drive will soon be started for the remainder.

**Personal.**—Dr. Venice D. Keiser, Indianapolis, has been appointed pathologist to the Peoples Hospital, Akron, Ohio.—Dr. Howard W. Burkley, Loganport, assistant medical examiner for the Pennsylvania System at Loganport, has been appointed medical examiner for the system at Alliance, Ohio, and has been succeeded by Dr. Harry M. Shultz.—Dr. Fleetwood H. Sale, Dillsboro, after practicing medicine in the community for more than thirty years, has retired.—Dr. Samuel E. Smith, superintendent of East Haven Hospital, Richmond, has been elected vice president of the board of trustees of the Indiana University.

**The Teaching of Health and Hygiene in Public Schools.**—The state board of education has recommended "That health and hygiene be taught in Indiana public schools, whenever and wherever, in the judgment of the school officers, the advancement of the pupils require it and when conditions generally justify." These subjects are to be taught by a regularly licensed teacher, and no person shall be eligible to take the examination or to be licensed in the state, who is not a high school graduate and a registered nurse in the state of Indiana. The license when issued will entitle the holder to supervise and teach hygiene and health in both elementary and high schools in the state.

#### KENTUCKY

**Personal.**—Dr. Frederic G. Larue, superintendent of the Western State Hospital, Hopkinsville, is reported to be seriously ill with kidney disease in the Riverside Hospital, Paducah.

**New State Officers.**—The annual meeting of the Kentucky State Medical Association, convened in Ashland, September 22, under the presidency of Dr. James S. Lock, Barbourville, and Dr. John G. South, Frankfort, was installed as president. The following officers were elected: president-elect, Dr. William W. Anderson, Newport; vice presidents, Drs. Porter C. Layne, Ashland, Irvin Lindenberger, Louisville, and Daniel J. Travis, Eddyville.

**Old Member Honored.**—At the meeting of the Franklin County Medical Society, held in Frankfort, November 4, Dr. Urbane V. Williams, Frankfort, who recently celebrated his eighty-sixth birthday anniversary, was the guest of honor. Dr. Williams entertained the society with reminiscences and paid a tribute to his boyhood friend, the late Dr. William Bailey, Louisville.

#### MARYLAND

**Conference of Mental Hygiene Society of Maryland.**—The annual conference of the Mental Hygiene Society of Maryland was held, November 19 and 20, in Osler Hall, Baltimore. The general subject under discussion was "Modern Psychology Applied in the Classroom." Dr. Agnes Rogers, head of the department of education, Goucher College, spoke on the evening of the 19th on "The Message of Educational Psychology to Parents and Teachers"; the address was followed by a general discussion opened by Dr. Adolf Meyer, Baltimore, head of the department of psychiatry, Johns Hopkins Hospital. On the second day, Dr. William Kilpatrick, professor of education, Teachers' College, Columbia University, delivered an address on "Learning Through Purposeful Activity."

**New Hospital for Montgomery County.**—The new Montgomery County General Hospital, located near Olney, is nearing completion and will be formally opened on Thanksgiving Day. It will be ready to receive patients by December 15. The building, equipment and grounds, comprising about 12 acres, will cost about \$50,000, and nothing has been spared to make the institution one of the most complete and up-to-date hospitals to be found in the country. There will be accommodations for thirty-five patients. A nurses' home with accommodations for seven persons adjoins the hospital. The enterprise is the outgrowth and development of a small establishment known as the Wrenwood Hospital, between Ashton and Brighton, which was started Jan. 1, 1916, in a private dwelling.

#### MASSACHUSETTS

**Conservation of Vision.**—At the recent session of the state legislature, \$10,000 a year was appropriated for the use at the Massachusetts Commission for the Blind for the purpose of procuring adequate equipment for classes on conservation of vision, already in existence, and establishing new

classes for children on the waiting list. The commission plans to open classes in Revere, Somerville, Waltham, Water-town, Chelsea and Newton. Miss Marjorie Campbell has been engaged to take up industrial art work in Massachusetts in the near future.

**Boylston Medical Prize.**—The Boylston Medical Committee appointed by the president and fellows of Harvard College and consisting of Dr. William F. Whitney, chairman, Dr. Harold C. Ernst, Harvard Medical School, Boston, secretary, and Drs. William F. Porter, Edward H. Nichols, Reid Hunt, Henry A. Christian, and John Warren, announces that at the annual meeting, held in Boston, in 1919, a prize of \$300 was awarded for an essay entitled "Studies of the Streptococcus of Smith," by Dr. Wilson G. Shullie, Cambridge, Mass. For 1919 there is offered a prize of \$300 together with the Boylston Prize Medal for the best dissertation on the results of original research in medicine, the subject to be chosen by the writer. The medal will be added to the money prize only in case the winning essay shows special originality in the investigations detailed. Essays entered for this prize must be in the hands of the secretary on or before December 31. Each paper must be printed or typewritten, bound in book form, and must bear, in place of the author's name, some sentence or device, and must be accompanied by a sealed packet, bearing the same sentence or device and containing within the author's name and residence. Preference will be given to theses which exhibit original work, but if no dissertation is considered worthy of the prize, the award may be withheld.

### NEW YORK

**Otisville Hospital Closes.**—United States General Hospital No. 8, Otisville, ceased functioning as a hospital, November 15.

**Personal.**—Dr. John A. Herring, a member of the staff of the Metropolitan Life Insurance Sanatorium, Mt. McGregor, for two years, has accepted a position on the medical staff of the students' health board of Cornell University, Ithaca.

—Dr. Gedney Jenks, Hastings-Upon-Hudson, has just opened a hospital.

### New York City

**New York University Admits Women to Medical School.** For the first time in its history the New York University Medical College has enrolled twenty women on its roster of students. These women will have equal privileges with the men, attending the same classes, and working in the same laboratories and clinics.

**Personal.**—Dr. Otto V. Huffman, Brooklyn, has been appointed a member of the consulting staff of the North Westchester Hospital, Mt. Kisco. —Mr. James Arnold Taylor has been appointed chief pathologist for Long Island Hospital. —Dr. Frederick Tinley, Brooklyn, has been consulting neurologist to the Mountsinai Hospital, Manhattan.

**Hospital Consolidation as Educational Aid.** The New York Association for Medical Education has evolved plans for consolidating the interests of hospitals, including those controlled by the city with a view to making their facilities available in accordance with the purpose of the organization to extend the opportunities for medical education in New York City. The present plan includes a proposal to raise \$2,000,000 to \$15,000,000.

**Large Fund for Mount Sinai Hospital.**—The Guggenheim Center, Dr. L. Morris, F. C. Simon and Solomon, have received \$25,000 more to Mount Sinai Hospital. This makes a total of \$300,000 which they have contributed to a new fund which is to be a memorial to the parents of the center. The plan for the new building, which will cover the entire block on Fifth Avenue between Ninety-Ninth and One Hundred Streets, has been drawn, and work will be begun early next spring. Work on the old new structure will represent an outlay of \$1,000,000. It will provide accommodations for 100 patients in private rooms.

**Health Department to Demonstrate Schick Test.**—The Health Bureau of the New York Department of Health announces that the Bureau of preventable diseases will conduct a demonstration of the technic of the Schick test, and its interpretation, for the benefit of all private physicians who may desire to become acquainted with the application of this test. Medical officers attached to each of the clinics of the Bureau have been specially instructed in the method of performing the test and interpreting the reaction, and are

prepared to give the benefit of their knowledge to any physician who will visit the clinics between 2 and 4 p. m.

### PENNSYLVANIA

**Personal.**—Dr. Raleigh R. Huggins, Pittsburgh, has been appointed professor of gynecology in the School of Medicine of the University of Pittsburgh, succeeding Dr. Xavier O. Werder, resigned.—Dr. Walter W. Seibert, Easton, has been appointed a trustee of the Rittersville State Hospital.

**Tri-Borough Dispensary for Tuberculosis.**—A tuberculosis dispensary under the supervision of the state health department will be established in the Citizen's General Hospital, North Kensington, as soon as that institution is ready to receive patients. It is expected that forty or fifty patients will be sent to the dispensary immediately after the opening, and that cases will be transferred from the Allegheny Valley General Hospital, Tarentum, where a dispensary is already in operation. Applications for admission to the state sanatoriums will be made through the dispensary.

### Philadelphia

**Red Cross Base Hospital.**—A base hospital costing approximately \$50,000 will be established in this city by the South-eastern Pennsylvania Chapter of the American Red Cross. The hospital will be paid for by memberships obtained in the annual Red Cross Roll Call, which ended on Armistice Day, November 11. The new building will be complete in every detail, and will be so conducted as to be available for use in the event of a great catastrophe or any other emergency. According to Howard Wayne Smith, executive secretary of the Southeastern Chapter, the proposed institution already has been accepted by the city.

**Personal.**—Dr. Samuel T. Orton has been appointed superintendent of the new psychologic hospital connected with the State University of Iowa, Iowa City, which has recently been erected at a cost of \$175,000.—Dr. Alonzo E. Taylor, Rush Professor of physiological chemistry in the University of Pennsylvania, will deliver the annual Gross lecture of the Pathological Society of Philadelphia, November 20, instead of November 13, in Thompson Hall, College of Physicians Building.—Dr. Allen Jackson, chief resident physician at the Philadelphia Hospital for the Insane, was elected superintendent of the Danville State Hospital for the Insane. He will enter on his duties, January 15, and will succeed Dr. Hugh B. Meredith who has been superintendent of the hospital for twenty-eight years.

### RHODE ISLAND

**Endorse Hospital Project.**—Following a general discussion of the subject "Should the Pawtucket Valley Have a Hospital," Kent County Medical Society at a regular meeting, formally endorsed and adopted a resolution approving the project.

**Welcome to Service Men.**—The medical profession of this state united in tendering a complimentary dinner on Armistice Day to the members of the profession who were in the medical service of the army and navy during the great war. About 250 persons were present and it was said to be the largest meeting of medical men ever held in this state. Of the 108 men in the service, 109 were present. There were also three of the four surviving physicians who served in the civil war. The dinner was enlivened by the singing of songs and at its close the men were given an enthusiastic welcome by a few medical and lay speakers. After this there was a varied entertainment including songs, a moving picture show and a boxing match. —Dr. John M. Peters, Providence, president of the Rhode Island Medical Society, presided.—Kent County Medical Society held a banquet and reception at the Hotel Uppike, October 22, in honor of Fenwick G. Taggart, Major, M. C., U. S. Army, East Greenwich, who recently returned from overseas.

### TEXAS

**New Society Organized.**—The Ranger Medical Society was organized at Ranger, November 4. Dr. Cabel O. Terrell, Ranger, was elected president; Dr. Austin K. Weir, Staff, vice president; Dr. Carl S. Wilson, Ranger, secretary, and Dr. Brutus C. Kutherford, Ranger, treasurer.

**Prevention of Blindness.**—Under the auspices of the state board of health, the field secretary of the National Committee for the Prevention of Blindness gave a series of illustrated lectures in the schools and colleges and before general audiences in thirty of the leading cities of the state, during October.

WISCONSIN

**Another Case of Leprosy Discovered.**—The second case of leprosy to be reported in Wisconsin was reported by Dr. Cornelius A. Harper, Madison, state health commissioner, October 16, who inquired about hospital care in Milwaukee for the second victim, Andrew Anderson, a farmer living with his wife near Cambridge. This case is said to be of the contagious type.

**Personal.**—Dr. Corwin A. Freeman, South Milwaukee, was operated on for the removal of gallstones, at Trinity Hospital, Milwaukee, and is reported to be doing well.—Dr. Alfred W. Wilmarth, Chippewa Falls, superintendent of the State Home for Feeble-minded for twenty-two years, has resigned.—Dr. John E. English, Baraboo, is reported to be critically ill.—Dr. Harry Cohn, Wauwatosa, who resigned as associate medical director of the Mairdale Sanitarium to become director of the new Milwaukee County Dispensary, was given a farewell party and presented with a loving cup by Mairdale patients and employees, October 1.

CANADA

**Degrees Conferred.**—At a recent convocation celebrating the founding of Dalhousie University, Halifax, N. S., two medical men of that city were presented for the degree of Doctor of Laws: Drs. John Stewart and Murdoch Chisholm.

**Smallpox Outbreak.**—Toronto is experiencing a considerable outbreak of smallpox. There are at present more than 300 cases reported and about 1,000 contacts quarantined. The disease is of a mild form. There are several other centers in the province of Ontario, notably Woodstock and Stratford. Unvaccinated and those with unsatisfactory vaccination scars are being rapidly vaccinated.—The province of Quebec is also experiencing some alarm over smallpox, there being about 300 cases in that province.

**Code of Ethics for Ontario.**—Following on the suggestions of Dr. Edmund E. King, Toronto, president of the Academy, a code of ethics is being framed for the profession in Toronto. Copies of the pamphlets of Ethics of the American Medical Association were handed around, and certain suggestions for alteration to meet local conditions were suggested and are likely to be adopted.—The Workmen's Compensation Act, the New Ontario Medical Act, and the Ontario Temperance Act will likely be discussed at future meetings.

**Hospital News.**—St. Luke's Hospital, Ottawa, will share in an exceedingly generous bequest from a late citizen of Ottawa. The amount will reach about \$500,000; and the Lady Grey Hospital, Ottawa, receives a legacy, from the same estate, of \$2,000.—The orthopedic and surgical appliances branch of the department of Soldiers' Civil Re-Establishment have depots scattered throughout Canada where disabled men can receive immediate treatment and attention. Canada sent representatives to the recent conference in New York City to discuss the best means and methods of overcoming the handicap of war as represented in maimed and wounded soldiers.

**Health Conference.**—There was held recently in Hull, Que., the Public Health Service Convention. It was largely attended by medical men from the province of Quebec and some from adjoining vicinities in Ontario. Dr. John V. Amyot, Toronto, deputy minister of public health for Canada, was present, and spoke of the functions of the new federal department of health. Dr. J. G. Urgel Archambault, Hull, Que., was elected president, and Dr. Joseph G. de Varennes, Quebec, secretary. There are 1,200 municipalities in the province of Quebec that should have a board of health, and the medical officer of health of each board should be required to attend every annual convention of the health services.

GENERAL

**Tri-State Physicians Meet.**—At the annual meeting of the Northern Tri-State Medical Association, held in Kalamazoo, Mich., November 5, Dr. Charles C. Terry, South Bend, Ind., was elected president; Dr. Louis A. Miller, Toledo, Ohio, vice president; Dr. George W. Spohn, Elkhart, Ind., secretary, and Dr. Joseph A. Weitz, Montpelier, Ohio, treasurer.

**Request for Trephined Stammerer.**—An investigator on stammering desires, if possible, to secure a stammerer whose skull has been trephined in order that direct observation may be made as to whether cerebral congestion accompanies stammering. If such a subject comes to the attention of a physician, THE JOURNAL will be glad to communicate the name and address of the inquirer.

**Ohio Valley Physicians Meet.**—At the twentieth annual meeting of the Ohio Valley Medical Association, held in Evansville, November 11 and 12, Evansville was selected as the place of meeting for next year, and the following officers were elected: president, Dr. Virgil H. Moon, Indianapolis; vice presidents, Drs. Charles T. Souther, Cincinnati, Louis Wine Bremerman, Chicago, and Sidney J. Eichel, Evansville, Ind., and secretary-treasurer, Dr. Benjamin L. W. Floyd, Evansville, who has held that position since the organization of the society.

**Legislation to Promote Physical Training of Women.**—The physical development of women is the chief aim of a bill introduced by Senator George W. Chamberlain of Oregon. The measure authorizes the War Department to grant the use of land and camp equipment to the United States Training Corps for Women and details officers at certain camps for their instruction in military training. The camp sites and equipment would be loaned by the government free of charge, under such terms as would protect the best interests of the government. It is understood that the measure has the approval of the United States Public Health Service.

**Prevention of Blindness.**—The annual meeting of the National Committee for the Prevention of Blindness, Inc., will be held November 25 at 4:30 p. m., in the south hall of the Russell Sage Building, 130 East Twenty-Second Street, New York City. Hon. William Fellows Morgan will preside and the annual address will be given by Dr. Thomas D. Wood, New York City, chairman of the Joint Committee on Health Problems in Education of the National Council of the National Education Association and of the American Medical Association. Mrs. Winifred Hathaway, secretary of the National Committee for the Prevention of Blindness, will present the subject of "Conservation of Vision Classes in Public and Private Schools," giving lantern slide demonstrations.

**Legislation for Rural Health Work.**—A bill providing for the cooperation of the federal government with the state governments in the promotion of "rural health work" has been introduced in the House of Representatives by Congressman Mann of South Carolina. The measure would provide "methods and means for the prevention, control, and mitigation of the diseases of the people of rural districts of the United States, including towns in such districts having a population of not more than 5,000, as shown by the latest available census." The work would be carried on by the division of public hygiene, which would be established in the United States Public Health Service, and which would cooperate with the department of agriculture. Appropriations on a sliding scale for the work are provided for until June 30, 1921, after which the sum of \$1,000,000 a year would be made available, annually. Other similar measures are pending, the chief differences being that the other measures place the work under the department of labor. The measure is H. R. 19510 and has been referred to the house committee on agriculture.

**Vocational Rehabilitation.**—In the Smith-Parkhead bill which has just passed both houses of Congress, vocational rehabilitation, similar to that now in operation for disabled soldiers and sailors, is provided for "persons disabled in industry or otherwise." The bill provides \$1,000,000 yearly to enlarge the original Smith-Lodge act which created the federal board for vocational education and its recent extension to cover war cripples, so as to assist the maimed victims of industrial accidents also to the opportunity for vocational retraining into skilled occupations suitable to their physical powers, and restoration to useful employment. It is stated that there are at present more than 10,000 permanently incapacitated workers in the United States and that the army of casualties is being increased at a rate of 11,500 every year. Under the bill the individual states must provide at least \$1 on behalf of their own crippled workers for every dollar expended by the federal government. Several states have already taken favorable action in anticipation of the congressional cooperation now assured in the bill.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

- St. Luke's and Sacred Heart Hospital, St. Louis, Wash., each \$10,000, by the will of W. Parker Sargent.
- St. Mark's Hospital, New York City, \$5,000, by the will of Henry D. G. Lutz, of Madison, Ind., and Home for Aged and Infirm Hebrews, \$5,000, by the will of Isaac J. Wolf.
- New York Hospital and College of Physicians, \$5,000; General Hospital, \$5,000; New York City Hospital, \$5,000, by the will of Mrs. Margaret J. Zimmerman.

Chicago and Brazilian Missions of the Presbyterian Church, each \$2,000; Hospital for Orphanages of Maryland, \$5,000, by the will of Robert T. Wilson, Baltimore.

Medical Society of the District of Columbia, the remainder of the estate after a bequest of \$800 has been paid, to be used for the construction of the new building of the society, "it being understood, that a proper memorial to be is placed in same," by the will of Henry Morris Hubbard, Washington, D. C.

St. Luke's Hospital, Philadelphia, a donation of \$40,000 from Charles M. Schwab, to be used to pay the newly built Liberty ward. A gift of \$5,000 to the memorial fund in memory of James Z. Haydon, one of the charter members of the board of trustees.

Dr. William G. Doran, New York City, a bequest of \$25,000, by the will of Mrs. Margaret A. Howard.

#### Sale of Surplus Dental Outfits by the War Department.

The House of Representatives, Wednesday, November 5, adopted Joint Resolution 222, directing the Secretary of War to dispose of surplus dental outfits in the hands of the Medical Department of the Army, providing that not more than one outfit shall be sold at private sale to any one person and that they shall be sold preferentially to honorably discharged dental officers. The discussion showed that at the beginning of the war with Germany, there were eighty-six commissioned dental officers in the Dental Corps. At the time of the signing of the armistice, one year ago, there were 5,000 commissioned dental officers, 3,000 on duty in the United States and 2,000 abroad. Four thousand dental officers have been discharged from the service in the last year. The government now owns about 6,000 dental outfits, only 1,400 of which are required or in active use at present, the remaining 5,000 outfits being in storage. An army of 550,000 men, such as is proposed by pending bills, would require 700 dental officers and would not need more than 1,000 dental outfits. There is a scarcity of dental instruments and supplies and many of the discharged dental officers are unable to secure satisfactory outfits for civil practice. During the discussion, Dr. C. R. Layton, congressman at large from Delaware, said, ". . . I shall introduce another resolution relating to the disposition of vast quantities of medical and surgical supplies, including all sorts of surgical instruments and appliances now held by the government far beyond its needs. There are millions upon millions of cotton gauze bandages, for instance, held in storage by the government which now retail for from 15 to 30 cents, the prewar price of which was 5 cents. They should be disposed of for the benefit of the whole people. I find that the chairman of the committee on military affairs has a bill dealing with supplies, and when that bill comes before the House I wish to oppose it. In addition to dental outfits, there is a vast amount of supplies of all kinds that are required in hospital and civilian practice that are needed in this country for the benefit of our people. I am opposed to a bill which, I understand, will be presented whereby all this vast material will be handed over to the Red Cross solely for use in foreign countries. . . . The medical profession in the United States today needs these supplies here in America. . . . To take those supplies out of the country instead of giving them to hospitals and other institutions and then to those engaged in private practice in my judgment is neglecting our first duty." In reply to a question from Mr. Kitchin, as to why medical and surgical supplies were not included in the resolution, Mr. Kahn of California, the chairman of the committee on military affairs, said, "I understand that there has been no request made by the dentists for the sale of surgical supplies. The War Department has sent to the committee on military affairs a bill providing that surplus medical supplies be turned over to the Red Cross." Mr. MacGregor of New York asked for an amendment referring \$10,000,000 worth of medical supplies to the Red Cross given to the Red Cross by the War Department. Mr. Kahn replied that this concerned supplies in storage and that they had been turned over to the Red Cross by the War Department since the armistice. Mr. Kitchin offered an amendment to the resolution to include the sale of dental instruments to physicians, but the amendment was ruled out of order and the resolution was adopted.

#### FOREIGN

**Mme. Curie Returns to Warsaw.**—Some of our European exchange state that Mme. Curie has returned to her natal city, Warsaw, to assume the chair of radiology in the university there.

**Chair of Radiology.**—Prof. M. Bonzo, secretary of the Italian Radiologic Society, has been appealing through the columns of the *Informa Medica* to the authorities to found chairs of radiology in the universities.

**Deaths in the Profession Abroad.**—Dr. O. J. Engström, professor of gynecology at the University of Helsingfors, aged 66.—Dr. C. H. Hildebrand, professor of children's diseases at the University of Lund, aged 68.—Dr. R. Wurtz, agrégé professor at the University of Paris.

**Italian Colonial Institute for Hygiene and Biology.**—An institute with this name has just been organized at Naples by the initiative of Profs. I. Bandi and Franceschini, in connection with the Oriental Institute. There is a fine museum, and five traveling scholarships have been founded in cooperation with the Pasteur Institutes in Tunis and Algeria.

**Interallied Conference on the War Disabled.**—The third conference of this kind has just been held at Rome. The preceding ones were at Paris and London; the permanent seat of the commission is at Paris. Prof. Riccardo Galeazzi was in charge of the arrangements, and an instructive exposition of prostheses, of training methods and of men at work formed an annex to the conference. This exhibition is to be kept open for two months. The next conference is to be held at Brussels, and the *Polichinco* states that Professor Galeazzi was elected president of the permanent committee, which aims to study ways and means for "uncripping the war cripples," and to disseminate promptly any improvements realized anywhere.

**Italian Surgical Congress.**—The Twenty-Sixth Congress of the Società Italiana di Chirurgia convened in October at Trieste, with Professor Nicolich of Trieste in the chair, as Senator and Professor Durante, the president, was unable to be present on account of sickness. One of the vice presidents, Professor Grossich, of tincture of iodine fame, was also unable to attend, as he is president of the Consiglio nazionale di Fiume, and was detained at home. The society has held no meetings during the war, and this reunion was notable for many reasons, historical as well as scientific. The subjects appointed for discussion were war wounds of the peripheral nervous system, to be introduced by Professor Verga, and motor plastic amputations and prostheses, to be introduced by Professors Galeazzi and Putti.

**Italian Congress of Internists.**—The Twenty-Fifth Italian Congress of Internal Medicine followed the surgical congress at Trieste in the first week of October, with Senator and Professor Maragliano in the chair, and a large gathering of the leading internists of the country. In both these meetings the authorities, local and national, paid exalted tribute to the indefatigable devotion of the surgeons and internists during the years of warfare. The work of the Italian Red Cross was extolled in particular, and also the work of the women physicians during the war. A steamer in the bay was fitted up to offer hospitality to the visiting physicians. This use of a steamer for the congress members was also a feature of the recent meeting at Bilbao, Spain, of the Spanish Association for the Advancement of Science.

**Serologic Institutes in the Netherlands.**—The state has taken over Professor Spronek's bacteriotherapeutic institute at Utrecht in order to insure the continuance of this institution which has done such good service for twenty-five years. It will henceforth be known as the National Serologic Institute, and will continue its work in the preparation of vaccines and antisera and the teaching of serology. Professor Spronek has been appointed director, and he has petitioned to be relieved from his courses on general pathology and pathologic anatomy in order to devote all his energies to teaching serology. Another professor is to be appointed to the chair of pathology. The Utrecht institute is in charge of the labor department of the government, while the similar institute at Rotterdam belongs to the department of agriculture and commerce, and is designed for veterinary purposes only.

**New Fellows of the Royal College of Surgeons.**—The following have accepted the honorary fellowship of the Royal College of Surgeons of Edinburgh, awarded in connection with the termination of the war, 1914-1919:

British Empire.—Sir William Norman, K.C.B., R.N., late Director-General, Naval Medical Department, Sir Robert Hill, K.C.M.G., C.B., C.A.O., Director-General, Naval Medical Department, Lieut. Gen. Sir T. H. John Gouldwin, K.C.B., C.M.G., D.S.O., K.H.S., Director-General, Army Medical Department; The Hon. Major-Gen. William Rice Edwards, C.B., C.M.G., K.H.P., M.D., Director-General, Indian Medical Service; Major-Gen. G. L. Foster, C.B., Director-General, Medical Services, Overseas Military Forces of Canada; Major-Gen. Sir N. R. Howse, V.C., K.C.B., Director, Australian Army Medical Service; Col. W. H. Parkes, C.M.G., C.B.E., Director, New Zealand Medical Corps; Col. P. G. Cook, C.B., Director, South African Medical Corps.

Allyed.—Rear-Admiral William C. Braisted, U. S. N., Administrative Head of the Medical Service of the United States Navy; Surg.-Gen. Merritt W. Ireland, United States Army Medical Corps. Medicine

Inspector-General Sieur, Member of the French Academy of Medicine and Professor of the Val-de-Grace Military Hospital, Lieut.-Gen. Leopold Melis, K.C.B., Inspector-General du Service de Santé de l'Armée Belge, attache à la Maison du Roi, Maggiore Generale Commentatore Lorenzo Buonomo, Attache to the Ispettorato di Sanità Militare, Rome, Surgeon-Director-General Professor Tadao Honda, Director-General Naval Medical Service (Japan).

**Pediatricists' Congress of the Northland.**—The First Nordiske Congress for Pediatricics was held at Copenhagen in August, with Prof. C. E. Bloch of Copenhagen in the chair. In his opening address he said that the desire to hold an independent meeting of pediatricists was not because they wished to pull apart from internal medicine, but pediatricics now is more than a mere subsection of internal medicine, the study of the growing organism under normal and pathologic conditions is such a vast field in itself. The first subject on the order of the day, the etiology and classification of acute digestive disturbances in artificially fed children, elicited a lively discussion with opposing views, some advocating the French classification and others the Finkelstein. The importance of infection as the factor versus the food elicited much discussion, as also the treatment of acute digestive disturbances, and of infantile tetany. A number of experiences were related showing the effects of war deprivations on children and how they were combated. The Nordisk Pediatric Association was then formally founded, with three representatives on the board from each of the Scandinavian countries, Pipping, Lovgren and Sourander representing Finland; Johannesen, Loof and Collet, Norway; Junell, Wernstedt and Lichtenstein, Sweden, and Bloch, Monrad, A. Meyer and C. Friederichsen, Denmark. The next congress is to be held at Stockholm in 1921. The meeting was attended by 25 pediatricists from Sweden, 16 from Norway 7 from Finland and 34 from Denmark.

#### LATIN AMERICA

**Dr. Vaz Appointed to Chair.**—Dr. Juvenal da Rocha Vaz has been appointed professor (*substituto*) of clinical medicine at the University of Rio de Janeiro.

**Physician Appointed Head of the National Education Board in Cuba.**—Dr. Gonzalo Aróstegui has been appointed by the president of the republic of Cuba secretario de instrucción pública y bellas artes, succeeding Dr. Dominguez Roldán.

**Organization of Puebla Academy of Medicine.**—On the initiative of Dr. A. Cabrera, who is governor of the state of Puebla, Mexico, thirty-three physicians of Puebla recently organized the Academia de Medicina de Puebla. They at once appointed a committee for collaborating in the research on typhus which has been inaugurated by the medical organizations of the City of Mexico. The officers elected include Dr. M. Vergara, president; Dr. F. Bello, vice president, and Drs. G. Vergara and P. Soto, secretaries.

**Yellow Fever on War Ship.**—Two cases of yellow fever on board the U. S. S. *Chicago*, both resulting in recovery, have been reported to the bureau of medicine and surgery of the navy department. The cases occurred during an outbreak of yellow fever at Amapala, Honduras, and the medical officer reports that in one of these cases the first treatment of anti-leptospira iteroid serum of Noguchi ever given to man was administered. The serum apparently had a very happy effect on the patient and seemed to turn a bad prognosis into a convalescence in his case.

**New Quarantine Station in Central America.**—The sanitary authorities of Honduras and El Salvador with a view of preventing the introduction of plague, cholera, yellow fever, etc., have recommended to the respective governments the establishment of an international quarantine station on one of the islands of the Gulf of Fonseca, to be administered jointly by both governments, with the government of Nicaragua joining if it so desires. Major-General William C. Gorgas has just completed a trip of inspection through El Salvador in connection with the recent occurrence of yellow fever in Nicaragua. He was accompanied in his trip by Dr. T. C. Lyster of the Rockefeller Foundation and Dr. W. Pareja of El Ecuador.

#### CORRECTION

**Ragweed Dermatitis.**—In the article of Dr. Richard L. Sutton, in THE JOURNAL, November 8, under Figure 2, the legend reads: "Giant ragweed replaces the common ragweed in most parts of the Eastern and Southern States." This should read in "moist parts."

## Government Services

### Personnel of the Medical Department

For the week ending November 14, there were in the Medical Corps 2318 officers on duty out of a total of 30,571 the maximum number on duty Nov. 15, 1918; the Medical Reserve Corps contained 3,879 officers, an increase of fifty-two from the previous week.

#### Personal

Frederick F. Russell, Col., M. C., U. S. Army, has been designated as official representative of the Medical Department of the Army in the government division of the National Research Council.

### Applicants Desired for Regular Army and Navy Medical Corps

With the discharge of numerous reserve officers from the military medical service, it is desired to again call attention to vacancies existing in both branches, Army and Navy. The Medical Department of the Army on November 15 contained 841 regular medical officers, and there were 710 vacancies. Since Nov. 11, 1918, 137 resignations have been tendered. The Medical Department of the Navy has at present 420 vacancies; 175 resignations from officers of permanent commission in this corps have been received since Nov. 11, 1918, and of those resigning 120 have already been discharged. The Navy is anxious to receive applications from younger medical men who desire to enter the medical service directly. For a number of years it has been the policy to recruit medical officers for the regular Navy Medical Corps from officers enrolled in the reserve force; but for a limited period it has been decided to offer opportunity to recent graduates to obtain a permanent commission directly from civil life. Graduates from reputable colleges between the ages of 21 and 32 years are eligible and, if interested, should address the Chief of the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

### Army Educational Service

Reports to the Surgeon-General on the activities of the educational services at fifteen Army general hospitals, and one base hospital for the month of September show that of 2,300 patients who received surgeon's certificates of disability, 2,209 were able to resume their old occupation, or were not in need of retraining, and only 130 were designated as unfit for their old occupation. November 7, there were 18,406 in sixteen Army hospitals in the United States.

### Bill to Reimburse Soldiers for Loss in Exchange

A measure of interest to all physicians and nurses who served with the American Expeditionary Forces who sustained losses by exchanging American money for the moneys of foreign countries has been introduced in the Senate by Senator William M. Calder of New York. The bill authorizes the War Department to pay to any officer, enlisted man, female nurse or civilian of the American Expeditionary Forces the sum equal to the amount of loss suffered by them, by reason of a fluctuation in the rate of exchange on any negotiable instrument received from an Army officer for pay, allowances or reimbursement. The measure is Senate Bill 3420 and has been referred to the Senate Committee on Military Affairs.

### Decorations for Foreign Officers

The Distinguished Service Medal has been awarded to Surg. Vice Admiral Sir Robert Hill, medical director general of the Royal Navy, and to Surg. Corp. E. Sutton, in charge of the Royal Navy Hospital, Haulbowline.

### Last Trip of Hospital Train

U. S. Army Hospital Train No. 4, operated by the Medical Department of the Army, left New York, November 4, on its last trip to Denver. The patients on the train were tuberculosis cases, invalids from the Zone, and have been

at Seaboard military hospitals, Otisville, N. Y. During the war more than 125,000 patients have been cared for by U. S. Army hospital trains, which have been under the charge of James S. Wilson, Col., M. C., U. S. Army, post surgeon at Holoken, N. J.

#### Decorations Awarded

The Distinguished Service Medal has been awarded to Charles N. Fiske, Capt., M. C., U. S. Navy, and to John J. Snyder, Com., M. C., U. S. Navy.

Dr. Franklin H. Martin, Chicago, formerly colonel, M. C., U. S. Army, had conferred on him the Order of Commander of Sts. Michael and George by the Prince of Wales, in Washington, D. C., November 14.

#### Citation for Bravery

Capt. Sydney S. Schochet, M. C., U. S. Army, Chicago, has received the following citation with award of the military cross from the British government: "For conspicuous gallantry and devotion to duty during operations east of Ypres, Belgium, September 28 to October 1. This officer during the action in which his unit was engaged displayed the utmost gallantry and devotion to duty. He continually went out into the heavy shell fire to attend and assist in removing the wounded, and repeatedly took risks which he would not allow his assistants to share in his anxiety to assure their proper care and removal. It was owing to his untiring energy and complete disregard for his own personal safety that under every adverse circumstance the wounded of his own and several other units were safely evacuated. This example which he gave of unbroken cheerfulness and courage throughout the whole of these operations was a valuable stimulus to all who came under his authority."

#### Citation for Colonel Seaman

The citation on page 12, G. O. 89, War Department, 1919, relating to Col. Gilbert E. Seaman, M. C., U. S. Army, Milwaukee, has been rescinded, and the following substituted:

Colonel Gilbert F. Seaman, M. C., U. S. Army, after serving with conspicuous success as division surgeon, 32nd Division, became chief surgeon 6th Army Corps and in this capacity was an important factor in the establishment of effective means for treating numerous sick and wounded.

#### Citation Changed

The citation in Par. 9, of G. O. 89, W. D., 1919, relating to Col. James A. McCoy, is rescinded and the following substituted therefor:

J. A. McCoy, Lieut.-Col., Medical Corps, U. S. Army. For exceptional merit in and distinguished services. He served with conspicuous success as commanding officer of American Red Cross Hospital No. 11, at Jussy-Morin, and Chateau Thierry, from June 1, 1918, to 1919. Although he was hampered with insufficient personnel and equipment, he nevertheless succeeded in caring for a large number of wounded men from the Marne thereby rendering invaluable service to the American Expeditionary Forces. Home address 299 Broadway, Paterson, N. J.

#### Woman Physician Decorated

In recognition of her work in the smallpox epidemic in Rumania, Dr. Margaret E. W. Farwell, Los Angeles, has been decorated with the Order of the Crown, 1st class, grade.

#### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CHICAGO—M. G.	MILWAUKEE—M. J. SIPP	
DETROIT—H. G.	INDIANA—J. H.	
CHICAGO—C. A.	OHIO—M. R. F.	
DETROIT—C. F.	NORTH CAROLINA	
BOSTON—E. D. G.	ALABAMA—H. W.	
INDIANA—M. J. SIPP	FLORIDA—E. W.	
INDIANA—M. J. SIPP	VERMONT	
INDIANA—M. J. SIPP	BRATTLEBORO—T. G. E.	
INDIANA—M. J. SIPP	VIRGINIA	
INDIANA—M. J. SIPP	CHICAGO—Kenny, G. B.	

## Foreign Correspondence

LONDON

Oct. 30, 1919.

### German Babies and Reparation

A memorial signed by leading public men, including Cardinal Bourne, the Archbishops of Canterbury and York, Sir William Osler and Sir Alfred Pearce Gould, has been presented to the reparation commission in Paris asking for consideration of the consequences of enforcing the provision in the peace treaty that Germany shall cede 140,000 milch cows and 10,000 goats. The memorial states that there is reliable evidence of terrible suffering among German children due to deficiency in the milk supply. The increase of tuberculosis has been immense, and in combating it, milk is a prime necessity. Any further reduction in the present deficient milk supply would have appalling consequences. Discussing this memorial, the *Times* says that throughout the war nothing has been so harrowing as the sufferings of the innocent, especially women and children. To end that suffering would fill the hearts of the Allied peoples with satisfaction. But German children are not the only children threatened with death and disease from shortage of milk. The children of the countries which the Germans looted and deliberately destroyed are suffering in the same way. Dr. Calmette has recently reported to the Académie de médecine that in Lille 8,000 out of 18,000 schoolchildren had to be sent to hospitals or convalescent colonies. On the ground of humanity, all babies have an equal claim; but justice must also be considered. The victims are equally innocent; but the sufferings of the French children are the direct consequence of the deliberately inhuman methods adopted by the Germans in an unjust war, while those of the German children are due to the misdeeds of their fathers. Justice requires that they shall make restitution.

### Influenza

During the last few weeks there has been in the ninety-six great towns of England and Wales a slight but gradual increase in the number of deaths attributed to influenza and a coincident rise in the number of notifications of acute primary and acute influenzal pneumonia. The increase appears to have been associated with prevailing meteorological conditions, and does not apparently signify more than the usual variation in catarrhal and lung diseases generally which may be expected at this season of the year. While the possibility of a fresh outbreak of influenza cannot be excluded, the data available do not at present afford any indication of an immediate recrudescence of the disease in epidemic form.

### The Red Cross in Peace

The work done by the British Red Cross in the great war is too well known to need commendation. It is now proposed to carry forward to the era of peace the benefits of that great organization. Its program is to promote the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world whether in peace or war. Its work will be: (1) the care of the sick and wounded men of the army and navy whether still on the active list or demobilized; (2) such care as may still be necessary for prisoners of war; (3) the care of those suffering from tuberculosis, having regard in the first place to soldiers and sailors, whether they have contracted the disease on active service or not; (4) child welfare; (5) work parties to provide the necessary garments, etc., for hospitals and health institutions in need of them; (6) assistance in all branches of nursing, health and welfare work, auxiliary to the ministry of health; (7) Red Cross war and peace hospital library, and (8) home service ambulance work.

### Preventive Medicine

One of the first acts of the newly established ministry of health was to call for a memorandum on preventive medicine from the chief medical officer, Sir George Newman. He begins a very able review of the subject with the statement that "the first duty of medicine is not to cure disease, but to prevent it," and goes on to define the objects of preventive medicine as: (1) to develop and fortify the physique of the individual and thus to increase the capacity and powers of resistance of the individual and the community; (2) to prevent or remove the cause and conditions of disease or of its propagation, and (3) to postpone the event of death and thus prolong the span of man's life. A great deal has already been accomplished; but though the death rate of England and Wales has fallen from 20.6 per thousand living in 1868 to 13.5 in 1917, and the infant mortality rates from 155 to 96 per thousand births, we still

lose in England every year upward of 235,000 lives by the deaths of persons under the age of 50, and upward of 64,000 infants and have many stillbirths. Moreover, the influenza epidemic cost 6,000,000 deaths in India and 100,000 in England and Wales.

At present we have an immense body of knowledge and experience old and new, "but there is lack of correlation of the knowledge, and there is lack of understanding of the precise problems to be solved, and of the ways and means by which they may be faced." In the first place, the new knowledge is insufficiently shared by the whole medical profession; in the second, the administration of the public health service, both central and local, is insufficiently coordinated and unified; and lastly, "There is all over the country inadequate treatment of the sick and incapacitated, in quantity and quality. The beginnings of disease are still almost entirely ignored. The treatment provided for the majority of the sick is insufficient and inadequate; it does not represent the best of present medical knowledge. Whole groups of disease are neglected, so far as prevention is concerned, for prevention has been too exclusively concerned with certain infectious diseases, and much disease is allowed to 'go by default,' untended and untreated. The provision of facilities for residential hospital treatment of the patients requiring it (with the exception of the insane and the infectious) falls far short of what is necessary." Evidence of inadequacy is as follows: In 1918 there were probably 1,000,000 cases of measles in the country; tuberculosis claimed 92,000 fresh victims, and 6,500 newly born infants developed ophthalmia. Of the children at school in England a large number are backward, upward of 10 per cent are unclean, and 10 per cent are undernourished. Not less than half the school-children stand in need of dental treatment, and half a million at least are urgently in need of it. Upward of half a million are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Another quarter of a million suffer from ear and throat diseases. At the examination for national service it was found that the number of recruits placed in the lowest categories of ill health or unfitness amounted approximately to not less than 1,000,000.

The present position is thus summarized: 1. There is a steadily falling birth rate, which in 1917 reached a figure (17.18) gravely affecting the source of the nation. 2. There is a death rate (13.5) which shows a steady decline at all ages (1841-1845 compared with 1911-1915), and there is an increased expectation of life from birth upward; nevertheless, nearly half the deaths occur under 50 years of age. 3. Although the infant mortality rate (96 per thousand) is one of the lowest recorded, there is still unnecessary loss of life in infancy and before birth. 4. There is a relatively light burden of epidemic and infectious disease, which, with certain exceptions, is steadily decreasing in incidence and mortality, an indication of the victory of preventive medicine over some infectious diseases. 5. Tuberculosis, measles, acute rheumatism and influenza are, however, still prevalent and, with venereal disease, lead to much disablement and mortality. 6. There has been in recent years remarkable and continuous improvement in sanitary environment, though the problem of insufficient and unsuitable house accommodation remains.

With regard to the lines of reform, medical education is dealt with. The basal sciences of medicine must be studied more deeply, and clinical training must be more thorough. Especially must the mind of the student be directed to the beginnings of disease, its earliest signs and symptoms, notably those symptoms which are subjective, "for no laboratory experiment or mechanical device can serve as a substitute for this knowledge to which they are ancillary and auxiliary." The practice of preventive medicine in all forms of clinical work must be insisted on, since prevention is concerned not only with the mass, but also with the individual. With regard to the physician, early specialism is condemned. The need for closer integration between preventive and curative medicine is emphasized. In all cases the cause of disease, not in the abstract alone, but in the particular patient, must be sought. Disease must also be considered in its ancestry, for example, tuberculosis following measles. An adequate medical service is necessary, and a systematic and coordinated attack on the problem of disease. A large number of separate departments must work together, and many aspects of the problem must be viewed at once. For example, there are the problems of heredity and of eugenics; there are alcohol, syphilis and tuberculosis. There is the care of motherhood; there is the welfare work for infants; there is the medical care of the schoolchild. Sanitation is related to all the above, and so is the vast problem

of industrial hygiene. Infectious diseases have to be fought, and noninfectious diseases must be prevented. Finally, research work must be carried on, and the people must be educated in hygiene.

The keystone of the new edifice must be the general practitioner. He is the foundation of any medical service, its "pivot, its anchor, its instrument." Means must be found to help him in carrying on his professional education, for the advance of medicine is continuous. He must also be given opportunities for carrying on his practice in an adequate manner. He must have laboratory facilities and consultant advice and assistance. Indeed, he must be helped to help himself.

## PARIS

Oct. 23, 1919.

### Meeting of Surgeons

The twenty-eighth Congrès français de chirurgie was held recently under the chairmanship of Dr. Wallther, surgeon of the Hôpitaux de Paris and agrégé professor at the Faculty of Medicine. In his opening address, the president reviewed the progress in surgery during the war. He also paid homage to the colleagues who had fallen on the field of honor.

Three subjects were discussed: internal traumatic lesions of the wrist; the treatment of cancer of the tongue by the surgical method, and paraneoplastic tumors.

#### INTERNAL TRAUMATIC LESIONS OF THE WRIST

Internal traumatic lesions of the wrist constitute a comparatively new chapter in pathology. As recently as twenty years ago this subject was unknown, and it is only owing to roentgenographic researches that it has been opened up. Dr. Jeanne, acting professor in the Ecole de médecine of Rouen, and Dr. A. Mouchet, surgeon of the Hôpitaux de Paris, emphasized particularly the part that roentgenography plays as an indispensable aid to clinical examination. In the unequivocal cases, roentgenography confirms and often completes the clinical examination. In the doubtful cases it reveals the lesion. This is especially true in the case of fractures of the semilunar bone, the os magnum, the ulnariform bone, etc., in which the signs are so vague. The roentgenographic examination is more to be relied on than the fluoroscopic, for fluoroscopy is entirely inadequate for the exploration of wrist lesions. At least two roentgenograms are always necessary: an anterior view and a lateral view. The two roentgenograms supplement each other. The examination of the plate is preferable to that of the print. The glass plate is, in fact, a more faithful reproduction than the print. The print, even though it has not been doctored, does not give as clear a picture as the plate, for the print varies with the time of exposure. An illuminating box is very useful in examining the plate. However, one must bear in mind that the interpretation of a roentgenogram of the wrist is not an easy matter and requires a long preliminary training. In very delicate cases it is advisable to roentgenograph also the sound wrist, for a comparison with the injured wrist will be very instructive. A comparison of this kind would be especially useful should there exist in a given subject marked variations from normal in the size and shape of the wrist bones.

Certain fractures of the carpal bones—compression fractures of the semilunar, and fractures of the os magnum and of the ulnariform bone—are often listed under such headings as "chronic rheumatoid arthritis," "tuberculous arthritis of the carpus," or "chronic synovitis of the wrist," since these bones present anatomic alterations that are rather distinct for an eye that is not trained to detect them. Furthermore, it is well to know that the e fractures are much more frequent than is commonly supposed. Another reason why they often remain long undiscovered is that they are frequently the result of very slight traumas that cause a little disturbance of function, at least at the start. They are often regarded as sprains, so the patient resumes his work, and when later he is compelled to stop work and consult his physician, no account is taken of the former trauma, even if he remembers it, and the physician is liable to overlook the fracture of the carpus if he is not thoroughly familiar with the interpretation of roentgenograms of this region.

As regards treatment, Jeanne and Mouchet hold that the subacute luxation of the semilunar bone should be reduced promptly to avoid stiffness of the wrist and the nervous symptoms that are the inevitable consequence of leaving it to heal spontaneously. If a month has passed since the injury, the reduction should no longer be attempted. In such cases should proceed with the resection of the scaphoid, and in

case there exists a concomitant fracture of the scaphoid, the superior fragment of the scaphoid that is attached to the semilunar should be removed. An isolated fracture of the scaphoid justifies surgical intervention if vicious consolidation exists or if the lesion is painful; removal of the bone is indicated. This treatment is recommended also for fractures of the other carpal bones under the same circumstances.

In the course of the discussion to which the communication of Jeanne and Mouchet gave rise, Dr. Maurice Péraire, surgeon of the Rothschild Hospital in Paris, called attention to the excellent service that stereoröntgenography may render in the diagnosis and control of internal lesions of the wrist. He himself always had recourse to this method for the reason that it afforded a view of the antero-posterior relief and, by reversing the plates, of the postero-anterior relief.

#### MESSAGE IN FRACTURES

Dr. Petit de la Villeon of Bordeaux made the remark that while he served in the capacity of expert in industrial accidents he was struck with the bad results secured by the method that confines itself exclusively to massage. A large number of workmen treated in this fashion are afterward referred to the expert in industrial accidents. Dr. Petit de la Villeon was often impressed with the marked deformities resulting from the massage treatment which were frequently associated with notable functional weakness. He thinks that the method recommended by Lucas-Championnière has been much overdone. No doubt the fundamental idea of this method is perfectly correct, but it should be emphasized that the method is indicated only in fractures without displacement. On the other hand, if it is exaggerated to the extent that it is made a routine system, this method constitutes, as it were, a dangerous pitfall into which the general practitioner unobsciously glides whenever he is confronted with fractures presenting marked displacement; for such fractures, if treated by massage exclusively, heal with frankly bad results. Fracture of the radius with displacement, such as one encounters in adults, and, more particularly, in workmen who are the victims of industrial accidents, should be reduced at once, the reduction being done, if necessary, with the aid of general anesthesia. After the fracture is reduced, it should be immobilized by means of a light plaster splint that will keep it in the position of moderate palmar flexion and inclined toward the ulna. Only after immobilization for a period of from ten to fifteen days may the splint be properly removed and the treatment by means of massage and mobilization be begun. The results will be all the better for the fact that the reduction was well done in the beginning and the fracture kept immobilized in a suitable position. Dr. P. Barlaquin of Paris also expressed himself to the effect that the method of "immediate mobilization and massage without reduction" had been overdone in fractures of the radius. He recalled all fractures associated with displacement or penetration and immobilized them for from twelve to fifteen days in a plaster splint in the position of the classic flexion of the hand, with a deviation to the ulnar side.

Dr. J. Barard, professor of clinical surgery at the Faculty of Medicine of Lyons, declared himself an advocate of immobilization of all fractures of the radius, even though it should be for only four or five days and by means of a light splint. Contrary to the views of Jeanne and Mouchet, he took the question of irreducibility of the fracture as determined rather by the anatomic type of the fracture than by the age of the lesion. He also thinks that after several attempts at reduction under anesthesia the surgeon should resort to plaster only in order to reduce a fracture, especially in view of the fact that surgical intervention is easy and of good results.

#### Medical Care for Military Pensioners

A decree has just been issued according to the terms of which the State will provide all soldiers and sailors who are pensioners under the civil and military laws, for the duration of their lives, with medical and surgical care (including pharmacy and medical material) necessitated by the wounds and diseases sustained or contracted in line of duty that constitute the cause for their discharge.

#### Personal

At one of its recent meetings, the Academy of Medicine chose three foreign correspondents in the fourth division (surgery, physics and chemistry) as applied to medicine and pharmacy. The correspondents chosen were M. Brusilovs, professor at the University of Louvain and president of the Academy of Medicine of Belgium; M. Paterno of Rome, and Dr. Machado de Lissabon.

## Marriages

ALBERT BOWEN, Capt., M. C., U. S. Army, Rochester, N. Y., to Dr. Amy A. Metcalf of Teichow, Shantung, China, at Lambeth, France, October 27.

HAMPHREY SINKEY LEWIS, Bay St. Louis, Miss., to Mrs. Corinne DeMontluzin Benedict of New Orleans, October 29.

HERBERT HERMAN SCUDENFELD, Washington, D. C., to Miss Martha Wills of Danville, Va., at New York, October 18.

FRED MERTEN ROTHOW, Ashland, Wis., to Miss Lucile Agnes West of Wheeling, W. Va., at Chicago, November 11.

JAMES WRIGHT CLARKSON, Hickory, N. C., to Miss Caroline Robinson Davis of Petersburg, Va., October 28.

LEROY LOREN BELT, Kenton, Ohio, to Miss Frances D. Jordan of Marblehead, Ohio, recently.

## Deaths

Charles Noah Dixon Jones, New York City; Long Island College Hospital, Brooklyn, 1882; College of Physicians and Surgeons in the City of New York, 1883; aged 62; a fellow of the New York Academy of Medicine, and a member of the Medical Society of the State of New York; surgeon to the Woman's Hospital, and gynecologist to the Southern Dispensary and Hospital, New York City; for many years connected with the health department of New York; died at the Lincoln Hospital, New York City, October 30.

Albert VanDevanter Braden, Ishpeming, Mich.; University of Virginia, Charlottesville, 1910; aged 31; a member of the Michigan State Medical Society; who served as captain, M. R. C., U. S. Army, during the war, and was chief medical officer of Evacuation Hospital No. 7, in France, and was honorably discharged, May 3, 1919; died in the Ishpeming Hospital, November 8, from pneumonia.

William Wallace MacFarlane, St. Louis; Washington University, St. Louis, 1866; aged 85; formerly of Auxvasse, Mo.; formerly assistant physician of State Hospital No. 1, Fulton, Mo., and superintendent of the Agnew (Calif.) State Hospital; a Confederate veteran; once surgeon to the Confederate Home, Mo.; died in the Masonic Home, St. Louis, October 30.

Stewart Alfred McComber, Schenectady, N. Y.; Detroit College of Medicine and Surgery, 1903; aged 48; associate director of athletics at Foyer du Soldat, Paris, since July, 1918; formerly physical director and professor of hygiene in Union College, Schenectady; died in the American Hospital at Neuilly, France, November 5, from cerebrospinal meningitis.

Ivan Dwight Hayes, Toronto, Ont.; University of Toronto, Ont., 1911; aged 35; who enlisted in the Royal Army Medical Corps in 1915; was invalided home from France the next year, and later reenlisted for home service, from which he was discharged in 1918, on account of heart disease; died, September 12, from heart disease.

Stephen Jackson Keefe \* Elizabeth, N. J.; University of the City of New York, 1889; aged 52; assistant surgeon of the Third New Jersey Volunteer Infantry during the war with Spain; coroner of Union County from 1895 to 1898; assistant surgeon to St. Michael's Hospital, Newark; died, about October 26.

Lewis L. Williams, Brazil, Ind.; Louisville (Ky.) Medical College, 1878; aged 61; a member of the Indiana State Medical Association; local surgeon of the Terre Haute, Indianapolis and Eastern Traction Company; secretary of the city board of health; was shot and instantly killed, in Brazil, November 3.

Trevanion V. Dupuy, Chicago; Miami Medical College, Cincinnati, 1889; aged 57; formerly safety director of Iron-ton, Ohio; was found dead in Jackson Park, Chicago, October 28, death being due to a gunshot wound of the head, self-inflicted, it is believed, while despondent on account of ill health.

Andrew J. Bennett, Busti, N. Y.; University of Buffalo, 1891; aged 59; a member of the Medical Society of the State of New York; health officer of Chautauqua County;

\* Indicates "Fellow" of the American Medical Association.

for four years supervisor of Busti; died in the Women's Christian Association Hospital, Jamestown, November 1.

**Richard E. Venning** \* Charlestown, W. Va.; University of Pennsylvania, Philadelphia, 1891; aged 51; once president of the West Virginia State Medical Association; founder of the Charlestown Hospital; died at the home of William O. Norris, Charlestown, October 31.

**Otto Ernest Plath** \* Phoenix, Ariz.; Miami Medical College, Cincinnati, 1856; aged 55; also a pharmacist; secretary of the Arizona State Medical Association in 1899, and president in 1907; local surgeon of the Santa Fe System; died, November 8, from acute bronchitis.

**Charles Frederick Sterling**, Warrenton, Va.; Pulte Medical College, Cincinnati, 1877; aged 73; once professor of diseases of the eye and ear, University of Michigan, and a member of the staff of Grace Hospital, Detroit; died, October 28, from cerebral hemorrhage.

**Orfila James Allen**, Arco, Idaho; Gross Medical College, Denver, 1896; aged 55; chief surgeon of several mining companies; once secretary of the Idaho State Medical Association, and state board of medical examiners; died, August 22, from carcinoma of the throat.

**William H. Ussery**, Lebanon, Okla. (registered, Oklahoma, act of 1908; aged 64; a member of the Oklahoma State Medical Association; a practitioner for twenty-four years; died in the Gainsville (Texas) Sanitarium, October 29, from cirrhosis of the liver.

**Samuel Belash Childs**, Brooklyn; University of the City of New York, 1869; aged 76; a member of the Medical Society of the State of New York; for fifty years attending physician to the Faith Home for Incurables; died, November 8, from cerebral hemorrhage.

**Frank Fulmer Castlebury**, Roaring Branch, Pa.; Jefferson Medical College, 1896; aged 57; a member of the Medical Society of the State of Pennsylvania; died at the home of his sister in Williamsport, Pa., October 28, from chronic parenchymatous nephritis.

**Aaron Boylan**, Milford Center, Ohio (license, Ohio, 1896); aged 80; for fifty-six years a practitioner; a veteran of the Civil War; a member of the Ohio State Medical Association; for many years local surgeon for the Pennsylvania System; died, November 4.

**Caleb William Sommerville**, Highland Park, Philadelphia; Medico-Chirurgical College of Philadelphia, 1902; aged 42; lieutenant, M. R. C., U. S. Army, and honorably discharged, March 27, 1918; died, November 4, from pneumonia.

**Farquard A. Mayes**, Hayti, Mo. (license, Missouri, 1876); aged 71; a member of the Missouri State Medical Association; a practitioner since 1872; also a druggist; local surgeon for the Cotton Belt System; died, November 4.

**James Henry Breen** \* Hudson, Mass.; Tufts College Medical School, Boston, 1906; aged 41; for several years town physician; dropped dead, November 3, near the railway station at Hudson, while running to catch a train.

**Abraham S. Brinkerhoff**, Brooklyn; New York Homeopathic Medical College, New York City, 1892; aged 63; a member of the staff of Flower and Bellevue hospitals; died in Miami, Fla., November 8, from heart disease.

**Edward L. Baker** \* Indianola, Iowa; Louisville (Ky.) Medical College, 1873; aged 65; medical director of the Order of United Craftsmen; secretary of the Warren County Medical Society in 1916; died, November 2.

**Robert Little Kennedy**, Royal Oak, Mich.; Detroit College of Medicine and Surgery, 1858; aged 45; formerly medical superintendent of the State Tuberculo-sis Sanitarium, Howell, Mich.; died, October 28, from myocarditis.

**John Abner Penton**, Goodwater, Ala.; College of Physicians and Surgeons, Baltimore, 1900; aged 49; a member of the Medical Association of the State of Alabama; died, October 17, from cirrhosis of the liver.

**James W. Smith**, Richmond, Mo.; Washington University, St. Louis, 1874; aged 71; a member of the Missouri State Medical Association, and president of the Richmond Exchange Bank; died, October 21.

**William Remma Dittmars** \* North Adams, Mich.; University of Michigan, Ann Arbor, 1872; aged 73; once president of the Hillsdale County Medical Association; died, November 2, from arteriosclerosis.

**Lewis Beecher Thomson**, Washington, D. C.; Maryland Medical College, Baltimore, 1905; aged 70; a member of the Medical Society of the District of Columbia; died, October 15, from angina pectoris.

**Frank O. Sherwin**, Duluth, Minn.; Rush Medical College, 1878; aged 65; formerly health commissioner of Duluth; for twenty years physician to the port of Duluth; died, October 24, from myocarditis.

**Whitfield Timlow Seeley**, Warwick, N. Y. (license, New York, 1901); aged 73; a member of the Medical Society of the State of New York; a practitioner for forty-four years; died, October 9.

**John Gygi** \* Big Falls, Wis.; Ohio Medical University, Columbus, 1906; aged 43; died, October 22, from an accidental overdose of chloroform taken for the relief of gallstone colic.

**Samuel Phillips**, Leavenworth, Kan.; University of Maryland, Baltimore, 1853; aged 89; at one time a surgeon in the army; died in St. John's Hospital, Leavenworth, October 31.

**Albert Henry Cox**, Stephens, Mo.; Missouri Medical College, St. Louis, 1882; Bellevue Hospital Medical College, 1883; aged 60; died, October 27, from cerebral hemorrhage.

**Abram Case Williams**, Springfield, Mass.; Yale University, New Haven, Conn., 1895; aged 50; a member of the Massachusetts Medical Society; died, October 25.

**Willis Swanner Anderson** \* Shelby, Ohio; University of Pennsylvania, Philadelphia, 1886; aged 53; health officer of Shelby; died, November 5, from septicemia.

**Gideon D. Spengler**, Allentown, Pa., and Philadelphia; Jefferson Medical College, 1878; aged 73; died in the Jefferson Hospital, Philadelphia, October 24.

**Charles D. Arnold**, El Reno, Okla.; University of Louisville, Ky., 1876; aged 73; a member of the Oklahoma State Medical Association; died, October 25.

**Mary Ann Armstrong**, Berkeley, Calif.; University of Michigan, Ann Arbor, 1879; aged 70; formerly a resident of Santa Cruz, Calif.; died, November 3.

**Oscar L. Nutty**, Turbotville, Pa.; College of Physicians and Surgeons, Baltimore, 1880; aged 58; died, November 11, from chronic interstitial nephritis.

**Clayton W. Carson**, Chicago; Rush Medical College, 1884; aged 59; died in his automobile, near St. Luke's Hospital, November 8, from angina pectoris.

**George W. Farver**, Hammond, Ind.; Indiana Medical College, Indianapolis, 1875; aged 69; died in Montezuma, Ind., October 21, from cholangitis.

**Charles Henry Hall** \* Haron, S. D.; Hahnemann Medical College, Philadelphia, 1879; aged 73; died in a hospital in Minneapolis, October 30.

**Newton C. Fancher**, Kansas City, Kan. (license, Kansas State Board of Eclectics); aged 84; a veteran of the Civil War; died, October 20.

**Edgar Bertrand Doolittle** \* Hazleton, Pa.; University of the City of New York, 1882; aged 59; died, October 27, from bronchopneumonia.

**Edward Lewis Holtenstein**, Kutt-town, Pa.; Jefferson Medical College, 1886; aged 55; died, October 27, from carcinoma of the stomach.

**William John Humphrey**, Cherryville, Pa.; University of Pennsylvania, Philadelphia, 1872; aged 69; died, October 19, from nephritis.

**Alexander Bleecker Leggett**, Babylon, L. I., N. Y. (license, New York); a practitioner since 1858; aged 84; died, November 6.

**Major D. Sterrett**, Beckville, Texas; Atlanta (Ga.) Medical College, 1866; aged 79; a veteran of the Civil War, died, October 24.

**Pettygrew M. Eakes**, Philadelphia, Miss.; Kentucky University, Louisville, 1905; aged 41; died, October 21, from nephritis.

**George O. Taylor**, Chicago; Rush Medical College, 1868; died at Hot Springs, Ark., November 14, from malignant disease.

**Wesley Ivy Wimberly**, Hammon, Okla.; Tulane University, New Orleans, 1913; aged 31; died, October 24, from pneumonia.

**John William Rossper Corlis**, Brooksville, Ky.; Medical College of Ohio, Cincinnati, 1855; aged 89; died, October 27.

**George W. Kern**, Elizabethtown, Pa.; Hahnemann Medical College, Philadelphia, 1878; aged 71; died, October 28.

**John Wesley Reading**, Marion, Ohio; Bellevue Hospital Medical College, 1895; aged 84; died, October 25.

**Edward Thomas Stevens**, Buffalo; University of Buffalo, 1899; aged 60; died, October 14, from pneumonia.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND THE ASSOCIATION OF LAWYERS TOGETHER WITH OTHER MATTER TENDING TO AID INTERESTED PROFESSIONS AND TO OPPOSE TRAUD ON THE PUBLIC AND ON THE PROFESSION.

### THE ELI PRODUCTS OF ELI H. DUNN

Physicians are receiving some miscellaneous advertising matter from a concern that seems to operate under various names such as "F. H. Dunn & Co.," "Eli H. Dunn," "Eli Laboratory," etc. The concern is located at 3820 Main St., Kansas City, Mo. One JOURNAL reader, who is evidently not greatly impressed by this material, forwards the stuff to us with the laconic request: "Will you please give me your opinion on this junk?"

The "junk" referred to comprised, in part, an advertising leaflet on "Eli 000 Capsules," another leaflet on "Eli Vaginal Capsules," and another on "Eli 'Vin' Restorative;" then there was reference to the inevitable nostrum for intravenous use: "Ampules Eli Venhydrarsen." A four-page leaflet, headed in large and very black letters "Confidential Guide to Live Wire Physicians Only," expressed its key-note in the opening paragraph:

"It is to make MONEY as well as REPUTATION in the treatment of all CHRONIC AFFECTIONS and all types, forms and sequella of VENEREAL diseases."

The "Eli 'Vin' Restorative" is said to be a "tonic aphrodisiac." The "action" of the product is to "Arouse Sexual Ardor and Desire. It flux blood supply to the genital organs." A poster to the "Guide" urges physicians:

"If you do not already use Intravenous Serums, by all means get on them, if for no other reason than to meet the popular DEMAND."

A "Special Note" in the "Confidential Guide" advises physicians who "have to deal with Hysteria" to "write the Author of this Guide, who will explain by personal letter a method of cooperation by which such Convulsions may be At Once and forever stopped. . . . There will be \$100 for You from every case treated." One physician wrote to the Author of this Guide—Eli H. Dunn, M.D.—asking for further information on this treatment for hysteria. He received in reply two letters both signed Eli H. Dunn; one was to be shown to the patient, the other was for the doctor's own information. The letter for the patient to see described the curative effects of "Dunn's Intravenous and Restorative Treatment" in hysteria and recommended it "with the utmost confidence in every case able to pay you the fee commensurate with the service you render." Then followed these paragraphs:

The cost of treatment when administered by yourself is \$300 AND WITH ORDERS which includes one complete outfit and serum for a month.

Should you call me personally in consultation an additional fee of \$100 per case covering the time I am away from my Kansas City office will be estimated and held until I arrive."

The letter that was intended only for the doctor's eye (colored):

"You are to pay \$100. (for the ) and \$70 of the per diem."

It explained that the "complete outfit" referred to in the "Special Note" would consist in part of a tube of intravenous "restorative" and boxes of "Restorative Capsules" and "Eli 000 Capsules."

Eli H. Dunn seems to have had a somewhat varied and peculiar career. After being graduated in 1885 he apparently started practice in Orion, Ill. During the '90's he was practicing at Elma, Iowa, and about 1900 he seems to have moved to Kansas City, Mo. During 1906 and 1908 he also had an additional office at Denver, Colo. About this time he was experimenting "Dunn's Uterine Evacuant" which was "a strictly legitimate" product which could be injected within the uterus with perfect safety and immediate effect." This stuff was advertised both from the Kansas City and the Denver offices. The "Personal Column" of a Kansas City

paper in 1910 carried the message to "Ladies" that "Dr. Dunn" was a "Regular physician for women only." Dunn's violation of the postal laws in 1911 and of the federal Food and Drugs Act in 1912 need not be gone into at this time.

THE JOURNAL would feel like apologizing for devoting space to such a preposterous scheme were it not for the fact that physicians, being human, sometimes "fall for" preposterous schemes. Some, we know, have nibbled at Dunn's bait; others may do so. The gross commercialism that permeates the advertising matter sent out by Dunn again emphasizes the fact that the fad for intravenous medication offers an attractive field for those who would exploit our profession.

### OMISSION OF COTARNIN SALTS (STYPTICIN AND STYPTOL) FROM N. N. R.

#### Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Salts of the base cotarnin have been used as local and systemic hemostatics. The hydrochlorid was first introduced as "Stypticin," and is now in the pharmacopoeia as cotarnin hydrochlorid (*Cotarninae Hydrochloridum*, U. S. P.). The phthalic acid salt of cotarnin—cotarnin phthallate—was introduced as "Styptol." Both Stypticin and Styptol were admitted to New and Nonofficial Remedies. In 1918 the Council voted to omit Stypticin because the former American agents were no longer offering it for sale. Styptol was retained and is described in N. N. R., 1919.

As was pointed out in the description (N. N. R., 1918), the evidence for the usefulness of the cotarnin salts has been contradictory and unsatisfactory; but since the available data against the efficiency were at least equally unreliable, the Council deemed it best to retain them in N. N. R. pending a thorough investigation of the subject. This was undertaken by P. J. Hanzlik, at the suggestion of the Therapeutic Research Committee of the Council.

A reliable judgment of hemostatic efficiency can be formed only on a basis of strictly controlled conditions, which can best be furnished in the laboratory. Hanzlik repeated the principal experiments published by previous investigators, and applied a number of new or improved methods. The results (published in the *Journal of Pharmacology and Experimental Therapeutics* 10:523, 1918; 12:71, 1919) show the following:

**Direct Application to Wounds.**—The widely quoted results of the gynecologist K. Abel, on the footpad of cats, were found to be quite unreliable. When the experiment is properly controlled, the results are either negative or the bleeding may be increased. Quantitative experiments on wounds of the footpad of dogs showed that cotarnin invariably increased the bleeding. Equally negative or unfavorable results were obtained with wounds to the comb of roosters, and to the liver and spleen.

**Direct Action on Vessels.**—The results of perfusion experiments were variable, but, in general, showed a vasodilation action instead of constriction. This holds true also of the uterine vessels. The vessels in the living animal (rabbit's ear) were also unaffected.

**Systemic Administration.**—The bleeding from an irrigated wound was not modified directly by intravenous injection of cotarnin salts, but varied merely with the state of the blood pressure.

The evidence for the inefficiency of cotarnin salts as hemostatics seemed so conclusive as to warrant the Council in rescinding the acceptance of Styptol, and directing the omission of the general article on cotarnin salts and the description of Styptol from New and Nonofficial Remedies.

**The Frequency of Multiple Births.**—For a rough approximation, the order of frequency with which twins, triplets, etc., occur is, according to Knibbs, as follows: In a series of confinements 1 per cent. will present twins, 0.01 per cent. triplets, 0.0001 per cent. quadruplets and 0.00002 per cent. quintuplets.

## Correspondence

### A HYPOTHESIS BEARING ON DISEASE THERAPY

*To the Editor:*—I desire to advance a hypothesis as a serviceable conception of disease processes.

Certain organisms or the toxins elaborated by them or poisons otherwise produced initiate specific processes in certain structures. These processes, if unchecked, run a definite course, and tend to produce characteristic symptoms. In many individuals so afflicted there comes a time in which the injured structures are sensitized not only to the specific proteins elaborated by the causal organisms, but also to allied proteins elaborated by other organisms, and perhaps to allied bodies chemically produced. In such instances the structural change already initiated tends to run as it would if the controlled original cause were still acting.

Thus a tabetic, as a result of vigorous antisyphilitic treatment, may become symptomless, and his cerebrospinal fluid may be brought to normal; but if he should suffer from an infection, as acute appendicitis, the patient's chief and practically only complaint may be acute lightning leg pains. Or, on the other hand, vigorous antisyphilitic treatment may afford a tabetic little relief from such pains, while the removal of a focus of infection may lead quickly to their disappearance.

Or a patient with latent tuberculosis may complain of periarthritic pains due to a fibrositis, the result of infected tonsils. The removal of the tonsils may give speedy relief; but if the latent tuberculosis becomes active, the pains are likely to recur, to be again relieved by the abating or removal of the tuberculous focus.

Many similar instances might be enumerated, each one capable perhaps of other interpretation, but pointing in their summation to the hypothesis suggested.

The moral to be drawn is that a patient with a syphilitic or other infection should not only be treated for that particular infection, but also be rendered as free as possible of other foci, though they apparently have no bearing on his immediate symptoms; and in patients who do not get relief by the treatment of the initiating cause, we must consider the probability of secondary sensitization.

CHARLES MINER COOPER, M.D., San Francisco.

### "THE RANGE OF THE GENERAL PRACTITIONER IN PSYCHIATRIC DIAGNOSIS"

*To the Editor:*—I have just been reading the little gem by Dr. O. I. Hess (*THE JOURNAL*, Nov. 15, 1919, p. 1544), and thought that possibly I could inform him regarding the meaning of "somatopsychic." The term is such a common one and has so long been firmly embedded in psychiatric language that I had supposed every medical student would have heard it at least once. Certainly, no man can read a psychiatric textbook published in this country in the last fifteen or twenty years and not find the term.

It was originally proposed by Wernicke, whose contributions did so much to clear up the confusion that existed in certain fields in psychiatry. Wernicke divided delusions into three types: autosychic, autopsychic and somatopsychic. White's "Outline of Psychiatry" or any other standard book will give a good discussion of these terms. In fact, the terms themselves are so simply compounded that I am surprised to find that one who revels in the words "esoteric" and "pedantic" should have any difficulty in arriving at the correct meaning.

As for his discussion of the term "disoriented" versus "confused," I have only this to say, that if the questioner can define "confused" he will do more than any psychiatric writer I know, including Kraepelin; whereas, "disorientation" is a word which can be precisely defined and used by people in all parts of the world with exactly the same meaning.

It is regrettable, of course, that the doctor should have found his "ideation" and "orientation" somewhat befogged

by the use of these terms, but I am sure that we all find occasional words which we do not understand in the writings of specialists in other fields than our own. Of course, the question of terminology is an extremely important one. New words have as their greatest value that they can be precisely defined to convey a certain idea, whereas old words that have been in use for a long time have changed greatly in meaning from time to time, and very frequently no two persons can be found to agree on what is meant by a given term. The trouble is that the average man regards all efforts to improve terminology as pedantic, and dismisses the whole problem with no further effort to understand.

It is, accordingly, a good sign when one is interested enough to attempt to find out what a given word means. Let us hope there will be many more such inquiries.

LAWSON G. LOWREY, M.D., Boston.

Chief Medical Officer, Boston State Hospital,  
Psychopathic Department.

### THE USE OF ACRIFLAVINE

*To the Editor:*—Under the section devoted to N. N. R. (*THE JOURNAL*, Nov. 8, 1919, p. 1443), the action and uses of acriflavine are noted, with the fact that its clinical use has occasioned numerous and exceedingly conflicting published reports. My experience is that the preparation has no special virtue, compared to the usual nontoxic antiseptics, when employed in the cited indications. Acriflavine's chief value is its remarkable power to stimulate epithelial growth on healthy granulating surfaces. In cases in which Thiersch's method of skin grafting is indicated, as after amputation of the breast, I follow and recommend the practice of Mr. A. J. Couzens of London—wet eusol dressings for from twenty-four to thirty-six hours, then changing to wet acriflavine dressings, 1:1,000. Healing occurs with great rapidity.

MAXWELL QUACKENBOS, M.D., New York.

### EXPANSION OF THE WORK OF THE RED CROSS

*To the Editor:*—I have just finished reading Dr. Farrand's pamphlet on health centers as peace time activities for the great Red Cross organization. As near as I can judge, most of this work will be planned by laymen, and I can see in it, what every medical man will see on reflection, the possibility of sentimentality overriding common sense.

If this health work is to do any real good, it must be steered by wise counsel of the best men in the profession; and in my judgment it is of such importance that the problems should be handled by a special committee of the American Medical Association. It is possible that something of the sort has been planned.

Enthusiasts in health and welfare work find it easy to strike a popular chord and arouse enthusiasm in the lay mind over their theories, some of which would not stand analysis; and the thought occurred to me that one way our Association might help retain sanity in this field is to see that the medical profession, through well chosen speakers, has its views presented in the same way as those who bring out all this new propaganda.

Somebody in every community will have to sit on the lid.

W. S. CHASE, M.D., Akron, Ohio.

### "THE RELATIONSHIP BETWEEN HERPES ZOSTER, SYPHILIS AND CHICKENPOX"

*To the Editor:*—I have read your editorial on the relationship between herpes zoster, syphilis and chickenpox. The segmental distribution and spinal findings indicate that it may have a central causative factor, as distinguished from peripheral nerve irritations. Some time ago I had a case of gallstone disease in which occurred a marked herpetic eruption over the abdomen in the region of the gallbladder. At this time the patient was suffering from repeated attack of colic with marked jaundice, evidently due to common duct

blockage. I operated on her a few days later, the jaundice having cleared up considerably, and at that time found the cystic duct obstructed by a large stone, as well as a number of stones in the gall bladder. I have no doubt that in this particular case there was so much irritation about the gall bladder neck that a "reflex irritation" brought about the external herpetic eruption by way of the nerves from the duct region and thence along the segmental distribution. This case would seem to indicate that there may be other than purely "central spinal" sources for herpetic-like eruptions.

W. G. PARKER, M.D., Mount Vernon, Ill.

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be accepted. Every letter must contain the writer's name and address, so these will be omitted, on request.

#### URINARY TESTS FOR SYPHILIS

To the Editor—Will you kindly inform me whether the test in the enclosed "literature" is what it is represented to be?

CHARLES M. THOMAS, M.D., Sunbury, Pa.

ANSWER.—The "literature" referred to by Dr. Thomas dealt with the "Uri-Na Test" sold by the Standard Appliance Company of Philadelphia. There seems to be a strong family resemblance between this alleged test and that known as "Capell's Urine Test," which was discussed in the Propaganda Department of THE JOURNAL, Aug. 23, 1919. Of that THE JOURNAL said: "Unfortunately, its scientific value to the sufferer is negligible compared with its economic value to the exploiter. It is not so much a test for lues in the patient as of credulity in the doctor." The same may be said of the "Uri-Na Test." The facts are, there is no method at present known by which the absence or presence of syphilis may be determined by a simple color test of the urine.

#### USE OF MERCURIC CYANID PREPARATIONS SUBCONJUNCTIVALLY

To the Editor—Please give me the percentage of solution and indications for the use of mercuric cyanid subconjunctival injections; also the indications for normal salt solution in the same location.

F. C. McCLANAHAN, M.D., Tanta, Egypt.

ANSWER.—Both mercuric cyanid and mercuric oxycyanid, in solutions varying in strength from 1:40,000 to 1:2,000, are often found to be of signal value when used subconjunctivally, in hypopyon ulcer, and in other purulent or deep-seated infections of the eye. It must be remembered, however, that even in a thoroughly cocainized eye, these injections are extremely painful, and for this reason many eye surgeons do not wish to use this remedy. Physiologic sodium chloride solution is employed for the same conditions. From 0.5 to 20 minims of a 5 to 10 per cent. solution are injected, and repeated at two to three day intervals, according to the results obtained.

#### RADIUM SALTS

To the Editor—Please state what is the most effective radium salt for treatment.

GEO. A. HERTLEY, M.D., Battle Creek, Iowa.

ANSWER.—New and Nonofficial Remedies, 1919, recognizes the following salts of radium: radium bromid, radium carbonate, radium chloride and radium sulphate. The efficacy of these salts depends essentially on the percentage of radium which they contain, and accordingly all are sold on the basis of their radium content. The choice of one or the other depends on physical factors. Thus the bromid and the chlorid are commonly used in the applicators, whereas the insoluble sulphate is used in constructing an apparatus for the production of water charged with radium emanation.

For more complete details refer to New and Nonofficial Remedies.

## Medical Education, Registration and Hospital Service

### COMING EXAMINATIONS

- ARIZONA: Phoenix, Jan. 6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
- COLORADO: Denver, Jan. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
- DELAWARE: Dover, Dec. 9-11. Sec., Regular Board, Dr. P. S. Downs, Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 824 Washington St., Wilmington. Pres., Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.
- FLORIDA: Jacksonville, Dec. 15-16. Sec., Dr. G. A. Munch, 1306 Franklin St., Tampa.
- FLORIDA: Tampa, Dec. 12. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.
- ILLINOIS: Chicago, Dec. 13. Mr. F. C. Dadds, Supt. of Registration, Springfield.
- INDIANA: Des Moines, Dec. 16-18. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.
- KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville.
- LOUISIANA: New Orleans, Dec. 13. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.
- MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
- NORTH DAKOTA: Grand Forks, Jan. 6. Sec., Dr. John G. Arneberg, Grand Forks.
- OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, State House, Columbus.
- OREGON: Portland, Jan. 6. Sec., Dr. Frank W. Wood, 559 Morgan Bldg., Portland.
- VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McBain Bldg., Roanoke.
- WASHINGTON: Spokane, Jan. 6-8. Sec., Dr. C. N. Suttner, 415 Old National Bank Bldg., Spokane.

### North Carolina June Examination

Dr. H. A. Royster, secretary of the North Carolina State Board of Medical Examiners, reports the oral, written and practical examination held at Raleigh, June 24-28, 1919. The examination covered 15 subjects and included 72 questions. An average of 80 per cent. was required to pass. Of the 68 candidates examined, 59 passed and 9 failed. Twenty-three candidates were licensed through reciprocity. Seven candidates were refused reciprocity certificates. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Emory University	.....	(1919)	80
Tulane University	.....	(1919)	84.5, 85.1, 81.7
Johns Hopkins University	.....	(1919)	83.5, 86.8
University of Maryland (1918)	81.2, 81.5, 83.1, 87.8,	(1919)	80.1, 82
University and Bellevue Hospital Medical College (1918, 89)	81.9,	(1919)	85, 88.3
North Carolina Medical College	.....	(1919)	84.4
Jefferson Medical College (1917)	83.4, (1918) 86.3, 88.1, 88.7, 89.5, 91.3,	(1919)	81.4, 83.1, 83.4, 83.8, 84.5, 84.5, 85, 85.3, 85.8, 85.8, 86.5, 86.5, 86.7, 88.3, 89, 90, 90.3, 91*
University of Pennsylvania (1918)	89.5, 90.1, 92.5,	(1919)	80, 84.5, 85, 85.4, 88, 88.1, 89.5, 89.1
Meharry Medical College	.....	(1918)	88.4
Medical College of Virginia (1916)	80.1, 83.3,	(1918)	80.7, 83.7, 89.2, 83, 83.3
FAILED			
Atlanta Medical College	.....	(1916)	72.3, **
North Carolina Medical College	.....	(1918)	72.1
Med. Coll. of the State of South Carolina	.....	(1912)	76.5
Meharry Medical College	.....	(1917)	63.4, (1918) 66.5, 77.1
University of West Tennessee	.....	(1910)	66.5
Medical College of Virginia	.....	(1916)	77
LICENSED THROUGH RECIPROCIITY			
Rush Medical College	.....	(1921)	Iowa
Koosuk Medical College	.....	(1928)	Illinois
University of Louisville	.....	(1913)	Indiana, (1915) Virginia
Tulane University	.....	(1903)	Louisiana
College of Phys. and Surgs. Baltimore (1893)	.....		South Carolina, (1915) Massachusetts
Johns Hopkins University	.....	(1899)	Illinois
University of Maryland	.....	(1893)	Maryland
Harvard University	.....	(1894), (1917)	Mass.
University of Michigan Medical School	.....	(1914)	Michigan
Columbia University	.....	(1913)	New York
Cornell University	.....	(1906)	New York
North Carolina Medical College	.....	(1910)	Virginia
Lincoln Memorial University (1909)	.....	West Virginia, (1911), (1916)	Tennessee
Tennessee Medical College	.....	(1904)	Tennessee
Vanderbilt University	.....	(1894)	Tennessee
University College of Medicine, Richmond	.....	(1912)	Virginia
University of Virginia	.....	(1908)	Connecticut, (1909) Oklahoma

\* Did not complete examination.

\*\* No grade given.

## Book Notices

**THE ITINERARY OF A BREAKFAST.** A Popular Account of the Travels of a Breakfast through the Food Tube and of the Ten Gates and Several Stations through Which It Passes, Also of the Obstacles Which It Sometimes Meets. By J. H. Kellogg, M.D. Cloth. Price, \$1.60 net. Pp. 210, with illustrations. New York: Funk & Wagnalls Company, 1919.

The publisher has characterized this "popular account of the travels of a breakfast through the food tube" as being "as fascinating as a romance or a book of travels." The book is in popular language, the intestinal tube being considered as a road with ten gates, with numerous stations and obstacles. The reader is enlightened with regard to the method of overcoming the obstacles and the way in which the food passes through the gates. Some of the views held by the author are not those generally held; for example, that limitation to a single evacuation daily must be considered as constipation, and that from three to four evacuations constitute the normal mode of living. Most of the views expressed are, however, of a common sense, practical character and exceedingly instructive. Particularly interesting are Dr. Kellogg's views on the use of the roentgen ray and interpretations derived therefrom in connection with examinations of the intestinal tract:

A tyro misinterprets what he sees. The minute indications of disease he overlooks, and unusual but perfectly normal appearances he mistakes for cancer or some other dreadful condition, for which he urges immediate operation.

Unfortunately the country is full of x-ray tyros, thanks to the commercial activity of x-ray machine manufacturers. It is safe to say that at the present moment the conclusions drawn from the majority of x-ray examinations of the colon are altogether unreliable and worthless, if not positively misleading, and a menace to the patient's welfare if made a basis for active treatment or operation.

Beware of the x-ray tyro. There are in the United States possibly one hundred x-ray specialists whose examination of the alimentary canal may be regarded as of value and whose conclusions may be trusted as fairly reliable; but the chances are very great that our estimate is far too large.

The book is one which the physician will read with interest and the layman with considerable enlightenment. Whether the neuroasthenic who is inclined to make a fetish of his intestinal evacuations can benefit from it seems doubtful.

**MAMMALIAN PHYSIOLOGY: A COURSE OF PRACTICAL EXERCISES.** By C. S. Shepperton, M.D., D.Sc., F.R.S., Waynflete Professor of Physiology in the University of Oxford. Cloth. Price, 12 shillings, 6 pence. Pp. 156, with illustrations. New York: Oxford University Press, 1919.

This is a laboratory outline of mammalian experiments given in a course of physiology at Oxford University. This course compares favorably with those of our better medical schools. Incidentally, the medical schools of Great Britain are handicapped, in teaching these sciences, in the restriction placed on the use of animals for teaching purposes. As the result, most of the experiments outlined in this book are done on decapitated animals. The book will be found helpful to teachers of physiology, pharmacology and physiologic chemistry.

**CEREBROSPINAL FLUID IN HEALTH AND IN DISEASE.** By Abraham Levinson, B.S., M.D., Associate in Pediatrics, Northwestern University Medical School. With Foreword by Ludwig Hektoen, M.D. Cloth. Price, \$3. Pp. 231, with 56 illustrations. St. Louis: C. V. Mosby Company, 1919.

In his foreword, Professor Hektoen states that he believes this to be a valuable little book in which the author has combined a true philosophic interest with a first-hand practical knowledge. Why say more?

**A TEXT BOOK OF BIOLOGY FOR STUDENTS IN GENERAL, MEDICAL AND TECHNICAL COURSES.** By William Martin Smallwood, Ph.D., Professor of Comparative Anatomy in the Lateral Arts College of Syracuse University. Third edition. Cloth. Price, \$3. Pp. 306, with 243 illustrations. Philadelphia: Lea & Febiger, 1918.

Biology is fundamental to all the medical sciences. Professor Smallwood presents the subject from the point of view of the comparative anatomist and, as in most textbooks of biology, the frog is selected as the type for complex animals. The first seven chapters cover its anatomy and physiology.

The second part of the book concerns the biology of unicellular organisms, taking up in turn the development of worms, plants, insects, biologic adaptations, bacteria, the biologic factors in disease, evolution, heredity and animal behavior. The book is excellently illustrated; the author has drawn on many sources for the pictures, and they help to make this an attractive textbook.

## Medicolegal

### Malpractice in Treating Injury to Brachial Plexus

(Tucker v. Stetson (Mass.), 123 N. E. R. 239)

The Supreme Judicial Court of Massachusetts, in sustaining exceptions to a verdict in favor of the plaintiff, says that he met with an accident whereby he sustained a broken collar bone and a severe injury to the brachial plexus. He was taken to a hospital, where he was treated by the defendant. During the time he was in the hospital his arm and shoulder were bandaged up. He could move his fingers a little, but could not move his arm; and since that time he has never been able to make any other movement with the fingers or arm. At the end of three weeks he left the hospital at the defendant's suggestion, the defendant directing him to see another physician every day or so, telling him he thought his arm would come on all right in a couple of months or so. The plaintiff went to the other physician every other day or so and had his arm rubbed with a liniment of some kind, and then put back in its bandage, the physician telling him to massage it himself once or twice a day, which he did, but noticed no change in the feeling or sensation of his arm as he followed this course of treatment. After six weeks of treatment his arm began to wither up. He then went to the Massachusetts General Hospital, and was operated on unsuccessfully. The arm at the time of the trial was useless.

The claim of the plaintiff, as set out in the declaration, was "that the defendant carelessly and negligently failed to operate on the injured parts of the plaintiff's body seasonably and that he failed to exercise that judgment which he professed to possess in the treatment of the plaintiff's injuries." At the close of the evidence the presiding judge refused to direct a verdict for the defendant; and this court thinks the ruling was right. The defendant testified that he had practiced surgery since 1895; in 1901 became examining physician and surgeon for important railroads; had done some postgraduate work devoted to surgery; had a large and varied practice; but "had never performed an operation to relieve any trouble with the brachial plexus, though he knew what it was and appreciated the effects of injury to it and considered himself competent to pass on whether the brachial plexus had been affected, and was satisfied in his own mind the following day after the accident that the plaintiff had trouble with the brachial plexus and treated him keeping that fact in mind." The evidence fully warranted the jury in finding that ordinary surgeons in the town where the defendant practiced his profession had the skill and ability to perform the surgical operation of "cutting down on the nerves and suturing or sewing them together as far as possible in their normal position." The conflicting testimony warranted a finding that such an operation, performed a few days after the injury, would probably have restored the use, or some of the use, of the arm. It also warranted a finding that the defendant did nothing for the plaintiff except to have a sand bag placed on his shoulder, have a roentgenogram taken, dress the arm with cotton bandages, and keep him in bed on his back during the time he was at the hospital, without advice that an operation was desirable or a suggestion that he could or should obtain the services of the best surgeons at the Massachusetts General Hospital. The foregoing facts, if believed, warranted a finding that the defendant was negligent in failing to operate or in failing to advise seasonably to procure surgical relief if the defendant felt himself incompetent to act.

But there was prejudicial error, the court thinks, in an instruction to the jury that it might take into consideration the possibilities of good results from an operation in determining whether the plaintiff had proved his case. The liability of the defendant was not to be determined by the jury on consideration of contingent, speculative and possible results of an operation which might be performed on the plaintiff to remedy or mitigate the consequence of the injury to the nerves, but on proof by a fair preponderance of evidence that it was reasonably probable that such a result would follow an operation, performed by the defendant with the ordinary skill and ability of surgeons practicing in towns similar to the one where he undertook to practice his profession.

#### Power of Personal Representative to Waive Privilege

(*Grieco v. Howard (Utah), 180 Pac. R. 423*)

The Supreme Court of Utah, in reversing a judgment that dismissed the complaint of the plaintiff, a special administrator, who sought to have a deed that had been made set aside on the ground of mental incapacity of the grantor and undue influence, says that it was held on the trial that a physician called by the plaintiff as a witness could not reveal matters which he had learned in his treatment of the grantor, who had died; and that the apparent conflict in the former decisions of this court in regard to the power of the personal representative of a deceased patient to waive privilege rendered it necessary to determine definitely the rule by which future cases should be governed in Utah. The exact question was: Can the personal representative of a deceased person, under the Utah statute, waive the privilege conferred by the statute, and demand that the physician who attended the deceased prior to his death be permitted to testify concerning information acquired necessary to enable him to prescribe or act for the patient? The statute reads:

There are particular relations in which it is the policy of the law to encourage confidence and to preserve it inviolate. Therefore a person cannot be examined as a witness in the following cases: (4) A physician or surgeon cannot, without the consent of his patient, be compelled in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient.

The authorities are uniform, under all the statutes with which this court is familiar, that the patient can waive or withhold the privilege where the question arises during his life. But the question here was, Can his personal representative, after the death of the patient, waive the privilege the same as the patient could have done if living? The Utah statute and most other statutes are not express on this particular point, and for that reason there is considerable conflict of authority, not so much among text writers as among adjudicated cases.

The statute under consideration was adopted literally from the California Code of Civil Procedure as early as 1884 and *In re Flint*, 100 Cal. 391, 34 Pac. 863, decided in 1893, it was held that the privilege is personal to the patient, and after the death of the patient cannot be waived by his personal representative. But, after carefully considering the language of the statutes and the cases decided under them, referred to by the California court in the *Flint* case, this court enters its inability to understand on what authority the California court or any other court can consistently hold that the differences in the statutes justify the conflicting views in the conflicting opinions referred to. It seems to this court that it would be far more ingenious to admit that the statutes referred to, including the Utah statute, are all substantially the same in meaning and effect, and that the conflicting opinions of the courts are due entirely to conflicting views of different minds concerning the true intent.

In view of the state of the law as this court finds it, and this court's own convictions of what is most reasonable and just, this court is of the opinion that under the Utah statute the personal representative of a deceased person has the same right to waive the privilege given by the statute, after the death of the patient, as the patient would have had if living.

## Society Proceedings

### COMING MEETINGS

Medical Society of Hawaii, Honolulu, Nov. 29-30, Dec. 1.  
Society of American Bacteriologists, Boston, Dec. 30-31.  
Southern Minnesota Medical Assn., Mankato, Dec. 1, 2.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Surgical Association, Kansas City, Mo., Dec. 5-6.

### CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

*Ninth Annual Meeting, held in New York, Oct. 20-24, 1919*

The President, Dr. William J. Mayo, Rochester, Minn., in the Chair

#### Gunshot Fractures of the Femur

SIR ANTHONY DOWLING, London, England: Gunshot fracture of the femur occurs in 1.5 per cent. of all wounded men. It is one of the most dangerous injuries of the war, the danger being proportionate to the extent and nature of the injury of the soft parts even more than to the extent of the bone lesion. With the adoption of the "Thomas outfit," the transportation of the patient to the casualty clearing station was greatly simplified. Pain was either altogether prevented or reduced to a minimum, bleeding was soon checked, and the steadying of the fragments effectually prevented further injury to the soft tissues and spread of sepsis. The conditions necessitating primary amputation are complete smashing of an area of bone; extensive comminution of the lower articular end of the femur; laceration of the femoral vessels; extensive destruction of muscles and skin, and gas gangrene. Primary amputation for fracture of the femur is attended with a much higher death rate than is amputation in the thigh for injuries of the leg, and also the higher up the limb is removed the greater the mortality. Primary amputation at the hip is so uniformly fatal that it would better not be performed at all. The apparatus employed should be a skeleton metal splint which permits traction to be applied either directly downward or else in various degrees of abduction and flexion. The direction of traction and the amount of flexion must be guided by frequent roentgenograms. Even when the fragments are separated by an interval of 1 or 2 inches, the gap will be completely filled in by new bone. Fixed extension proved not to be as good as continuous extension. Movements of the knee joint are begun early, and slight flexion of the knee is to be preferred to traction on the fully extended limb. When union is sufficiently advanced it is the custom to get the patient out of bed while maintaining the length of the limb by the application of "walking caliper splints" fixed to the heel of the boot. The question of the removal of bone was not entirely settled when the war ended. There seems to be no doubt that, on the one hand, the removal of all fragments which might necrose hastens the healing of the wound, while, on the other hand, the removal delays the healing of the fracture, and in the opinion of some has been responsible for permanent nonunion in not a few cases. In fractures of the shaft it is important to support the bone at the site of fracture so that the natural anterior curve of the femur is very fully maintained or even slightly exaggerated. Stiffness of the hip joint should never occur, except in cases in which the fracture involves either the neck of the bone or the trochanter. This can always be prevented if care is taken that the foot is not cramped in bandages. It has been the custom recently to remove sequestrums earlier than in former years.

#### DISCUSSION

SIR ROBERT JONES, Liverpool, England: In England we obtained an average of only one-fourth inch shortening in those cases treated with calipers. In our experience at Liverpool the average shortening was five-eighths inch. This carries an important lesson. All those patients were treated in the simplest possible fashion, with Thomas splints or those similarly made. None of these patients were subjected to internal splinting. In the early part of the war the men subjected to internal splinting all lost their limbs. When

caliper splints are worn, the patient with an ununited fracture can walk with ease. The patient with a gap in his femur can walk without limping. Deformity resulting from slight overlapping is not as bad as that resulting from a meticulous apposition. When there is deformity of the femur we do not operate if there is good function and good alignment, even if there is as much as one inch shortening. If one operates on a malunion there is often a greater stiffness of the knee than before. A knee at 5 degrees flexion is bandaged at 20 degrees; when the patient can lift the limb to 20 degrees of flexion, it is bandaged at a still greater degree of flexion. It is not advisable to attempt forcible movements.

DR. FRED N. G. STARR, Toronto, Ont.: Recently I came across the original article written by Thomas in 1875, in which he stated that the splint he had devised enabled one to "handle the patient as though he were a toy, without pain." I have seen that so often that I am thoroughly convinced of the value of the Thomas splint. All accident ambulances should be equipped with Thomas splints, and the men in charge should be taught how to apply them at the site of the accident.

#### Empyema: Its Pathogenesis and Treatment

DR. ALEXIS V. MOSCOWITZ, New York: Knowledge of the pathology and pathogenicity of empyema is necessary, in order to understand its treatment. The view has hitherto been held that the pleurae became infected by contiguity with the lung. That does not seem logical, because such a thing does not take place in other serous cavities. It seems as if contamination must occur from the pleura. In most cases a sub-pleural abscess is found connecting with the empyema cavity. This is the rule rather than the exception. There is a rupture of the subpleural pulmonary abscess. Irrigated by an irritating solution, a persistent cough is produced. The analogy between the pleura and the peritoneum is very close, differing only with the greater mobility of the lung, as compared with the sluggish peritoneal peristalsis. The stages observed are: Serous pleurisy is converted into exudate, then encapsulation occurs, which might be either diffuse, localized or multiple. Seropurulent pleurisy is not encapsulated, but purulent pleurisy is always so. An absolutely free empyema containing frank pus is an unknown quantity. Frank pus is usually an end-product. The reason why thoracotomy is not permissible in the early stage is this: The fluid runs out and atmospheric pressure, at 15 pounds to the square inch, rushes in, collapsing the lung. This is badly borne by the patient and causes fluttering of the mediastinum with rapid heart action. It pushes out the other lung and disables the heart. Thus early thoracotomy is attended by a terrible mortality. When the stage of adhesions has been reached, these form an anchor for the lung to the side of the chest. It is then safe to operate and evacuate the pus. An acute pyopneumothorax is different. These patients bear early operation. The statistics as to the use of surgical solution of chlorinated soda are rather rosy, but some patients remain cured. In cases in which a pneumothorax occurred, this tended to disappear. It is safe to sterilize the cavity and close it over a pneumothorax.

#### DISCUSSION

DR. JOHN L. YATES, Milwaukee: Anything foreign to the serous membrane is an irritant. This irritation provokes an acute serous reaction. Before adhesions form, the serous fluid has formed and penetrated the cavities. This is sufficiently irritating to provoke a serofibrinous reaction apart from bacteria, and secondary foci may become more acute than the primary one. The best prevention of empyema is in keeping the pleural serosa in constant apposition. Drainage should be done later, when the secretions have coagulated. Primary thoracotomy can be done only by maintaining pulmonary inflation.

DR. JAMES F. MITCHELL, Washington, D. C.: The profession has agreed that early operation is dangerous in streptococcal empyemas. It has been found that pressure in one side of the chest is not independent of pressure in the other. There is a definite relation between the opening and the amount of air in the lungs. When the lung is restricted by pneumonia, the size of opening compatible with life becomes smaller.

Adhesions render the opening safer. Attention to diet and early exercise are found to be most important therapeutic aids. Three points can be emphasized: (1) avoidance of early operation; (2) vigorous application of the Carrel-Dakin method; (3) attention to diet and exercise. Persistent cases should be subjected to roentgen-ray examination. Stereoscopic plates should be made both with and without bismuth, because the bismuth may obscure a foreign body. The chest wall may be closed regardless of an existing cavity, provided the latter is sterile. The cavity tends to disappear with expansion of the lung. The operation should be as simple as possible. Slough should be removed. Small flaps should be used to close the opening. Early exercise should be instituted. There are few cases that will not respond to comparatively simple operations. All the individuals we treated became able-bodied men, without subsequent deformity.

#### Surgical Treatment of Exophthalmic Goiter

DR. GEORGE W. CRILE, Cleveland: Of 2,250 thyroidectomies, 50 per cent. were subjected to ligations. In 333 cases, ligation was first done, then a thyroidectomy. Among 116 ligations, one death occurred in the stage of dissolution. In the first 100 cases the mortality was 16 per cent. With the use of gas and oxygen anesthesia this was reduced to 2.5 per cent. By the adoption of special management of cases, the mortality has been further reduced to 0.6 per cent. Since the war, special precautions have been added against postoperative hyperthyroidism due to excessive chemical activity and destruction by oxidation. With each degree of rise of temperature this chemical activity is increased 10 per cent. With a temperature of 105 F., metabolism is increased 70 per cent. Another point of importance was the discovery by the British research department that the wound can be left open in statu quo, by the use of a dressing of 1:5,000 flavine. This permits the surgeon to stop at any point at which he considers the patient is not enduring the operation well. Lobectomy is performed under analgesia, as the inhalation anesthesia interferes with internal respiration in a patient already suffering from suboxidation. Hypersensitiveness is sufficient to destroy the patient. Complete team work is essential to success. The operation is performed by the hospital and not by the surgeon. The differential diagnosis is greatly aided by the Goetsch epinephrin test and basal metabolism determination.

#### DISCUSSION

DR. DEAN D. LEWIS, Chicago: Tachycardia without exophthalmos does not differ from ordinary thyrotoxic goiter. Hyperplasia of the thyroid epithelium presents the four classical signs of goiter. Surgeons are likely to want to operate too soon. The exercise of judgment makes all the difference between one surgeon's success and another's lack of it. I have seen patients die after ligation. I have not seen anything that will control that.

DR. CHARLES H. MAYO, Rochester, Minn.: The Surgeon-General's report showed that 15 per thousand is the rate of goiter in the northern Pacific states. There is almost no goiter in New Hampshire and Vermont. There are perhaps more mistakes in diagnosing exophthalmic goiter than any other condition. The thyroid is not essential to life, but it is synonymous with making life worth living. The cell changes in the thyroid are due to increase of biochemical products by bacteria, coming from different parts of the body and acting on the thyroid. Two thirds of the cases are simple hyperplastic glands. A second type is caused by areas of degeneration throughout the gland. A hyperplastic gland sometimes goes with myxedema a sort of burned out condition. In hyperthyroidism there is a burning of fats, a rapid oxidation, and these people literally destroy their own cells. The thyroid gland bears relation to the elimination of nitrogen. Nitrogen, if retained, leads to tetany. Creatin and creatinin have almost the same chemical constitution as the thyroid secretion. There is, however, no positive determining factor to tell what is the controlling influence in thyroid action. We do not all agree as to methods, but the important point is that the mortality has been brought down

## MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Ninth Annual Meeting, held in Harrisburg, Sept. 22-23, 1919

(Continued from page 1580)

### Prevention of Communicable Respiratory Diseases Based on Observations in U. S. Army Camps

DR. ORLANDO H. PETTY, Philadelphia: Personal hygiene was taught on all occasions. Special emphasis was placed on droplet infection, and the men soon learned to report their comrades for isolation on the evidence of acute colds. In the prevention of infection, the properly fitted gauze mask, exchanged when soiled, was probably the most valuable preventive agent. The value of bacterins in the prevention of communicable respiratory diseases has not been proved. Prevention is accomplished, not by the injection of polyvalent preventives, but by the tireless enforcement of the difficult procedures of sanitation, hygiene and preventive medicine.

#### DISCUSSION

DR. M. HOWARD FUSSELL, Philadelphia: There is no easy road to the prevention of respiratory diseases. So far as we know, the diseases which we can prevent most readily are smallpox, typhoid and, possibly, pneumonia. If we should promptly isolate cases of ordinary infectious colds we would greatly limit cases of respiratory disease. Dr. Petty's stand regarding bacterins is extremely sane. I myself am not sure that the bacterins are entirely harmless.

DR. CHARLES A. E. COGMAN, Philadelphia: The sanitation of the army camps is applicable to civil practice. The value of bacterins is yet to be demonstrated. The mask which seemed to us the most valuable was the ordinary chloroform inhaler, placed over the nose and fastened with elastic bands about the ears. Moistened with mercuric chlorid solution, it was efficacious.

DR. ARTHUR C. MORGAN, Philadelphia: The remarkable advance in the medical work of the army, made between 1898 and 1919, is not due to the regular army men alone, but in large part to the reserve corps men. The young members of medical detachments received lessons which should make them 100 per cent. efficient health officers. I would recommend that for a health officer a good young fellow be selected who has had his training in the medical department of the army.

DR. C. P. BROWN, Ambler: While it is not definitely proved that the pneumococcus vaccine is the answer to pneumonia, certainly it is entitled to much more extended use than it has received.

### Value of Early Diagnosis of Pleural Effusions

DR. S. A. SAVITZ, Philadelphia: To my mind, percussion is the dependable presence, and its variation on change in posture is the cardinal sign. Palpation and auscultation are of little value. The frequent use of the aspirating needle is important. An individual with a pleurisy who is discharged too soon, or with a pleurisy unrecognized, undoubtedly has a passive lesion which may become active. Too much emphasis cannot be laid on the importance of keeping such patients under observation for a long time. By doing so, especially in conjunction with the surgeon, tuberculosis will be diminished greatly.

#### DISCUSSION

DR. ARTHUR C. MORGAN, Philadelphia: Pleurisy with or without effusion does not mean the "predi position" to tuberculosis; it means that the patient is really the subject of tuberculosis. I have had remarkable results from auscultation of the chest in pleurisy with effusion.

DR. EDWARD H. FUNK, Philadelphia: That simple puncture is not attended with danger should be emphasized. We had 100 deaths from simple puncture at Camp Wheeler. Necropsy disclosed no other cause of death. Even if all cases of pleurisy are tuberculous, which I think is an overstatement, many cases of pleurisy can be tapped and the patient be healthy for a long series of years.

DR. CHARLES A. E. COGMAN, Philadelphia: The differential diagnosis between some pneumonias and pleurisies is extremely difficult. In diagnosis too great dependence must not be placed on one method. Percussion and auscultation

are most valuable, and at times it is essential to use the needle, the roentgen ray and the fluoroscope.

DR. W. G. TURNBULL, Cresson: In tuberculosis, patients have developed empyema, not as a necessary part of pulmonary tuberculosis, but as the result of unwise aspirations of pleural effusions.

### Pulmonary Syphilis

DR. ELMER H. FUNK, Philadelphia: Syphilis of the lung commonly manifests itself as a gumma, usually near the root or in the lower lobes. These gummas may occasionally break down and form small cavities, or be converted into fibrous tissue, and the resulting contraction may distort the lung and give rise to bronchiectasis. The gumma may be latent and be found at necropsy. Syphilis of the lung occurs more often than the older observers would have us believe, and than postmortem evidence indicates. I believe that patients have perished from pulmonary syphilis improperly treated under a mistaken diagnosis of pulmonary tuberculosis or other condition.

#### DISCUSSION

DR. EDWARD J. G. BEARDSLEY, Philadelphia: In a case of seemingly advanced tuberculosis, sputum examinations had been negative for tubercle bacilli. The patient's blood gave a +++ + Wassermann test. On the forty-second sputum examination, myriads of acid fast bacilli were found.

DR. WILLIAM A. WOMER, New Castle: In a case in which repeated examinations for bacilli in the sputum were negative a history of chancre was obtained. After thorough antisyphilitic treatment, the condition cleared up, and the man today seems to be in perfect health.

### Cardiovascular Phenomena Associated with War Neuroses

DR. GEORGE MORRIS PIERSON, Philadelphia: Medical officers are in accord that chronic organic disease of the heart played an inconspicuous rôle among the medical casualties of the American Expeditionary Forces. Of 3,752 medical cases in one base hospital, only twenty-four were definite examples of organic heart disease. This incidence, however, by no means represented the number of apparently healthy soldiers in whom, from time to time, systolic murmurs were observed. Approximately 4,000,000 soldiers were examined by the cardiovascular boards, and about 38 per cent. of all rejections for physical disability in all the drafts was on account of circulatory disease. The weight of evidence strongly suggests that the symptoms of effort syndrome depend on a neurosis. An opinion held by neurologists is that effort syndrome is a neurosis in which cardiovascular manifestations predominate. It would seem justifiable, therefore, to regard effort syndrome as the result of the reaction of an unstable nervous mechanism to anxiety and overstrain, producing a neurosis associated with cardiovascular symptoms. After the signing of the armistice, effort syndrome was difficult to discover.

### Significance of Heart Murmurs

DR. EDWARD H. GOODMAN, Philadelphia: Murmurs are largely useful as a peg on which to hang a diagnosis. As an index of the degree of valve damage, they are worthless prognostically, except in mitral stenosis. Diastolic murmurs are always serious murmurs. Unless one recognizes the fact that the murmur is not always found, and unless one is able to suspect the diagnosis in the absence of murmur, many cases of stenosis will be pronounced sound. With systolic murmurs, diagnosis is more difficult. Many practitioners are stigmatizing individuals with such murmurs with the diagnosis of valvular heart disease and thereby condemning them to a life of semi-invalidism. While it is important to distinguish between the innocent systolic murmurs and those which are not, the greatest importance here as in diastolic murmurs attaches to the behavior of the muscle. By an estimation of its efficiency we shall regard murmurs in their true light.

#### DISCUSSION

DR. A. E. ROUSSEL, Philadelphia: Systolic murmurs have a relatively greater importance after than during the second and third decades of life. Presystolic and diastolic murmurs are important because they denote heart changes rendering

the subjects poor risks. No one has a right to call a murmur organic unless there are signs of compensatory hypertrophy. In mitral stenosis the amyl nitrite test is of particular value. In the suspected case the patient breaks a capsule of amyl nitrite and passes it in front of his face. In many instances the murmur comes out, whereas before it had been only suspected.

DR. CHARLES REA, York: In the difficulty of determining the presence of a presystolic murmur a helpful principle to me is that when there is uncertainty of just when the first sound begins, a presystolic murmur is present.

#### AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Seventh Annual Meeting, held in New Orleans, Oct. 27-30, 1919

(Concluded from page 1548)

##### Cure of Infected Persons as a Factor in Malaria Control

DR. C. C. BASS, New Orleans: Malaria may be eradicated either by destroying the mosquitoes capable of transmitting the infection or by destroying the infection in man, the only other host of malaria parasites. Theoretically, it would be possible to eliminate malaria from a region by disinfecting all infected persons in the region. This would result regardless of the abundance of mosquitoes, if all infected persons were cured. There would then be no malaria for mosquitoes to transmit. Practically all physicians relieve their patients of active clinical symptoms of malaria, but few actually disinfect their patients. In the experiments in Mississippi, the data obtained indicate that between 50.77 and 68.86 per cent. of all persons who have attacks of malaria during a given year have relapses and not new infections. The standard, practical method of treating and disinfecting persons who have malaria, adopted in the Mississippi experiments, is: under 1 year of age,  $\frac{1}{2}$  grain of quinin; 1 year, 1 grain; 2 years, 2 grains; 3 and 4 years, 3 grains; 5, 6 and 7 years, 4 grains; 8, 9 and 10 years, 6 grains; 11, 12, 13 and 14 years, 8 grains; 15 years and older, 10 grains. This treatment appears to disinfect more than 90 per cent. of patients.

If all persons who know they have malaria and treat themselves should employ a method of treatment which disinfects them, and if those who are treated by physicians are treated so as to disinfect them, we would have, theoretically, 55 per cent. of reduction in the prevalence of malaria each year. The only way by which all persons who have malaria in a given locality can be found is by intensive malaria surveys. Those who give positive histories during the previous twelve months should be considered probably still infected and therefore should take the necessary treatment to disinfect them. Experiments in malaria control were conducted in Bolivar County, Miss., under the auspices of the Mississippi State Board of Health, as a result of which, treatment and methods of carrying out this more or less intensive method of malaria control were worked out. The reduction indicated by a resurvey of a large part of an area of 100 square miles just one year from the first survey was 89.9 per cent.

##### Present Methods of Anopheles Drainage and Anopheles Control

MR. J. A. LEPRINCE, Memphis, Tenn.: It is to be hoped that, within a few years, communities desirous of freedom from malaria and the mosquito pest will install adequate permanent drainage systems. Where conditions are favorable, the drainage system should be planned to eliminate the necessity of supplementary measures, such as oiling and maintenance of open ditches. In many localities, effective screening of houses is the best preliminary procedure for malaria control; but it would be more economical and satisfactory to install permanent drainage systems and obtain permanent benefits at a reasonable cost.

##### Mosquito Work of the Bureau of Entomology

DR. D. L. VAN DINE, Mound, La.: In the summer of 1913, a project was undertaken by the bureau dealing particularly with the mosquitoes concerned in the transmission of malaria

in this country. A laboratory for the purposes of this investigation was established in the delta region of the Mississippi valley at Mound, La., where the anopheles mosquitoes and malaria are prevalent. One result of this project has been given in the conclusions on the loss in crop returns from malaria. The amount lost in crop returns is equivalent to a direct annual tax of \$3.88 per acre on the land under cultivation. It is estimated that the total average cost per acre to bring permanent swamp land into cultivation is \$17. The screening of dwellings has been an important factor in the reduction of malaria when the screening work has been done thoroughly and proper use has been made of the protection afforded. Dr. Howard estimates that the people of the United States spend \$10,000,000 every year for screening against flies and mosquitoes, and concludes that if this enormous expense is at all necessary, it should be done thoroughly. The individual use of mosquito bar over beds is a more promising protection against malaria infection than screening the house among the tenants. One careless member in a household will offset the care taken by all other members in a screened house; but the mosquito bar protects the individual. It also implies no reconstruction of buildings, and places no restrictions on the movement of individuals from point to point.

##### Resolutions

Resolutions were adopted opposing legislation prohibiting the use of dogs for scientific purposes; urging the appointment of committees in the several countries represented in the association by their federal governments to study existing methods for the preservation and improvement of health of the people, such as hospital facilities, public health activities, charitable institutions and compulsory health insurance, with the view of reporting some adequate plan for coordinating the already existing activities and for the existing application of scientific and social agencies for accomplishing the desired ends; urging the enactment of legislation which will increase substantially the pay of the officers of the U. S. Public Health Service; to set a national medical examination week during May, 1920; to cooperate with the U. S. Public Health Service in carrying out the provisions of the act to provide for the care of persons afflicted with leprosy and to prevent the spread of leprosy in the United States; to assure for the future a national health program and a coordinated federal health administration; to appoint a committee to study the needs of the national health situation and to confer with other agencies having the same object in view, and to secure the appointment of a special congressional commission for a survey of federal health activities along the general lines of the France-Denison resolution; to commend the work of the U. S. Army and Navy in combating venereal diseases during the war; and, in view of the importance of thorough eradication measures for the control of plague among the ground squirrels of the Pacific Slope, urging Congress to appropriate \$1,000,000 to be expended by the U. S. Public Health Service in this work.

##### Influenza Mortality Among Wage Earners and Their Families

LEE K. FRANKEL and LOUIS I. DUBLIN, New York: White rather than colored people were attacked by the pandemic of influenza, and the young rather than the old, a reversal of usual conditions. The 70,729 deaths included in this study were largely concentrated during October, November and December, 1918. October alone showed 34,471 deaths, or nearly one half of all the deaths in the entire period. In October, the death rate was 3,395 per hundred thousand; in November, 1,035, the figures declining rapidly thereafter, with a slight halt, however, in February and March. During the period 1911 to 1917, considering these seven years as a norm, there was an annual influenza pneumonia rate of 125 per hundred thousand. On the basis of the rate for the year ending September, 1918, there would have been only 13,891 deaths, as against the 70,729 that actually occurred. From 1911 to 1917, the mortality rate showed an excess of 18 per cent. males over females among white lives, and of 30 per cent. among colored lives. For the period from October, 1918, to June, 1919, the excess of males over females among the

whites was only 3 per cent., and there was no excess at all among colored lives. From 1911 to 1917, influenza pneumonia showed an excess of 72 per cent colored males over white males, and of 50 per cent colored females over white females. During the period of the epidemic, the situation was reversed. The colored males showed a rate of 1,522 per hundred thousand, as compared with a rate of 1,844 per hundred thousand for white males.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Physiology, Baltimore

Oct. 1, 1919, 50, No. 1

- \*Acidosis During Starvation. H. Asada, Tokyo.—p. 1.
- \*Studies on Extract of Lung. K. Kakinuma, Tokyo.—p. 9.
- \*Vital Staining and Acidosis. H. Asada, Tokyo.—p. 20.
- \*Studies in Secondary Traumatic Shock. IV. Effect of Volume Changes and Effect of Gum Acacia on Their Development. H. S. Gasser, J. Erlanger and H. W. J. Meek, St. Louis.—p. 31.
- \*Catalases of Blood During Anesthesia. S. P. Reimann and C. E. Becker, Philadelphia.—p. 34.
- \*Physiology of Stomach. II. Control of Pylorus. A. B. Luckhardt, E. T. Phillips and A. J. Carlson, Chicago.—p. 57.
- Physiologic Studies on Planaria. II. Oxygen Consumption in Relation to Regeneration. L. H. Hyman, Chicago.—p. 67.
- \*Effect of Anesthesia and Operation on Certain Metabolites. S. P. Reimann and E. L. Hartman, Philadelphia.—p. 82.
- \*Experimental Surgical Shock. V. Treatment of Condition of Low Blood Pressure which Follows Exposure of Abdominal Viscera. E. C. Mann, Rochester, Minn.—p. 89.
- \*Effect of Increased Intracranial Pressure on Body Temperature. L. M. Moore, San Francisco.—p. 102.
- Studies in Secondary Traumatic Shock. V. Restoration of Plasma Volume and of Alkali Reserve. H. S. Gasser and J. Erlanger, St. Louis.—p. 104.
- Id. VI. Statistical Study of Treatment of Measured Trauma with Solutions of Gum Acacia and Crystalloids. J. Erlanger and H. S. Gasser, St. Louis.—p. 119.
- \*The VII. Action of Hypertonic Gum Acacia and Glucose after Hemorrhage. J. Franger and H. S. Gasser, St. Louis.—p. 149.
- \*Influence of Oxygen Administration on Concentration of Blood Which Accompanies Development of Lung Edema. D. W. Willis and S. G. Lehman, U. S. Army.—p. 157.
- \*Effect of Epinephrin, Desiccated Thyroid and Certain Inorganic Salts on Catalase Production. W. E. Burge, Urbana, Ill.—p. 165.

**Acidosis During Starvation.**—In his studies on acidosis during starvation, Asada used Van Slyke and Cullen's method for plasma bicarbonate determinations. On the first and second days of starvation the plasma bicarbonate in the arterial blood of rabbits showed a drop from the normal value. On the third day of the fast there was a second rather sharp fall, after which there was no change until the fourth day. On the tenth fasting day there occurred a third rather moderate fall, after which no further marked change took place until the end of life. Generally, the arterial plasma of rabbits has 55 volume per cent. of carbon dioxide, the first fall is about 5 volume per cent., the second about 10 and the third about 6 volume per cent. The amount of carbon dioxide in the arterial plasma is influenced considerably by the condition of the animals. After one extraction of the arterial blood from the carotid, the acidosis seems to be correspondingly increased, because by the second extraction the amount of carbon dioxide is always less than that of the first extraction on the same fasting day. In the moribund rabbit a contrary result is obtained, i. e., the amount of carbon dioxide in the arterial plasma does not decrease but increases. This is also the case in the arterial plasma immediately after death. In Asada's opinion this increase is not due to bicarbonate, but rather to an accumulation of carbon dioxide caused by the failure of the circulatory as well as the respiratory functions. The rate of the loss of body weight is affected by wide individual fluctuations which may or may not be influenced by the blood extraction. The animals lived in the state of an absolute fast for from eleven to twenty days and at the end of life had lost from 27.69 to 52.37 per cent. of their initial weight. Microscopically, many organs showed cloudy swelling, vacuolization and

atrophy. There was invariably an intensive congestion in every glandular organ, but fatty degeneration was found almost in no case.

**Studies on Extract of Lung.**—The toxic action of lung extract and means for neutralizing this action were made the objects of Kakinuma's investigations. He found that intravenous injection of beef lung extract into guinea pigs invariably causes dyspnea and, in a majority of cases, convulsions as well. The minimal lethal dose of the beef lung extract for guinea-pigs on intravenous inoculation varied from 0.02 to 0.15 c.c. per 100 gm. of body weight. Glucose destroys the toxicity of lung extracts. Thus 1.0 c.c. of 10 per cent. glucose mixed with the minimal lethal dose of lung extract renders the latter inert. Hypodermic injection of epinephrin immediately before an intravenous lethal dose of lung extract was protective in effect. Intravenous injection of lung extract caused a slight increase in the blood sugar of rabbits.

**Vital Staining in Acidosis.**—The vital staining method by injection of lithium carmin solution into the ear vein of living animals was studied by Asada. He found that vital staining cannot be accomplished by a single intravenous or intraperitoneal injection of lithium carmin in subtoxic doses in a healthy animal. If, however, an acidosis be first established, a single injection of the dye will give a satisfactory stain. In animals which have been vitally stained, an actual decrease in plasma bicarbonate occurs. Hence, the conclusion is drawn that it is incorrect to predicate the existence of specific stain taking substances or granula in the cells. Rather, vital staining with lithium carmin is due to the development of an acidosis which so alters the function of the body cells that the diffusing dye is deposited in the granula. This deposition corresponds to the precipitation from colloidal solution of the dye when the normally alkaline solution is made acid *in vitro*.

**Studies in Secondary Traumatic Shock.**—Experiments were made by Gasser and his associates to determine the rôle that the absolute volume of the blood plays in the reduction of the effective volume in shock, and to evaluate the possible modes by which such a reduction might be brought about. Four forms of experimental shock were studied, namely, those produced by injections of massive doses of epinephrin; by clamping the vena cava above the liver for a period of three hours so that the general arterial pressure was 30 to 40 mm. of mercury; by clamping the abdominal aorta above the celiac axis for a period of three hours so that the distal pressure was 30 mm. of mercury and by exposure and manipulation of the intestines. The blood volume was found to be decreased in all forms of experimental shock studied and after all grades of damage. Red cell counts or hemoglobin determinations were of value in indicating blood volume only when no absolute stasis occurred and when no corpuscles were jammed in the capillaries. The effective volume of the blood may be reduced in the following ways: 1. By decrease in the volume of the blood as the result of: (a) transudation of plasma; (b) transudation of plasma and jamming of the corpuscles in the capillaries and venules, or the latter combined, with (c) absolute stasis in some part of the vascular system, and (d) hemorrhage into tissue, especially into the lumen of the intestines. 2. By dilatation of the capillaries and small veins with greatly decreased slowing of the circulation. This is always attended by some loss of plasma, but the latter may be relatively inconsiderable. The transudation of plasma is greatly opposed by the injection of 4 c.c. per kilogram of 20 per cent. acacia before traumatization. The mechanism of action is believed to be due mainly to the antagonism to filtration by the resulting increase in the osmotic pressure of the plasma colloids.

**Catalases of Blood During Anesthesia.**—Estimations of the catalases of the blood were made by Reimann and Becker before and after anesthesia. They were decreased in 65 per cent. of the cases and increased in 35 per cent. The methods for the determination of catalases have been criticised and the opinion expressed that they are inaccurate, and that no deductions can be drawn from them. The authors' results before and after anesthesia come within the experimental error. The functions of catalases in the body are unknown.

**Control of Pylorus.**—Evidence is presented by Luckhardt and others on the basis of experimental work on man and dog that there is a correlation between marked motor activity of the stomach (either as tonus changes or peristalsis) and an inhibition in tone of the pyloric sphincter. The intragastric contents issuing from the duodenostomy were usually acidic toward phenolphthalein but rarely showed presence of free acidity to dimethylamidoazobenzene or congo red. It seems probable to the authors that even under normal conditions the chemical control has been greatly overemphasized to the exclusion of other possibilities. Another important finding was the fact that vomiting is more easily induced by irritating the duodenal mucosa than by an irritation of the gastric mucosa.

**Effect of Surgical Procedures on Metabolites.**—A certain few surgical patients show uncompensated acidosis after anesthesia and operation. These studies were made by Reimann and Hartman to show, if possible, changes in the nitrogen metabolism. About ninety patients were observed. The urinary acidity was increased very definitely in every case until in some instances, almost half normal acid was excreted. The blood urea and nonprotein nitrogen were increased in every case. In the urine the general tendency of the ammonia was to increase, whereas the excretion of urea was either increased or diminished, with apparently no relation between the urea in the urine and in the blood. The question of retention or increased production suggested itself in the case of the increase in the blood urea and nonprotein nitrogen.

**Experimental Surgical Shock.**—All the more important methods of treating under standard experimental conditions a state that exhibits the clinical signs of surgical shock which is produced by the exposure of the abdominal viscera of a dog, under a constant ether anesthesia, until blood pressure decreases to the desired level, were tested by Mann. The therapeutic measures were tested after the viscera had been replaced and after determining the curve of the blood pressure. The value of the classical use of heat as well as the effect of cold in helping to produce the condition, was corroborated experimentally. Experimentally, rebreathing was not found to be of importance. None of the drugs usually employed in the treatment of shock were found to be very effective. The best results in the treatment of experimental shock were obtained by the injection of fluid media. The data of the experiments justify the conclusion that none of the artificial solutions give such good results as the use of blood. The so-called colloidal solutions and their various modifications give better results than physiologic sodium chloride solution, but their potency is certainly not equal to blood or blood serum and occasionally they might be harmful.

**Increased Intracranial Pressure and Elevation of Body Temperature.**—The results obtained by Moore in her experiments support the view that temperature regulation is dependent on physicochemical factors without the intervention of hypothetical "heat centers." The rise in body temperature and other symptoms attending increased intracranial pressure correspond so closely to those of "heat puncture" in which there is generally sufficient brain lesion to cause an increase in pressure in the brain cavity, and those of clinical brain lesions, that it seems possible to apply the same explanation to each of these cases. Moore thinks the rise in temperature which is reported by advocates of the "heat center" theory as being due to "heat puncture" can be explained in a like manner, as can also the rise obtained in 22 per cent. of her punctures and the fatal symptoms in a number of these and other cases.

**Gum Acacia in Secondary Traumatic Shock.**—Experiments were made by Gasser and Erlanger which had as their first object a detailed inquiry into the mechanism of why a concentrated solution of gum acacia tends to prevent the concentration of the blood which otherwise practically invariably develops while shock is being induced. When glucose in 18 per cent. solution is injected into the circulation of a normal animal the blood comes into osmotic equilibrium with the tissues within the first minute or two, the average

maximum dilution amounts to but half of the theoretical maximum, and the blood regains its normal concentration within from five to forty-five minutes. When gum acacia in a concentrated solution is injected the average maximum dilution of 41.7 per cent. of the theoretical maximum is attained within from twenty-five to fifty minutes; the decline of the blood volume to normal requires from two and one half to six or more hours. When the concentrated acacia is immediately followed by the glucose the maximum dilution is quickly attained and is much greater than that resulting from the injection of either of the two substances alone. The dilution is well maintained. Comparable results are obtained in animals in shock when a strong solution of gum acacia is followed by a solution of sodium bicarbonate that is isotonic to 18 per cent. glucose. With such a combination of solutions given in appropriate amounts, the blood volume, the blood pressure and the reserve alkali of animals in shock often can be brought to normal and held there for the usual duration of an experiment. Yet such animals, as well as shocked animals treated with other combinations of gum acacia and carbonate or bicarbonate, often died within twenty-four hours.

**Treatment of Traumatic Shock.**—Of animals traumatized by holding the arterial pressure down to 40 mm. Hg for two hours and fifteen minutes by partially occluding the inferior vena, 48 per cent. die within forty-eight hours. When treated with 6 per cent. gum in 2 per cent. sodium bicarbonate, 12 c.c. per kilogram of body weight, 45 per cent. die within forty-eight hours. When treated with 25 per cent. gum followed by 5 per cent. sodium bicarbonate, of each 5 c.c. per kilogram of body weight, 56 per cent. die within forty-eight hours. When treated with 25 per cent. gum followed by 18 per cent. glucose, of each 5 c.c. per kilogram of body weight, 45 per cent. die within forty-eight hours. When treated with 25 per cent. gum in 18 per cent. glucose, 5 c.c. per kilogram of body weight and hour, 24 per cent. die within forty-eight hours. Not only is the death rate increased by the third treatment, but death occurs earlier. These results are taken to indicate that bicarbonate and the high viscosity of a strong gum solution are somewhat harmful, at least, in traumatized animals; that the harmfulness of the strong viscous gum can be avoided, in part, through the osmotic action of hypertonic glucose subsequently injected, but not by bicarbonate; and that when the hypertonic gum and the hypertonic glucose are given simultaneously and slowly so as to avoid altogether the period during which the high viscosity of the gum is hampering the circulation, a maximum saving of life can be effected. The beneficial results presumably are due to the internal transfusion effected by the hypertonic solutions, to the maintenance of the increased blood volume through the colloidal and possibly other properties of the gum acacia, and to the action of the hypertonic solution on the heart and blood vessels, and to the specific action of glucose on nutrition in general and on that of the heart muscle in particular.

**Hypertonic Gum Glucose in Secondary Traumatic Shock.**—According to these observations made by Erlanger and Gasser the use of hypertonic gum glucose solution is not contraindicated in the treatment of shock even when it is complicated by dangerous hemorrhage. The fact that the hypertonic gum glucose solution does not produce the recovery of animals from the effect of a hemorrhage that is apt to result fatally furnishes another proof of the innocuousness of this solution.

**Effect of Oxygen on Blood Volume in Lung Edema.** The continuous administration of oxygen to goats passed with chloroform did not inhibit the concentration of the blood. The percentage saturation of the hemoglobin with oxygen was normal even after a considerable concentration of the blood had occurred. The concentration of the blood is not caused by the imbibition of water by the tissue as the result of oxygen want. Wilson and Goldschmidt conclude, therefore, that the loss of water from the blood is due to the development of the edema of the lungs.

**Sympathetic Nervous Control of Thyroid Function.**—In one series of five rabbits given daily injections of about 10

mg of cocaine per kilogram body weight for eight days there was observed no change whatever in the microscopic appearance of the thyroid glands. A second series of three rabbits was run, each animal receiving from five to ten injections a day for eleven days, and again no changes in the glands were observed. Neither did the rate of growth or general appearance and behavior of the animals indicate any lasting results from the use of the drug. Since the strength or effectiveness of the impulses over the sympathetic fibers should have been greatly augmented by the continued use of cocaine producing symptoms of thyroid hyperactivity and morphologic changes in the gland, Mills concludes that the evidence from these experiments contributes to the indication of a lack of secretory function of the sympathetic fibers to the thyroid gland.

### Annals of Medical History, New York

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- Anatomists in Search of the Soul. G. W. Corner, Berkeley, Calif.—p. 1.  
 Medical Gods of Ancient Iran. W. A. Jayne, Denver,—p. 8.  
 The "Pulmoner" of the Sixteenth Century. J. C. Warren, Boston.—p. 14.  
 Birthplace of the Hunters. F. H. Garrison, Washington, D. C.—p. 21.  
 Two Chapters in History of Laryngology and Rhinology. J. J. Walsh, New York.—p. 25.  
 Modern Commentaries on Hippocrates. J. Wright, Pleasantville, Ky.—p. 34.

### Annals of Otolaryngology and Rhinology, St. Louis

June, 1919, 28, No. 2

- \*Streptococcus Hemolyticus Carriers—Clinical Aspect. J. H. Bryan, Washington, D. C.—p. 337.  
 Bacteriology of Throat Carriers of Streptococcus Hemolyticus. H. J. Nichols, U. S. Army.—p. 344.  
 \*Bacteriology of Streptococcus Hemolyticus. O. T. Avery, A. R. Dochez and R. C. Lancefield, New York.—p. 350.  
 \*Relation of Streptococcus Hemolyticus Carriers to Streptococcus Epithelialis in Army. F. G. Blake, U. S. Army.—p. 361.  
 Streptococcus Carriers. F. F. Russell, Washington, D. C.—p. 374.  
 Role of Labyrinth in Flying Efficiency. H. Horn, San Francisco.—p. 81.  
 Organization of Section of Defects of Hearing and Speech. C. W. Richardson, Washington.—p. 421.  
 Nasal Sinus Disease in Infants and Young Children, Including Bacteriologic Study. I. W. Dean and M. Armstrong, Iowa City, Iowa.—p. 452.  
 \*Carcinoma Extirpation of Larynx in Carcinoma. T. Hoshino, Niigata, Japan.—p. 466.  
 \*Operation for Preservation of Mucoperiosteum in Resection of Portion of Maxilla in Case of Melanofibrosarcoma. T. Hoshino and K. Otta, Niigata, Japan.—p. 479.  
 Increased Hearing Following Paralysis of Nerves Abducent, T. Hoshino and S. Simasaki, Niigata, Japan.—p. 489.  
 Aural Complications of Recent Influenza Epidemic. F. T. Hill, Fort Ogden, Ia.—p. 497.  
 Case of Suppurative Labyrinthitis and Tuberculosis of Cerebellopontine Angle, Cerebellar Abscess, with Military Tuberculosis of Lungs, Spleen, Kidneys and Intestines. J. W. Dean, Iowa City, Iowa.—p. 514.  
 Anesthetic Reaction. A. A. Hayden, Chicago.—p. 518.  
 Malarial Virus. Operator. C. S. Case, Chicago.—p. 555.  
 Professor Procedure for External Drainage of Retropharyngeal Abscess Secondary to Caries of the Vertebrae. L. W. Dean, Iowa City, Iowa.—p. 566.

**Streptococcus Hemolyticus Carriers.**—Bacteriologic examination of a considerable number of excised tonsils has convinced Bryan of the futility of local treatment in attempting to eradicate *Streptococcus hemolyticus* from the tonsils. While it may be possible to sterilize the surface of the tonsil and remove the crypts there will nevertheless remain a number of deep crypts that are inaccessible to any chemical means of disinfection. Granting that all the crypts were accessible there still remains the possibility of still further disease in the deeper and more inaccessible parts of the gland. Therefore, all local treatment after the cultures show the presence of *S. hemolyticus* is not only deceptive but it is a waste of time. A complete enucleation of the tonsil is necessary. Any tonsillar tissue remaining after an incomplete operation harbors the organism and the patient continues to be a carrier.

**Bacteriology of Streptococcus Hemolyticus.**—In this paper are presented the facts obtained in a biologic study of *S.*

*hemolyticus*. By the reaction of agglutination four distinct immunologic types and a certain number of unclassifiable strains have been discovered among the 125 strains studied by Avery and his associates, Dochez and Lancefield. Individuals of the same type are closely related to one another immunologically, and the different types can be distinguished sharply one from the other. In addition to the four types, study of the reactions of which has been completed, there are in addition two other types, investigation of which is as yet incomplete. The authors found that by the immunization of sheep, a highly specific agglutinating serum is obtained, but that the serum produced from rabbits is not so specific and may show a wider range of crossing. Rabbit serums showing nonspecific cross agglutination reactions, in general fail to manifest corresponding cross protection reactions. Whenever it has been possible to raise the animal virulence of strains of *S. hemolyticus*, the evidence obtained from the agglutination tests has been confirmed by that gained from the protection reaction. In all instances in which this has been done, the one reaction has corroborated the findings of the other. The performance of reliable protection tests has been made possible by the production of sufficiently high titer antistreptococcus serum, and by the possibility of raising the animal virulence of a certain number of strains to a high degree.

This work has cleared up a number of points about *S. hemolyticus* which have been in dispute for many years. In the first place, *S. hemolyticus* of human origin is not a unit type, as was previously supposed, but probably consists of a number of types, at least four of which have been identified. Previous investigators have stated that freshly isolated human strains change their antigenic properties on animal passage, and that the latter procedure for the development of animal virulence gives a common antigenic character to all strains. The authors have found no evidence to support this contention—in fact, immune serums produced with human strains that have never been passed through animals afford a high degree of protection against strains that have received many animal passages. In addition, the antigenic differences between strains of *S. hemolyticus* which have been passed through animals are quite as distinct as those between strains which have not been so passed. The types of *S. hemolyticus* studied have been obtained almost exclusively from the respiratory tract and from a limited source of supply, and there is some reason to believe that those which produce cellulitis, erysipelas and septicemia may be of somewhat different character.

**Streptococcus Carriers in the Army.**—The available evidence presented by Blake would seem to indicate that the widespread streptococcus infections that have occurred in the army have, in very large part, been due to invasion of virulent streptococci in individuals rendered susceptible by predisposing diseases, chiefly measles, influenza and pneumococcus pneumonia through contact infection, either direct or indirect, and that autogenous infection has played an insignificant rôle in the production of these streptococcus infections. Their truly epidemic character and their strikingly selective incidence, Blake says, would seem to admit of no other interpretation.

**Nasal Sinus Disease in Infants.**—In all cases of infectious arthritis in infants and young children studied by Dean and Armstrong during the last eighteen months, the source of infection has been in the upper respiratory tract, in the nasal sinuses, or faucal or pharyngeal tonsils. In no case were the teeth, the gallbladder, appendix or the lingual tonsil the source of infection. The most common symptom has been sneezing. A condition characterized by listlessness, poor appetite, underweight, poor color, so commonly caused by diseased tonsils, which persists after the removal of the tonsils and adenoids, with negative report from the pediatrician so far as a systemic condition is concerned, is very suspicious of sinus disease. The diagnosis of sinus disease is very difficult. It is only by repeated examinations of the nose and careful study of the case from every angle, that a proper diagnosis can be made. The most important thing in the treatment of nasal sinus disease in infants and young

children is the removal of the adenoids and diseased tonsils, if present.

**Complete Extirpation of Larynx for Carcinoma.**—Hoshino has observed forty-one cases of laryngeal carcinoma, in sixteen of which a complete extirpation of the larynx was done, most often under local anesthesia. Hoshino describes the operation in detail. He says that better results are obtained when there are two flaps in the skin incision, each having its stalk in the side of the neck, than when there is only one large flap with one base. It is more successful to section the trachea below the larynx and arrange for safe respiration before removing the tumor. The pharyngeal wound is sutured with a double suture, but the mucous membrane is approximated in the submucous layer. Between the main laryngeal wound and the opening of the trachea should be a bridge of intact skin, as Grueck suggested. For the purpose of conversation after extirpation, a simple rubber tube is used by Hoshino, one end being introduced into the trachea while the other end is held in the mouth. This tube enables the patient to whisper with the help of his lips, teeth, tongue, palate and pharyngeal muscles. The tube is much easier to use than the modern complicated artificial larynx, and is better liked by the patient. The percentage of permanent cures in Hoshino's sixteen cases, was 50, while there was also 50 per cent. recurrence, with no mortality during or following the operation.

**Conserving Mucoperiosteum in Maxilla Resection.**—In the case cited by Hoshino and Ota a tumor about the size of a hen's egg was situated on the left upper alveolar process. The tumor was chiseled away from the healthy bone, thus leaving only the mucoperiosteum for the floor and lateral wall of the nasal cavity. It was necessary to remove the anterior part of the alveolar process from the incisor tooth on the right side to the first molar tooth on the left side and also the anterior half of the hard palate. In addition, one third of the median wall of the antrum of Highmore was removed, but the mucosa of the sinus was not disturbed. The oral mucous membrane on the remaining portion of the hard palate, and that on the upper lip was loosened and then approximated to the edges of the wound. This left a small wound in the roof of the mouth which had to heal by a process of granulation from the surrounding edges of the mucosa, while the nasal cavity was covered entirely by the mucoperiosteum. The patient recovered in sixteen days without any complications. He is able to talk and to swallow food without any of it passing into the nares.

### Boston Medical and Surgical Journal

Nov. 6, 1919, 181, No. 19

Neurologic Surgery and the War. H. Cushing, Boston.—p. 549.  
Few Industrial Medical Problems and Tendencies. H. W. Marshall, Boston.—p. 554.  
Epilepsy in Schoolchildren. E. A. Tracy, Boston.—p. 558.

### Bulletin of Johns Hopkins Hospital, Baltimore

October, 1919, 20, No. 344

Dr. Howard A. Kelly, T. S. Cullen, Baltimore.  
Chronic Pemphigus Vegetans of Several Years' Duration. L. F. Barker and D. W. Carter, Jr., Dallas, Texas.—p. 302.  
Studies on Blood Sugar. IV, Effects on Blood Sugar of Repeated Ingestion of Glucose. L. Hamman and I. I. Hirschman, Baltimore.—p. 306.  
Benzin Poisoning, Report of Chronic Case. R. L. Haden, Detroit.—p. 309.  
Reaction of Monkeys to Inoculation of Measles Blood. A. W. Sellards, U. S. Army.—p. 311.

**Studies on Blood Sugar.**—Experiments made by Hamman and Hirschman showed that in normal persons the administration of a second dose of glucose immediately after the reaction to the first dose produces a much less marked reaction on the blood sugar than did the first dose. These experiments indicate that the mechanism of carbohydrate utilization once stimulated works more efficiently than when called on abruptly to manage large amounts of glucose. Probably to this fact is largely due the better utilization of sugar slowly absorbed, and the almost unlimited power of the body to utilize starch. In diabetics the same difference is observed as in normal persons, although the difference is

not so marked. It was found in testing several patients that they reacted to levulose in the same way that they did to glucose, only that the blood sugar rise was less marked.

**Chronic Benzin Poisoning.**—The symptoms complained of in a case of chronic benzin poisoning are referable almost entirely to the gastro-intestinal tract and the central nervous system. Haden describes them in detail as part of his case report. The factory at which the patient worked was visited. It was found that lithographing rolls were dropped into a trough, six feet long and one foot wide, filled with benzin, and scrubbed clean. About two gallons of benzin evaporated from the trough daily. The room in which the work was done was large, but from the nature of the lithographing inks it had to be closed tightly to prevent the ink from drying. The patient had worked for over a year, five hours daily, at this trough where he was continually inhaling the fumes.

**Reaction of Monkeys to Inoculation of Measles Blood.**—Blood from two early cases of measles in the pre-eruptive and later in the early eruptive stage was injected subcutaneously and intraperitoneally into two monkeys. One animal remained free from symptoms; the other developed a moderate leukopenia and later a slight rash. A portion of the same specimen of measles blood was injected subcutaneously and intramuscularly into two susceptible human volunteers. No symptoms resulted. A specimen of blood from the monkey which subsequently developed a rash was injected into a susceptible volunteer, but produced no symptoms. Normal serum injected into monkeys was followed by a very slight erythema appearing about eight to ten days after injection in four of ten animals. Sellards believes that the weight of evidence in these experiments is against the interpretation of the symptoms in this monkey as representing a reaction to the virus of measles.

### Modern Hospital, Chicago

November, 1919, 13, No. 5

Making the Hospital a Place of Beauty for the Patient. W. O. Ludlow, New York.—p. 265.  
Tuberculosis Hospital Constructed at Low Cost. H. L. Barnes, Walling Lake, R. I.—p. 351.  
Some Rural Communities and What Their Hospitals Mean to Them. M. K. Charin, Chicago.—p. 374.  
Management of Communicable Disease Hospitals. D. L. Richardson, Providence, R. I.—p. 384.  
Soul and Body of a Hospital Statistical Department. F. E. Chapman and L. C. Freedman, Cleveland.—p. 385.  
Efficiency in Tuberculous Sanatorium Administration. H. F. Gammons, Dallas, Texas.—p. 390.  
Outpatient Department and Social Service in California Hospitals in the United States. J. O'Grady, Washington, D. C.  
Crossed Infections and Methods for Prevention. A. L. Hayne, Chicago.—p. 346.

### New Jersey Medical Society Journal, Orange

November, 1919, 16, No. 11

Stork Taking. T. M. Crag, Philadelphia.—p. 297.  
Medical Service in Base Hospital. M. I. Szymanski, Montreal.—p. 327.  
Principles of Blood and Urine Chemistry. A. R. Cassell, Newark.—p. 331.  
Unmarried Child of Pre-school Age. J. Levy, Newark.—p. 316.  
Tuberculosis in Children. M. F. Urbank, Philadelphia.—p. 329.

### New Orleans Medical and Surgical Journal

November, 1919, 72, No. 11

Cancer in Section. J. T. Nix, New Orleans.—p. 24.  
Please Be More Careful Examination of Genital Lesions. F. J. Charney, New Orleans.—p. 215.  
Case of Hyponitrosuria. A. Laster, New Orleans.—p. 61.  
Traumatic Leptocoele. A. L. Levin, New Orleans.—p. 261.  
Yellow Fever in Guyana. W. Pareja, Guyana.—p. 231.  
Micro-History of Trypanosomiasis in Africa, Concerning Immunity to Human Trypanosomiasis. J. L. Todd, Montreal, Canada.—p. 291.

### Porto Rico Medical Association Bulletin, San Juan

September, 1919, 13, No. 124

Physicians and Prohibition. F. del Valle Atlas.—p. 51.  
Advantages of the Trichloueal Stain Over the Romanowich. J. Berrero Lago.—p. 63.  
At What Age Is the Prostitute Most Dangerous? Herman Gombert.—p. 66.  
Gleanings from My Reading. M. Martinez R.—p. 70.  
Burn from Hydrofluoric Acid Thrown on the Face. A. Martinez Alvarez.—p. 83.

**The Syphilitic Prostitute.** Goodman is in charge of the venereal service at Camy Las Casas, Porto Rico, and he here reports (in English) the results of clinical and serologic examination of 791 prostitutes in Porto Rico. His tables show that 139 of the 721 girls were under 17 years of age and 42 per cent. in this group had three or four plus Wassermann reactions; 15 per cent. had active infectious syphilitic manifestations. About 48 per cent. of the total were between 18 and 23 years of age; 50 per cent. of these gave a pronounced Wassermann reaction; 11 per cent. had active genital lesions of syphilis. Of the 147 women between 23 and 27 years of age 45 per cent. were serologically positive, and 11 per cent. had dangerous syphilitic manifestations. Only sixty-four women were in the age group 28 to 32 years, and 43 per cent. of these had three or four plus Wassermann reactions but only 4 per cent. had active lesions. In the three five-year periods above this, from 33 to 37, 38 to 42 and 42 to 56, thirty-six, twelve and five women of a positive Wassermann reaction was obtained in 38, 33 and 25 per cent. respectively. The series of prostitutes studied included 422 whites, 304 mulattoes and 65 negroes, but the proportion of positive Wassermann reactions was about 47 per cent. in each group. In the ratio of active syphilitic lesions, however, the whites gave 10 per cent., the mulattoes 13 per cent. and the negroes only 3 per cent. with infectious syphilitic manifestations.

### Public Health Journal, Toronto

November, 1919, 10, No. 11.

- Reconstruction of Adolescent Period of Canadian Girl. W. H. Roberts. New Brunswick.—p. 489.  
 Medical and Allied Professions as a State Service. F. Harris. Halifax.—p. 497.  
 Inoculation. H. O. Howitt. Guelph, Ont.—p. 508.  
 Social Problems for the New M. O. H. D. V. Currey. St. Catharines, Ont.—p. 514.  
 1919: For More Effective Federal and State Health Administration. F. L. Hoffmann. Newark, N. J.—p. 515.  
 What to Teach About Parenthood and How to Teach It. M. Patterson.—p. 523.

### Tennessee State Medical Association Journal, Nashville

October, 1919, 12, No. 8

- Rheumatism in Child. J. M. Lee. Nashville.—p. 199.  
 Fracture of Pelvis. Report of Four Cases. E. T. Sewell. Chattanooga.—p. 212.  
 Differential Diagnosis of Follicular Conjunctivitis and Trachoma. C. M. Capps. Knoxville.—p. 208.  
 Gallstones. W. N. Lynn. Knoxville.—p. 211.  
 Hemorrhoids with Special Reference to Treatment. I. G. Duncan. Memphis.—p. 214.  
 Otitis Media Complicating Influenza. J. Witherspoon. Nashville.—p. 215.  
 Pituitary Determining Prophylactic or Curative Value of Bacterial Vaccines, with Special Reference to Influenza. G. W. McCoy, Washington, D. C.—p. 219.

### FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

#### British Journal of Tuberculosis, London

October, 1919, 13, No. 4

- Humidity as a Factor in the Problem of Tuberculosis. W. Y. Unger.—p. 153.  
 Tuberculosis and Housing in Rural Districts. G. Savage.—p. 160.  
 Progress and Arrest of Tuberculosis in Canada. G. D. Porter.—p. 165.  
 \*Treatment of "M" in Tuberculosis. R. W. Allen.—p. 170.  
 Allergic Reaction to Tuberculous Subjects. B. Hudson.—p. 174.

**Tuberculin Therapy.**—Allen took several strains of living human tubercle bacilli, treated them carefully with various solvents for the fats and waxes, dried and weighed them and so injected them to the very slow action of dilute hydrogen peroxid until only a slight apparently insoluble residue was left. After careful neutralization this solution was diluted with physiologic sodium chloride solution containing 0.3 per cent. tricesoid until 1 c.c. contained 20 mg. of the original dry bacilli. By the addition to this of an equal bulk of tuberculin A. F. (albumose free) tuberculin "M" is constituted. It accordingly contains (1) any little exotoxin which the tubercle bacilli may form growing in a protein

free medium; (2) any endotoxin liberated by the autolysis of dead bacilli; (3) the broken down protoplasm formed by this autolysis; (4) bacillary protoplasm and endotoxin in considerable amount after lysis, oxidation and hydrolysis. It contains no products resulting from the action of the bacilli and protein nutrients, i. e., no non-specific toxins which may give rise to considerable constitutional reactions, while the bulk of the specific toxins have been subjected to oxidation and hydrolysis as must naturally occur in the body prior to the elaboration of specific anti-endotoxins. This tuberculin is, therefore, practically "atoxic" or "detoxicated," and can, therefore, claim precedence as such to any Thomson's detoxicated vaccines. Thus far Allen has given several hundred doses varying from 0.001 c.c. to 1.0 c.c. in chronic and subacute cases, and has never seen any constitutional or general reaction result from a dosage of less than 0.4 c.c. other than a very slight feeling of malaise coming on within twenty-four hours. In every case he has been able to find a dosage, usually varying between 0.001 c.c. and 0.001 c.c., which excites that mild degree of "focal" reaction which Allen considers as a highly desirable evidence of immunizing response, i. e., slight exacerbation of the signs and symptoms usually occurring within eight to twenty-four hours and thereafter passing away rapidly; in every case there has been steady improvement in the clinical signs and symptoms; in each case of completed treatment Allen has so far apparently induced the total disappearance of the tubercle bacilli; in one case, wherein for various reasons a complete course of treatment has been thrice interrupted, the tubercle bacilli, after having disappeared, have reappeared in about three months' time, again to disappear as tuberculin treatment was resumed. In view of these conclusions Allen feels justified in claiming after an experience of various tuberculins extending over nearly fifteen years, that in tuberculin "M" he has succeeded in elaborating a tuberculin which (1) is perfectly safe to use, being practically devoid of unaltered toxins; (2) which undoubtedly possesses power of inciting the formation within the body of the various antibodies necessary for the destruction of the invaders; and (3) which has an antigenic value far superior to any other tuberculin so far produced. For these reasons it is peculiarly adapted for the treatment of dispensary cases and of all such as are not resident in any institution. A safe initial dosage for an adult with chronic or subacute tuberculosis is 0.001 c.c. The administration as regards dosages and intervals must be conducted under the control of observations of the reactions thereby induced; that an ultimate dosage of from 0.4 to 1 c.c. can and should, as a rule, be attained.

#### British Medical Journal, London

Oct. 18, 1919, 2, No. 3068

- What Did John Hunter do for Medicine? A. Keith.—p. 485.  
 Surgical Training: Reminiscences and Suggestions. H. J. Sites.—p. 487.  
 \*Traumatic Aneurysm of Common Carotid. R. Jamison.—p. 488.  
 \*Traumatic Rupture of Subclavian Artery: Death Nine Days Later. D. C. L. Fitzwilliams.—p. 488.  
 Balance of Colloid and Crystallloid in Cholera, Shock and Allied Conditions. H. Moore.—p. 490.  
 \*Treatment of Incipient Mental Disease. R. A. Jones.—p. 492.  
 Cure of Bilharziasis by Intravenous Injections of Antimony Tartrate. J. B. Christopherson.—p. 494.  
 Two Cases of Hypernephroma of Ovary. A. K. Gordon.—p. 495.  
 Ionic Medication in Cancer. M. Wardle.—p. 495.  
 Case of Fractured Skull with Hemorrhage. A. L. Gregg.—p. 496.  
 \*Absence of Uterus, Fallopian Tubes, one Ovary and Vagina, with One Large Central Kidney. F. R. Parakh.—p. 496.

**Traumatic Aneurysm of Common Carotid.**—Jamison cites two cases. One was a case of gunshot wound of the neck causing an arteriovenous aneurysm of the left common carotid. The internal vein was enormously distended, having a diameter of 2 inches. There was a communication between it and the internal carotid just below its division. The vein was divided and tied. The common carotid was ligatured in two places and divided between them. The external and internal carotids were ligatured at their origin from the common trunk. The second case was one of gunshot wound of the neck causing a dissecting aneurysm of the left com-

mon carotid artery. The sac of the aneurysm was roughly fusiform, and extended from 1½ inches above the clavicle to somewhere about the level of the lower jaw. The sac was perilously thin, and appeared to consist only of some of the outer coat of the artery. The internal jugular and the common carotid were ligatured. During the process the sac burst spontaneously in its upper part. A swab was pressed on the hole and controlled the bleeding. The tying of the carotid was then finished. The sac entirely overlaid the external and internal carotids, preventing any search for them, so two swabs were placed on the hole in the sac and pressure maintained on them by sewing the inner edge of the carotid sheath firmly to the edge of the fascia covering the sternocleidomastoid. This proceeding stopped the hemorrhage and the wound was closed. The wound was reopened five days later and the swabs removed. The sac had been obliterated entirely and no hemorrhage occurred. The wound was reclosed. Both patients were young men and made uninterrupted recoveries.

**Traumatic Rupture of Subclavian Artery.**—In this case the rupture of the artery was caused by the pole end of a hoat hook which was pressed against the chest beneath the left clavicle. An operation was done at once. The proximal end of the artery was clamped. The distal end could not be found. The patient was very restless and would not keep his arm quiet. Further operative intervention was deferred until the patient's strength would permit it. He died on the ninth day from exhaustion. At the postmortem the subclavian artery was found completely severed, the distal end was full of firm clot. The vein was not torn. It is Fitzwilliams' opinion that this man's life might have been saved if he had been more reasonable and more amenable to treatment, in spite of the severe injuries he had sustained.

**Treatment of Incipient Mental Disease.**—Jones urges the establishment of psychiatric clinics because they would help to educate the public in matters of health, and certainly in respect of mental health. But besides their educational mission and their great therapeutic utility, they are urgently needed for the better education of medical practitioners and students and for research in psychiatry. Three universities in England have taken this matter into serious consideration.

**Absence of Uterus, etc., with One Large Central Kidney.**—Parakh's patient was 17 years of age. The vulva was perfectly formed, the pubis well covered with hair, and the breasts well developed. There was no vagina, except for about a quarter of an inch. On rectal examination a distinct tumor was felt a little above the closed end of the ill-formed vagina. This was believed to be the uterus, but neither tubes nor ovaries could be felt. On opening the abdomen it was found that the tumor felt from the rectum was a large central kidney, slightly horseshoe shaped, but placed low down. There was no ovary or tube on the right side, but a fairly large sized ovary was present on the left side, with a fallopian tube running down and disappearing into the upper end of the closed vagina. There were several small cysts in connection with the mesentery.

### China Medical Journal, Shanghai

September, 1919, 32, No. 5

- Investigations of Outbreak of Epidemic Meningitis in Hongkong. P. K. Glinisky.—p. 413.  
Three Cases of Intestinal Obstruction. R. H. Mole.—p. 432.  
Simple Method for Producing Anaerobic Conditions for Bacteria Cultures. L. M. Miles.—p. 444.  
Nervous Disorders of Sexual Origin. F. Olt.—p. 446.  
Case of Cholelithotomy: Patient Operates on Himself. J. A. Snel.—p. 454.  
Treatment of Malaria. R. V. Taylor, Jr.—p. 455.

**Anaerobic Conditions for Bacteria Cultures.**—The method described by Miles uses the hydrogen substitution process, and the apparatus consists of a flask fitted with a two hole stopper through one hole of which a thistle tube is inserted to the bottom of the flask, and through the other, a glass tube bent sharply in a short curve at the lower end, is inserted. Granulated zinc, or small squares of the metal, are placed in the flask. The other part of the apparatus is a beaker of about 500 c.c. capacity, half full of liquid petrolatum. Pre-

liminary to use, the flask and beaker are placed in a hot air sterilizer and heated to 150 C. for one hour. The culture of organisms is sowed on a freshly slanted agar tube; the tube is flamed well on the outside and inverted over the short tube end in the beaker of liquid petrolatum. Hydrochloric acid is added to the flask containing the zinc through the thistle tube; it is well to add also some water, and a little copper sulphate to act as a catalyzer. Hydrogen is evolved and in a short time it completely replaces the air in the culture tube. The tube is left in the oil and as many tubes are sowed as are needed. The beaker containing the culture tubes is then incubated, the liquid petrolatum effectually sealing the tubes against the entrance of air. One great advantage this method has over others is that the tubes are readily accessible for examination; they remain anaerobic so long as the open end is not removed from the oily liquid, and can be handled in examination. Further, the volume of air to be displaced is small in each tube and this increases the efficiency of the air substitution. Usually a few minutes will suffice to replace the air with hydrogen.

**Cholelithotomy Performed by Patient.**—Snell reports the case of a Chinese doctor who following an attack of dysentery had a very severe attack of pain in the upper right abdomen. This pain sometimes improved and then became worse. He had not noticed any jaundice or fever. About six months later a swelling appeared over the site of this pain. It was very tender and the patient had fever. The swelling took on the form of an abscess and the patient opened it himself with a knife. Some pus came away and later there was a watery, yellowish discharge which continued for several months. The wound did not heal. Four months later he noticed something dark and stonelike in the wound. On pressure out came two faceted stones. Twenty days later, four more were passed. The gallbladder was removed.

### Journal of Tropical Medicine and Hygiene, London

Oct. 15, 1919, 22, No. 20

- Insanitary Snails at Durban During Winter Months. F. G. Cawston.—p. 89.  
Diplocercaromas Soudanensis. A. J. Chalmers and W. Pekkola.—p. 100.  
Quinin Metrorrhagia. A. J. Chalmers and R. G. Archibald.—p. 191.

**Quinin Metrorrhagia.**—In the case cited by Chalmers and Archibald hemorrhage was due to quinin dihydrochlorid which the patient had been taking for several months as a prophylactic measure against malaria. The quinin was stopped and after a short interval the girl was placed on calcium lactate, 10 grains, twice daily. The metrorrhagia which had been going on for several months quickly ceased. There was, however, a slight recurrence with the next menstrual period, but this was quickly controlled by a few doses of the same mixture. The authors suggest that this line of treatment might be useful for controlling the metrorrhagia of the tropics when excessive.

### Lancet, London

Oct. 18, 1919, 2, No. 5016

- Third Eyelid. J. Bland Sutton.—p. 673.  
Serologic Differences Between Blood of Different Races. L. and H. Hirschfeld.—p. 675.  
Two Studies of Meningococcus Carriers. D. Emberton, W. S. Bryant and G. H. Steven.—p. 679.  
Inability of Red Blood Cells Preserved by Method of Roux and Turner. G. Dreyer and A. D. Gardner.—p. 687.  
Prognostic Importance of Tuberculosis of Larynx. S. Thomson.—p. 689.  
Ancylostoma Duodenale, with Pyloric Obstruction. H. K. V. Soltau.—p. 690.

**Serologic Racial Differences.**—The Hirschfelds point out that the highly interesting problem of a possible double origin of the human race has become a question which can be studied by means of serologic methods, and that experiments in immunization deserve to be made use of for the solving of anthropologic questions. A close cooperation would be necessary between anthropologists and serologists, and the researches should be conducted on an international basis. A series of important special researches, such as the examination of various stocks, primitive races, and anthropoid apes, should be begun without delay.

**Meningococcus Carriers.**—According to Embleton and his co-workers, the sites of carrying in the chronic meningococcus carrier are Luschka's tonsil, the fossa of Rosenmüller, the retronasopharyngeal wall, and the faucial tonsils. The anterior and upper parts of the nose and the nasal sinuses are not, as a rule, infected. The presence of lymphoid hypertrophy and nasal obstruction, although it may favor the production of a "chronic carrier," is not necessarily the cause. Meningococcus carriers are divided into two groups: (1) Acute or temporary carriers, those carrying under eight weeks; (2) chronic carriers, those carrying over eight weeks. Acute or temporary carriers remain infectious on an average for twenty-four days; the maximum discharge rate occurs during the third week. Chronic carriers remain infectious on an average for five and a half months, the longest carrying period found was 634 days, or one year and nine months. Eighty per cent of carriers are acute or temporary, 20 per cent chronic. The type of cocci carried rarely changes; in 905 carriers this was only observed to occur once. Treatment of the carrier appears to prolong the carrying period. The meningococcus remains in the "carrying site" until ousted by some other bacterium. A large number of nonagglutinable organisms, otherwise indistinguishable from the meningococcus, are probably altered meningococci. The best method of freeing a meningococcus carrier from infection is Nature, open air and exercise.

**Instability of Red Blood Cells.**—Dreyer and Gardner are convinced that it is not possible to obtain a standard suspension of red cells of constant sensitiveness to hemolysis by means of Rous and Turner's method. Therefore, the use of such suspensions as a standard unchanging material for experimental work or for routine complement fixation tests would necessarily lead to erroneous results.

**Ancylostoma Duodenale Causing Pyloric Obstruction.**—In the case recorded by Soltan pyloric obstruction was the obvious cause of the vomiting and a movable mass to the right of the median line suggested a new growth. A new feature was, however, presented when the patient passed large masses of the ova of *Ancylostoma duodenale*. Though the evacuation was not accompanied by any change in the tumor, the question arose whether there might not be ulceration caused by the ankylostoma with surrounding inflammation. Clinically, the mass resembled a pyloric cancer in outline, mobility, and situation, but might equally well be due to induration around an ulcer. The abdomen was distended. There was no free fluid in the general peritoneal cavity. Extending from the duodenopyloric junction toward the middle and involving the lesser curvature for about 2½ inches was a large mass firmly adherent to the liver, gall-bladder and pancreas. On the surface, and extending on to the anterior surface of the stomach, were many small, white, irregularly shaped patches resembling in appearance an actinomycetoma. These patches were not raised or hard. No enlarged gland were felt in the mesentery, but the glands in the lesser gastrohepatic omentum were palpable. In order to relieve this obstruction a posterior gastroenterotomy was performed. The result was most encouraging. The patient improved steadily. The following points are of interest: The onset with dysenteric symptoms and incessant tender emesis; the hematemesis two months later, which lasted for three days only and never recurred; the presence of a tumor, probably a direct result of the invasion of the intestinal wall by the hookworm causing obstruction; the character and character of the tumor; the amount of tumor which had to be given before a final negative result was obtained—two doses of 30 grains each are sufficient in most of the cases; in all cases, the similarity between the tumor and that of pernicious anemia; the diminution of weight and the hemocrit index, and marked improvement of the anemia as the result of the relief of the obstruction; the complete absence of eosinophilia.

### Medical Journal of Australia, Sydney

Sept. 11, 1919, 2, No. 11

- \*Ligature of Uterus to Rest on Gonorrhoea. W. L. Potter.—p. 211.  
\*The Case of Oculomalingia. R. Pullen.—p. 217

**Influence of Treatment and Rest on Gonorrhoea.**—Potter is convinced that in the treatment of gonorrhoea want of rest and improper treatment, such as early urethrovaseal irrigation, will cause epididymitis to develop. Diet and medicine, he says, are of secondary importance. Prostatic massage and vaccine are not useful.

Sept. 20 1919, 2, No. 12

- \*Treatment of Retroflexio Uteri. W. Ritchie.—p. 233.  
\*Treatment of Salpingitis. J. C. Wondryer.—p. 235.  
\*After Effects of Gunshot Wounds of Head; their Treatment. H. S. Stacy.—p. 237.  
\*Probably Radical Cure of Mixed Psoriasis of Fourteen Years' Standing. A. Krakowsky.—p. 239.

**Treatment of Retroflexed Uterus.**—The operation of internal shortening of the round ligaments, such as the original Gilliam operation, or one of its modifications, is preferred by Ritchie for the treatment of retroflexed uterus. However, he says he does not deal with every case of simple retroversion or retroflexion by operation, but only with those which give rise to pathologic symptoms. Many uteri are retroverted or flexed to various degrees and give rise to no trouble. These should be left alone.

**Treatment of Salpingitis.**—Windeyer is convinced that many women will be spared from mutilating operations, especially as regards the ovaries, and a not inconsiderable proportion will be given the chance of becoming the mother of one or more children, if when dealing with patients with first attacks, we should wait for a longer period before considering operation and make more use of vaginal celiotomy in the acute "pus cases."

Sept. 27, 1919, 2, No. 13

- \*Cause and Prevention of Dental Caries. G. E. Clemons.—p. 257.  
\*Fracture of Lower End of Humerus. A. J. Wood.—p. 258.  
\*Interesting Problem in Forensic Medicine. W. A. T. Lind.—p. 261.  
\*Pneumococcal Ulceration of Pharynx. B. Foster.—p. 262.  
\*Carcinoma of Ascending and Transverse Colon. J. Corbin.—p. 263.

Oct. 4, 1919, 2, No. 14

- \*War Neuroses and Civil Practice. J. W. Springthorpe.—p. 279.  
\*Supercute Pulmonary Edema. A. R. Southwood.—p. 284.  
\*Case of Symmetrical Dry Gangrene. E. J. Addison.—p. 285.

**Traumatic Ulceration of Bowel: Problem in Forensic Medicine.**—Ulceration of the ileum with other bodily injuries was found in each of three postmortem examinations made on persons dying insane. According to Lind the injuries in all three cases must have been produced by violence applied to the chest and abdomen, presumably by some one kneeling on the supine victims. On opening the abdominal cavity, in the first case there was found a general peritonitis in early stage, due to the rupture of an ulcer in the ileum, not far from the cecum. The ulcer was recent, solitary, round, about 5 millimeters in diameter and not associated with disease of the intestines. Diligent search for foreign bodies or hatpin stab in the abdominal wall was made with negative result. There was also no bruising of the surrounding parts. In the second case the ulcer was slightly larger than in the first case, otherwise it was similar. In the third case there was an ulcer about the size of a 3-penny piece, with a clean surface, not perforated, apparently ready to commence repair. In the absence of other disease, such as typhoid, tubercle, foreign body, or any other possible factor in ulcer formation. Lind claims that it may reasonably be said that the ulceration is the result of trauma.

### Tubercle, London

October, 1919, 1, No. 1

- \*Endopleural Operations in Pulmonary Tuberculosis: Jacobaeus' Method. W. Holmboe.—p. 1.  
\*Necessity for a Uniform Standard of Classification in Pulmonary Tuberculosis. J. Guy.—p. 9.  
\*Case of Innocent Tuberculosis. S. Thomson.—p. 13.

**Endopleural Operations in Pulmonary Tuberculosis.**—In Jacobaeus' method a thoracoscope is introduced into the pleural cavity. By means of the galvanocautery pleural adhesions are divided, the hand being guided by the eye. The purpose of these measures is to make it possible to collapse the lung. Holmboe calls attention to the dangers of Jacobaeus' method, such as hemorrhage, emphysema under the skin, elevation of temperature, pleural effusion and fistulas. He has employed the thoracoscope in twenty-seven

cases; among these there were nine in which cauterization appeared to be indicated. In five of these striking improvement was effected, and in two others there was some improvement.

**Necessity for a Uniform Standard of Classification in Pulmonary Tuberculosis.**—The classification used for official purposes in the public health service in Edinburgh is practically similar to that adopted by the sanatorium workers of North America. The basis is the Turban-Gerhardt classification and the time honored stages of 1, 2 and 3 are kept. In addition some indication has to be given of the general condition of the patient, and here Guy has adopted the threefold division of (a) good, (b) moderate and (c) bad. When cases are met with in which the lesion is quiescent, i. e., producing no disturbance, local or constitutional, or in which it has been quiescent long enough to apply the term healed to it, the anatomic classification is given and the word quiescent or healed is added, as stage 1, healed, or stage 2, quiescent. Grave difficulties are encountered when an attempt is made to define borderline cases before they are quite definite enough for stage 1a, or where they do not conform to all the requirements of that class. In order to complete the classification a further addition is required. All cases with a definite syndrome, all cases of hemoptysis, all cases of marasmic babies with a positive skin reaction, Guy says should be classified as stage A, thereby indicating that no local lesion was detected but that the diagnosis depended on constitutional symptoms and history alone. All cases in which the syndrome was incomplete, or where other factors, such as bad home hygiene, came in to confuse the diagnosis, might be classified as stage A suspect, or simply as suspect.

### Bulletin de l'Académie de Médecine, Paris

Oct. 7, 1919, 82, No. 30

- \*Heliotherapy after Pleurisy. P. F. Armand-Delille.—p. 156.
- \*Surgery of the Heart. H. Vaquez.—p. 157.
- \*Alcohol in Cerebrospinal Fluid. E. Lenoble and F. Daniel.—p. 160.
- \*Disease of the Nails. A. Sartory.—p. 162.
- Influenza in Strasbourg. Eugene Folly.—p. 163.
- \*Dispensary for Workers on Munitions. Paul Blum.—p. 165.
- Industrial Capacity of the War Crippled. Gourdon and Dijonnet.—p. 167.

**Preventive Heliotherapy After Serofibrinous Pleurisy.**—Armand-Delille emphasizes that in his experience nothing has proved so effectual as heliotherapy in warding off pulmonary tuberculosis after a spontaneously curable attack of tuberculosis of the serous membranes. This, he reiterates, is the more important because heliotherapy does harm rather than good when pulmonary tuberculosis is once installed. He has applied full sun baths in the treatment of convalescents from pleurisy, both adults and children. The results have been absolutely satisfactory, none having developed tuberculosis in the lungs or elsewhere, and the intervals since have been up to six and seven years. He applies the heliotherapy in the form of extensive sun baths, given progressively under attentive medical surveillance, and advises to keep up this treatment for several years, continuously or intermittently, a complete course at first, and then a supplementary course for a few months each year in favorable conditions in a southern or mountain climate or in the home city during a sunny summer. If the persons who have had serofibrinous pleurisy will do this they can lead otherwise an almost normal life, and, he asserts, need not fear the ulterior development of pulmonary tuberculosis.

**Surgery of the Heart.**—Vaquez reviews the new possibilities in surgery of the heart which recent research and the war experiences have opened up. Tuffier has specified the zones in the heart which it is extrahazardous to touch, and those which will bear handling. If physicians will determine the mechanism of valvular lesions, their pathologic physiology, and will point out those cases which might be remedied by an operation, surgeons could then study out the best means to accomplish this. Valvular insufficiency does not belong in this class as it is the result more of retraction of the columns than of loss of substance. Stenosis of the various valves offers a more promising field, as when aortic stenosis, for example, is inducing a considerable hyper-

trophy of the left heart, or mitral stenosis is causing great dilatation of the auricle. The prognosis then is extremely grave whatever the other symptoms may be. In a case of the kind some years ago the mitral stenosis in the young man had caused such high pressure in the lesser circulation that the second pulmonary sound at the base was so loud that it could be heard at a distance. Vaquez discussed with Tuffier the possibility of operative relief, but they did not dare to assume the risk, and the young man died in a few months with multiple infarcts in the lungs. He queries whether resection of the semilunar valves might not be possible and useful in such a case, assuming that the stenosis is not due to changes in the vessel itself. With mitral stenosis, some other intervention would have to be devised to meet the indications, and several methods can be imagined which might prove effectual, but Vaquez does not specify what those methods might be. The physician must indicate his preferences and it is for the surgeon to realize them. An encouraging element is the notable progress realized in operations on the heart in these years of warfare. Data have been accumulated which should be analyzed from the standpoint of the greater or less tolerance of different points in the heart. Study of such data, supplemented by the findings of persevering research on animals, opens a prospect of interventions on the heart for lesions of a medical type. When that day comes, the surgeon, blamed today for having too much confidence in them, will be censured for having refused the surgical resources at his command to a patient otherwise irremediably doomed.

**Alcohol in the Cerebrospinal Fluid.**—Lenoble found with the Nieuouw test applied repeatedly to eight men that the alcohol content of the blood after ingestion of alcohol varied within a wide range, but that the alcohol content of the cerebrospinal fluid kept at a constant figure. This figure was 0.02 per thousand after ingestion of 325 c.c.; 3 per thousand after 350 c.c.; 4 after 400 c.c. and 6 per thousand after 450 c.c. The proportion of alcohol in the urine is larger but the elimination here is more rapid. In the cerebrospinal fluid an average of ten days is required for its elimination or even longer, up to eighteen days, or more, with much alcohol; eight days seems to be the minimum. Acetone has to be excluded, as this gives a similar response to the Nieuouw test. An assassin claiming to have been intoxicated at the time of the crime can have his statements substantiated or refuted in this way. It has also cleared up the diagnosis in certain obscure morbid conditions, including coma from alcohol intoxication superposed on uremia, epileptic crises, intracranial hemorrhage, etc.

**Diseases of the Nails.**—Sartory examined twenty-one cases of hypertrophy of the nails and a large number of cases of mycoses of the nails, and found that some fungus growth was responsible for the abnormal conditions in every instance. With the trichophyton the nail grows thinner, but with the other fungi involved the nail grows thicker. The cases labeled onychogryphosis all belong therefore in the onychomycosis category.

**Dispensary for Munition Workers.**—Blum describes the work of a dispensary organized for the women workers on munitions. It was open for two hours every evening, and over 900 applicants were recorded each month. It has now 2,000 made-out cards, and has done a most important work in prophylaxis and treatment, especially in pathologic gynecologic conditions, in tuberculosis and pretuberculosis, in anemia, and in venereal diseases. Blum urges the necessity for maintaining this dispensary for women factory workers and founding others, as the women apply to it with greater confidence and in larger number proportionately than to the specialized tuberculosis or venereal disease dispensaries.

### Bulletin Médical, Paris

Sept. 21, 1919, 33, No. 41

- \*The Herd Wassermann Reaction. Jeanne and M. H. —p. 530.
- \*Responsibility of Physician when Weintraub is Infected by Syphilis.—Smolod, G. Thibierge.—p. 537.
- \*Abortion of Syphilitic Fetuses and Lactation.—p. 539.
- \*Inherited Syphilis of Endocrine System. R. Barthélemy.—p. 541.
- \*Syphilis and Immunity. Clément Simion.—p. 544.

**Interpretation of Wassermann Reaction.**—This entire number of the *Bulletin* is devoted to syphilis. Jeanseine and Bloch reiterate that the physicochemical modification of the serum in syphilitics which yields the Wassermann reaction is nothing specific, and differs completely from the so-called immunity reactions. It is mere chance, they say, that in our climate this modification occurs only in syphilis. The reaction can be induced in normal persons by intravenous injections of neo-arsphenamin, and this may happen also and more readily in syphilitics giving previously a negative reaction. The principle they advocate is that every patient with recent syphilis should be given arsenophamm treatment until the blood gives no Wassermann reaction. Then mercury can be given, but any return of the Wassermann reaction, even without manifest symptoms, calls for renewed vigorous treatment and continuation of the arsenic.

**Responsibility of Physician When Wetnurse Acquires Syphilis from Nursing.**—Thiberge cites some recent damage suits brought against physicians on these grounds, and he remarks that such suits will probably become more and more frequent in the near future. If the wetnurse was syphilitic at the time she was given the infant to nurse, or developed syphilis within the incubation period the physician is relieved of all responsibility. If he overlooked or misinterpreted syphilitic lesions on the child, the courts do not hold him responsible unless there is evidence of crass ignorance or carelessness. But if the physician recognized the syphilis, as evidenced by the prescriptions or directions he gave, and failed to warn the wetnurse, then he is assessed damages. In one case cited the sum was 8,000 francs and costs, and in the case of the infant of a medical student, 6,000 francs (\$1,200). If the wetnurse has herself consulted the physician, or if his oversight of the child is part of his public duties, he can be explicit in warning the wetnurse not to allow herself or the environment to become contaminated by the infant's secretions or soiled articles. If he is the physician of the child or the family, then he owes professional secrecy to them, and he must not tell the nurse that the child is syphilitic. Some damage suits have been brought against physicians, midwives and institutions because they handed over a foundling to a nurse without examining it for syphilis. Thiberge reiterates that the child of a syphilitic should never be given to a healthy wetnurse nor the child of a person seriously suspected of syphilis. Take from the healthy wetnurse at once every child with manifestations of or suspicion of syphilis, and in the latter case seek in every way to make the diagnosis sure as speedily as possible.

**Abortion of Syphilis.**—Lacapère and Laurent report a number of cases in which infants or adults had been exposed to syphilis, but vigorous arsenical treatment during the incubation phase seemed to eradicate the virus. They do not believe in starting vigorous treatment from mere syphilitic suspicion, but watch intently for some specific manifestation. At the first sign of this, there is still time to effectually abort the disease.

**Syphilis and Immunity.**—Simon says that we cannot speak of a natural immunity in syphilis. The organism during the syphilitic infection is in a state of allergy. There is a tendency to an incomplete immunity and also a tendency to sensitization, and the different phases of syphilis correspond to the periods during which one or the other of these gets the upper hand.

#### Bulletins de la Société Médicale des Hôpitaux, Paris

July 27, 1919, 423, N. 36

- \*Primary Infection of Infantile Origin. A. Coyon and A. Lemerre. —p. 72.
- \*A Case of a Sarcinoma. P. Lereboullet and J. Hutinel. —p. 745.
- \*Radium Treatment in Gastric Cancer. Maurice Langer. —p. 754.
- \*Study of the Sciatia. André Léri. —p. 758.
- \*Radium Operation of Cranial Sutures. Marie and Léri. —p. 762.
- \*Radium in Acute Nephritis. P. Ameuille. —p. 764.
- \*Trypan Blue Dye in the Vein. Niel Fiesinger. —p. 767.
- \*Tuberculosis and Lethargic Encephalitis. G. Loyzeux. —p. 769.
- \*Jaundice from Retenion. G. Loyzeux and H. Vinon. —p. 775.
- \*Nephritis and Azotemia in Old Syphilitic. Marcel Dinard. —p. 779.
- \*Pathogenesis of Influenza and Tuberculosis. E. Pruvost. —p. 783.
- \*Diagnosis of Insufficiency of the Pancreas. M. Labbé. —p. 784.
- \*Purpura from Arsenic Poisoning. M. Labbé and S. Langlois. —p. 796.
- \*Splenectomy in Chronic Jaundice. A. Gilbert and others. —p. 789.

**Infections of Urinary Apparatus Originating in the Intestines.**—Coyon and Lemerre remark that in most of the cases of descending infection of the urinary apparatus, bacilli of the colon type are responsible. They published three years ago two cases of paratyphoid B pyelocystitis, and two of colon bacillus pyelocystitis. The clinical picture seemed to be identical in all. There was evidently septicaemia of intestinal origin, with descending infection of the kidney pelvis and bladder. Septicaemia probably occurs more frequently than is generally suspected after appendicitis and enteritis. Pregnancy pyelonephritis is generally preceded by gastrointestinal disturbance, followed by symptoms of general infection. Kowitz published in 1914 a compilation of cases of pyelocystitis in young children developing in the course of gastro-enteritis. He related that the colon bacilli and albumin in the urine always preceded the appearance of leukocytes in the urine. A more recent report mentions the finding of the colon bacillus in the blood of one among eight children with chronic diarrhoea, and a paracolon bacillus in another.

**Adiposogenital Syndrome.**—A case in a man of 33 and one in a woman of 40 are described, with the pathologic findings in the pituitary. The skin shows certain features suggesting that the thyroid may be at fault also. Both improved under pituitary treatment, the woman being given polyvalent glandular treatment. The infantilism in the man might be called reversible. Similar reversible changes in the genitals were reported by Frank and Marañón (1917) following bullet wounds of the pituitary. Several cases have been encountered at the Laënnec Hospital within a year in which the patient's aspect suggested thyroid disturbance, but the loss of vision and manifest lesions in the sella turcica pointed to the pituitary as the primary gland at fault. Syphilis or tuberculosis may be responsible for this, and offer a chance for improvement under specific treatment. In the two cases reported here, inherited syphilis may possibly be incriminated. Along with the specific treatment, opotherapy may prove useful. The combination of pituitary and thyroid treatment has been particularly beneficial, the first patient having lost under it 5 kg. and the various subjective symptoms showing marked improvement. The pituitary treatment was given by the subcutaneous route.

**Pancreas Extract Treatment in Gastric Cancer.**—Summarized when published elsewhere; see page 1560.

**Scoliosis with Sciatica.**—Léri describes two cases of sciatica in young men who were unable to hold their spine straight. There was scoliosis first to one side and then to the other. One of the men could change it from side to side by hoisting himself with his hands, lifting up the trunk. There seemed to be an abrupt, springlike action as the spine changed over, and this was slightly painful. Radioscopic also confirmed the assumption that some rheumatismal deformity of vertebrae was responsible for the scoliosis in these cases. This probably occurs also in other cases of what is called sciatic scoliosis.

**Steeple Skull and Syringomyelia.**—Marie and Léri cite some cases in which syringomyelia or hydromyelia developed in consequence of abnormally high pressure in the brain from tumor. They describe a case in their own service in which symptoms of syringomyelia accompany abnormally high pressure in the brain, but the pressure in this case is from premature ossification of the sutures of the skull, causing pronounced steeple skull.

**The Kidneys at Onset of Acute Nephritis.**—Ameuille has been impressed by the difference between the soundness of the kidneys of patients dying early in acute nephritis and the extremely pathologic condition with old chronic nephritis. In the latter, the kidneys are practically all destroyed, but in the early acute cases the kidneys seem practically normal, and yet there is equal and intense retention of nitrogen and chlorids in both. He suggests that the pathologic changes in the kidneys may be the result of the wearing out of the kidneys from an excess of work when the kidneys were really sound at the beginning of the trouble.

**Lethargic Encephalitis.**—The clinical picture in the man of 27 resembled that described recently as lethargic encephalitis.

itis, but in reality it was a tuberculous meningo-encephalitis. The symptoms were explained by the localization of the infectious process.

**Cancer of the Sigmoid Flexure.**—Necropsy cleared up a puzzling case in which a man of 27 suddenly developed jaundice from retention, and this proved to be the result of compression from a tumor which was a metastasis from a large silent cancer in the sigmoid flexure region. The latter had given no signs of its presence except intestinal hemorrhage on two occasions. The diagnosis had been catarrhal jaundice.

**Hemorrhagic Purpura from Therapeutic Arsenic Poisoning.**—Labbé and Langlois report the outcome of one of the three cases recently published by Leredde in which hemorrhagic purpura developed under neo-arsphenamin (neo-arseno-benzol) treatment. One case was mild, one subacute and fatal, and the last one was acute and the young woman died the tenth day of the purpura. Her blood showed the characteristics of both purpura and hemophilia; the anemia from the hemorrhages had been reinforced evidently by a hemolytic process. The liver was hypertrophied. The chancre of the hip and swelling of glands in the neck, with rosella a month later, were treated with six injections of the neo-arsphenamin during one month; then an interval of a month during which influenza developed; then four injections, each inducing congestion of the face; then a rest of three weeks and one injection; a rest of two weeks, and then four injections at intervals of a week or two, each of which was followed in two hours by bleeding from the gums and nose. After the last injection this bleeding kept up for a week, and a few echymoses appeared on the legs and a patch of purpura on the shoulder. One more injection was then given, and the bleeding from the gums, tongue and nose reappeared after an interval, and symptoms developed resembling those of infectious purpura with high fever and death the tenth day. Fifteen injections of the drug had been made in the course of five months, the doses ranging from 15 to 90 cc., a total of about 8 gm. Bleeding from the gums and nose and patches of purpura during treatment with neo-arsphenamin should warn to stop the arsenic treatment once and for all. In the discussion that followed, Grenet remarked that he had often noted small hemorrhages from the gums, or hemoptysis with previously latent tuberculosis, but he had never had any serious hemorrhages under this treatment. He had been impressed, however, with the frequency of jaundice developing during the two or three weeks after the neo-arsphenamin administration. Garnier confirmed this, but in his experience there was usually an interval of three or four months before the azyretic jaundice developed. In all the cases the jaundice cleared up soon and the cure was complete.

**Splenectomy for Chronic Jaundice.**—In Gilbert's case the jaundice appeared at the age of 2, and at 16 the spleen was found much enlarged. Since then the jaundice has developed in waves, most intense during the colder weather. At 33 the disease had reduced the erythrocytes to 1,900,000, and the cholemia varied from 1:1,500 to 1:3,000. The spleen measured 22 cm. but the liver was not enlarged and there was no pruritus or bradycardia, but the blood was veering to the type of pernicious anemia. The spleen was then removed, and the jaundice disappeared and the blood picture returned to approximately normal in two months. In this and in another case the splenectomy restored the patients to clinical health.

**Lyon Médical**

September, 1919, 128, No. 9

- \*Gangrene of Leg from Embolism. Gallavarrin and Contamin. — p. 443.
- \*Influenza and Tuberculosis. C. Roulier. — p. 128. To be cont'd.
- \*Tuberculosis with Albuminuria. G. Tola. — p. 438.

**Irregular Onset of Gangrene from Embolus.**—Gallavarrin and Contamin relate that a woman of 54 had formation and thickening in the left leg; then there were a few cramps and the leg felt heavy. By the end of the third week the symptoms had become more pronounced, and in another week the

pains were intense. Ascending arterial thrombosis was demonstrated in the triangle of Scarpa at the amputation, and at necropsy six weeks later. In this and in two similar cases an embolus had evidently started the thrombosis. These experiences warn against delay in amputating in such cases, or the ascending thrombosis will extend too far for recuperation to be possible.

**Treatment of Tuberculosis with Albuminuria.**—In Tolot's case he disregarded the high albumin content of the urine, and gave every day the juice expressed from 150 gm. of beef or horse meat, as he considered that this was required for the pulmonary tuberculosis of the Landoiry typhobacillosis type, with recurring hemoptysis and asthma. As the general health improved under this, the albumin dropped from 1.10 gm. per liter to 0.60, to 0.10 and finally disappeared from the urine. Diphtheria antitoxin has been known to have a similar effect. High albuminuria in such cases calls directly for causal treatment, regardless of the albumin content of the urine which some might think contraindicates the antitoxin or meat juice.

**Paris Médical**

Oct. 4, 1919, 9, No. 40

- \*Progress in Neurology. J. Camus. — p. 253.
- \*Criminal Responsibility. Laignel-Lavastine. — p. 263.
- \*Latent Meningitis in Syphilitics. A. Sézary. — p. 268.
- \*Location of Spinal Cord Lesions. André Thomas. — p. 272.
- \*Incapacity from Ulnar Paralysis. J. Lévy-Valensi. — p. 277.

**Recent Progress in Neurology.**—Camus' review covers the last five years, and he comments on the great progress realized during the war, and the complete revision it has brought in our knowledge of section of the spinal cord.

**Criminal Responsibility.**—Laignel-Lavastine begins his study of this subject by repudiating the term "criminal responsibility" and using instead "penal capacity," analogous to the expressions earning capacity and civil capacity. He discusses this from various standpoints, reiterating in conclusion that the medicolegal expert does not have to pass judgment on the penal capacity. All he has to certify to is *l'normalité, la nocivité, l'impulsivité, l'indimidiabilité et la perfectibilité* of the accused. It is for the court to decide from these premises whether the penal capacity is normal, attenuated, or nil.

**Latent Meningitis in Syphilitics.**—Sézary has modified his previously published views on this subject as new facts learned have compelled their revision. He now explains the meningitis revealed by lumbar puncture in syphilitics as testifying to nervous lesions, but he emphasizes that it is not a factor in their production. It is merely the ordinary reaction of any serosa to the presence nearby of some nest of spirochetes and the consequent local degeneration of tissues.

**Abdominal Wall Sign of Location of Lesion Causing Spinal Paraplegia.**—Thomas noted at necropsy of men with complete spinal paraplegia that the injury of the spinal cord extended much higher than had been surmised from the symptoms. Study of the volitional control of contracture of the muscles in the different segments of the abdominal wall and of the defensive reflexes in the same muscles has shown that these are modified in case of spinal cord lesions, as also the response to electric and mechanical stimuli, and that the limits of these segmental modifications correspond to the limits and gravity of the spinal cord lesion.

**Revue de Chirurgie, Paris**

March-April, 1919, 38, Nos. 1-4

- \*War Wound of the Aorta. L. Berard and C. Dorez. — p. 177.
- \*Cancer of the Mouth and Pharynx. H. Alouikier. — p. 181.
- \*Unusual Hernia. E. Barde. — p. 223.
- \*Treatment of Leas. Saurat. — Doct. Du Soud. — p. 223.
- \*Repair of Spine. Dr. Gauthier and N. — p. 223.
- \*The Fertil. Element. Repair of Bone. G. G. — p. 223.
- \*Fracture of Tibia. O. Oliver. — p. 277.
- \*Bleed. Arterial Aneur. F. M. — p. 277.

**Gunshot Wound of Aorta.**—The vein has demonstrated that certain trunk arteries may be wounded without entailing

the normal hemorrhage that was to be expected. In a case reported here, the bullet had passed entirely through the thoracic aorta from side to side, lodging finally in an intercostal space. The artery evidently contracted in a defensive spasm, and no blood escaped from it. The spasm relaxed at the seventeenth hour, and the blood then poured out and proved speedily fatal. The length of time the artery keeps to this defensive spasm in such cases is a guide to intervention in others.

**Cancer of Mouth and Throat.**—Moulik reviews the outcome in 28 operations for laryngo-pharyngeal malignant disease, and expatiates on the advantages of local anesthesia in such cases. He applied it exclusively in his last series of 10 cases which were all among the most extensive operations that can be done in the face and neck. Local anesthesia, he claims, amply suffices for pharyngotomy and is indispensable for operative bronchopulmonary disturbances that have not occurred under local anesthesia in his experience, so that he is inclined to attribute these complications to the alkaline anesthetic irritating the air passages and, by its noxious action on the liver, reducing the general defensive reactions. Observation of a single case under local anesthesia is the most convincing argument to prove its superiority. There is no spectacle more astounding, he remarks, than to see the patient after the vast mutilation of a pharyngotomy get up himself from the table and start unaided to return to his bed after the two hour or two hour and a half operation. The last 4 in this group did not even lie down for an hour during the rest of the day. Four of them required a second operation, excision of glands in the neck, and none asked for general anesthesia. The patients have to be trained beforehand to allow the operation without full consciousness, and the surgeon has to train himself to work slowly, anesthetizing the successive planes in turn and waiting a minute or two for the anesthesia, and not working toward the line of the injection. Demarcation of this is aided by adding a little blue stain to the anesthetic solution. He advocates section of the jaw or pharyngotomy; no tracheotomy for the anesthesia, it is necessary only to arrest direct hemorrhage; no preventive ligatures; a few whiffs of nitrous oxide for the most tumorous or for the most painful procedures, as in taking out bone. He gives an illustration of a man in good health to date five years after removal of an epithelioma of the velum, tonsils and base. There was an interval of three years and a half before recurrence in two other cases of cancer of the tonsil. These were the longest survivals.

**Inguinal Hernia.** Burian writes from Prague to comment on the large number of hernias that developed during the war, and the frequency of relapses after the routine operative treatment. In sixty-two cases of relapse of inguinal hernia after the Bassini operation, the breach was in the new location of the spermatic cord, which it is difficult to secure firmly. To remedy this, he trains the muscles for two or four weeks before the operation with active and passive gymnastic exercises of the abdominal walls, hips and legs, striving to strengthen the internal oblique in particular. The operation aims to close the hernial sac at the highest possible point; to aid in this he removes all the adipose tissue back of the aponeuroses. He closes the canal by reconstructing the anterior wall with a triple layer of aponeurosis. He passes the catgut through the aponeurosis of the internal oblique and also of the external oblique, back from the edge of each, and fastens them both to Poupart's ligament and to the side lip of the aponeurosis in such a way as to show, by illustrations, that the side portion of the aponeurosis laps over the median portion. This forms a strong third layer of aponeurosis, while the spermatic cord is left in its natural place. Experiences with this technique in hundreds of cases have demonstrated that it is simple, and applicable even to very extensive hernias. The Girard repair is somewhat similar only that the muscle with this is damaged by the suture threads which traverse and strangulate the muscle, and large patches lose their vitality in consequence.

**Loose Shoulders.**—Du-Sejour immobilizes the shoulder in a horizontal plane with the humerus, and has been quite successful with this method in treatment in thirty-two cases of the loose joint left after extensive resection of the shoulder. The immobilization was kept up for two months or more, and then the shoulder was massaged and the new pseudojoint cautiously exercised, with hot douches of the shoulder. The immobilization was kept up for two months with fine results when the deltoid was usable. To save this muscle, therefore, should be the special concern of the surgeon in operating in the shoulder region.

**Restoration of Spongiosa Tissue.**—De Gaulejac and Nathan refer to destruction of the spongiosa from a traumatic hematoma in the bone. Their anatomic and experimental research has demonstrated, they say, that the bone can repair itself at the expense of the fibrous tissue, the collagen of the latter becoming transformed into prebone tissue under the influence of the surrounding bone tissue.

**Restoration of the Parenchyma of the Shaft of a Long Bone.**—De Gaulejac and Nathan affirm that the middle layer, the Haversian layer, of compact bone is the fertile element. This reacts to trauma and inflammation by a return to an undifferentiated stage. If the restraining barrier is broken down, it is capable of proliferating into the adjacent connective tissue. Grafts in this fertile layer in the bone start rapid processes of repair. As the periosteum is so liable to have been injured in the cases of trauma, slices of connective tissue are generally more readily available, but periosteum is preferable on account of its two layers, the loose and the compact tissue.

**Improved Technic for Artificial Anus.**—Malespina remarks that the usual method of fastening the loop so that its branches lie together like the barrels of a gun, has several disadvantages. The feces are liable to get into the lower branch of the anus which the artificial opening aims to prevent. This can be avoided by making a double anus. An incision is made a fingerbreadth above the anterior-superior iliac spine, parallel to the crural arch and iliac crest. Two T incisions are then made at right angles to the first incision. They are 4 or 5 cm. long and 4 cm. apart. The flap of skin thus cut on three sides is drawn under the loop of intestine and sutured to the other lip of the incision, thus forming a bridge. Thirty-six or forty-eight hours afterward, the intestine is divided, and as the whole heals, the two openings into the bowel are separated by a distance of 3 or 4 cm. The rubber bag receptacle for the fecal matters has two openings to fit over the twin anus openings. In fifty cases in which this "bridge anus" technic has been applied in the last seven years, there have never been any by-effects or mishaps of any kind, and the terminal bowel has been left completely in place.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 9, 1919, 49, No. 41

\*Diseases of Deranged Metabolism. Alfred Gigon.—p. 1529.

Helminthiasis in Children. Paul Laucer.—p. 1539.

\*Vacuum Apparatus for Aspiration. Oscar Wild.—p. 1544.

Fracture of Second Cervical Vertebra without Injury of Spinal Cord.

F. L. Dumont—p. 1551.

The Chloroform Controversy. W. Löffler.—p. 1553. Concl'n.

**Diseases of Deranged Metabolism.**—In the course of this review of his personal observation of cases of deranged metabolism, Gigon remarks that the calory requirements of the body in disease cannot be estimated from the requirements in health. One of his patients with cancer of gallbladder and liver lived for eight months on 600 or 700 calories, and did not lose very much in weight. She weighed 50 kg. to start with. One diabetic patient weighing 78 kg. gained 4 kg. and felt better on 2,000 calories than on a larger amount. The lesser need for calories in these cases is a phenomenon of the disease. In obesity, merely qualitative modification of diet may succeed, as in one case described in which vegetables and fruit were eaten in large amounts, with stationary weight. The woman did not begin to lose weight until the fruit was dropped and butter and three teaspoonfuls of oil taken instead. It is evident that pathologic qualitative

changes in the metabolism play an important part in the metabolism in the obese. The obesity may be of toxic origin, from alcohol, beer or overeating. This latter form is the most amenable to treatment, perhaps. Or, the obesity may accompany or follow some infection. Specific treatment as for syphilis, or a course of arsenic, may prove more beneficial than dieting. A third group is traceable to endocrine disturbance, and organotherapy and dieting are called for. In a fourth group, the central nervous system might be incriminated; psychoses may accompany obesity. Symmetrical deposits of fat in the upper arms, thighs and calves suggest a nervous origin. In a fifth group, the obesity is of the atonic type, with flabby muscles, and often with edema at the ankles, slight anemia, and blood pressure normal or below. Treatment in this form has little chance for success; thyroid treatment brings on heart disturbances. Muscular exercise must be cautious. A salt-poor diet with little fluids is usually helpful.

He declares that the pathologic condition which is exactly the reverse of obesity is as fully a morbid entity as the latter. To keep the balance in weight, an excess of calories is required, 4,000 instead of 3,000. The same causal factors may be involved as with obesity, but the cerebrum seems to be responsible for the graver cases of *Magersucht*—a term he has coined analogous to *Fettsucht*. The action of the brain on the metabolism is too often forgotten, and has not been studied enough. The brain via the liver or other glands with an internal secretion may derange the metabolism, inducing diabetes or obesity or its opposite. In the latter disease, copious drinking has proved very beneficial in certain cases. Whether this is due to washing out of toxins or to modifying the connective tissue so that it will take up fat better, or to other causes, is still a question. In three women there seemed to be an abnormal hydrophilia of the subcutaneous connective tissue, with remarkable dryness of the skin and tendency to chilblains. There was slight improvement under arsenic.

In referring to diabetes insipidus, he remarks on the frequency of psychoses with it. Cases are on record of diabetes insipidus with cerebral syphilis. In the case of one boy of 11, improvement in the diabetes insipidus was realized under long continued administration of one or two table-spoonfuls of cod liver oil. He saw no benefit from strychnin in his five cases. In the physiology of nutrition, albumin plays the most important rôle, but disturbances in the metabolism of albumin are insignificant, so far as we know to date. It is possible that rheumatism, migraine, skin disease and anaphylactic phenomena may be manifestations of something in this line. Scurvy, rachitis and osteomalacia may also belong in this category. This suggests treatment by measures to modify the metabolism.

**Aspiration Apparatus.**—Wild gives an illustrated description of a simple water-jet aspiration apparatus, with both water and mercury manometer, designed for slow prolonged aspiration with the lowest possible pressure under constant manometer control. It is especially useful for gentle aspiration of the pleura, nasal cavities and pharynx. He has special vacuum cups to fit over the tonsil.

### Chirurgia degli Organi di Movimento, Bologna

September, 1919, 3, No. 4

Wounds of Large Joints. Metella Francini, p. 441

Traumatic Aneurysms. Giovanni Morone, p. 463.

Osteoplastic Resection of Both Feet. Ugo Camera, p. 401.

Prosthesis after Edema. A. Serra, p. 407

**Operative Treatment of Traumatic Aneurysms.**—Morone gives an illustrated description of five cases of aneurysm in after war wounds in which his operative intervention restored clinically normal conditions in the circulation. In a sixth case he merely ligated the popliteal vein as the false aneurysm was a complication of a suppurating process in the knee and fracture of the tibia. Gangrene developed, and the man died from septicemia a month afterward. Suture is preferable to ligation, especially of the "dangerous" arteries (main femoral, popliteal, axillary and humeral). One man with a saclike arteriovenous popliteal aneurysm was cured by resection of the whole, between four ligatures; another by mere excision

of a hematoma at the origin of the femoral artery, between clamps. Besides the aneurysmatic hematoma in the popliteal in another case, the artery was not treated with an embolus. The man recovered after amputation.

**Resection of Both Feet.**—The illustrations of Camera's case show the extensive wounds left by a tumor that had carried off both heel regions. He applied the Vladimiroff-Mikulicz osteoplastic technic with excellent results, the man being able to walk on the front fourth of the foot.

**Prosthesis After Osteoplastic Resection of the Foot.**—Serra gives illustrations of the case described in the last abstract after the man had been fitted with a contrivance which provides ample support for the feet, while ordinary shoes are worn just below the tip of the toes. The man is thus made a few inches taller, but there is absolutely nothing to show a trace of the deformity, the trousers showing nothing but the shoes below, and the man is now able to walk well and to dance. Both Camera and Serra regard the results obtained as far superior to those with amputation above the malleoli, the only other resource.

### Policlinico, Rome

July 27, 1919, 26, No. 29, 30

Antibacterial Action of Secondary Rays. F. Ghilarducci, p. 897

Necropsy Findings in 200 Children with Influenza. Mancini, p. 848.

Syphilis of the Nervous System. Silvio Canestrini, p. 908.

Remedies Used in Influenza. Ignazio di Pace, p. 912.

Index of State of Nourishment. Alcardo Cerulli, p. 918.

**Antibacterial Action of the Secondary Rays.**—Ghilarducci reports experiments which show in the most evident manner the retarding or suspension of the development of bacteria under the influence of the secondary rays. Lead, tin and silver were the most active on the prodigious; copper a little less, iron still less, and aluminum had scarcely any appreciable action in this line. A thin sheet of cardboard interposed absorbed part of the active rays. These findings confirm his previous statements in regard to the bactericidal action of the secondary rays from bis-muth and silver salts in the rabbit stomach. The later research obviated the objection that the bactericidal action may have been due to the direct contact with the metal.

**Syphilis of the Nervous System.**—Canestrini remarks that if it were not for the affinity of the pale spirochete for the nervous system, syphilis would not be such a serious disease. It is remarkable that this affinity of syphilis for the nervous system in the form of congenital cerebral syphilis, of tabes and general paralysis is not observed in countries with backward civilization, although syphilis may be widely prevalent there. Döring has related that in his many trips through Asia Minor he never met with a case of manifestations of syphilis of the nervous system among the 10,000 syphilitics he examined. But when these syphilitics from Asia Minor moved to Constantinople to live, a large proportion developed in time tabes or general paralysis. Some have found the cerebrospinal fluid normal only in 22 per cent of their cases of recent syphilis, and Königstein reported in 1917 that he had found this fluid pathologic in 41 per cent, during the second stage. These findings demonstrate the organic cause for the frequent headaches in recent syphilis. Canestrini called attention in 1911 to the way in which the fluid veered toward normal under arsenophamin treatment of tabes and paralysis, although the subjective and objective symptoms showed no improvement.

From his own experience and review of the literature he is convinced that the action of arsenophamin by the vein is no whit inferior to that of the Swift and Ellis lumbar puncture technic. He describes a number of unusual cases, among them that of an unruly boy of 10 with emurea and other signs of congenital cerebral syphilis. Under specific treatment the character changed and the symptoms all subsided, except the pupil reactions. He varied it to be included into giving specific treatment when tabes is merely the work of alcohol or tobacco poisoning. He had a case of the latter kind in a worker on tobacco. He also warns against iodid treatment when there is a possibility of hyperthyroidism, or we may encounter exophthalmic goiter superadded on

the syphilis. *Tahes dorsalis* may develop from inherited syphilis alone. Hirsch has decried a case in a virgin of 52. In conclusion Canestrini refers to a case in which a man of 35 had, with other symptoms of syphilis, hallucinations and delirium. After a week of arsenphenamin treatment, febrile-hemolytic jaundice developed, and as this subsided in two weeks the hallucinations disappeared and the man was restored to comparative health, able to return to work. This intermission lasted for two years, when delirium returned and the man died in a few weeks. Canestrini suggests that the febrile jaundice from retention may have modified the spirochetes in this case, and queries whether it might not be possible to induce a therapeutic hemolytic jaundice by injection of meric acid or of sodium glycocholate or tartricholate.

**Index of State of Noarishment.**—Cerioli divides the weight in grams by the height in centimeters, and accepts the quotient as an index of the state of nourishment exact enough for many practical purposes. The average index from twelve men was about 400 and from twelve women 375.

### Riforma Medica, Naples

Sept. 6, 1919, 35, No. 36

- \*Treatment of Kidney Stones. Giorgio Nicolich.—p. 758.  
Repeated Cæcæan Section in Fifteen Women. S. Delle Chiaje.—p. 761.  
Necroticæmia of Typhus. Lino Uricio.—p. 762.  
Medical Treatment in Case of Liver Abscess. T. Silvestri.—p. 763.  
Present Status of Operative Treatment of Fecal Stasis. E. Aievoh.—p. 764.

**Operative Treatment of Kidney Stones.**—Nicolich prefers pyelotomy to nephrotomy, for reasons here enumerated, when conditions permit. He opened the pelvis in thirty-three of his 108 operations on kidneys. The youngest of the patients was 11, the oldest 60.

### Rivista di Clinica Pediatrica, Florence

October, 1919, 17, No. 10

- Comparative Growth and Pathologic Anatomy of Twins. Angiola Berrino.—p. 595.  
\*Localizations of Tuberculosis in Young Children. A. F. Canelli.—p. 533.

**Localization of Tuberculosis in Children.**—Canelli reviews the necropsy findings in regard to tuberculosis in 1,004 children. The findings were positive in 26.0 per cent. and in all but 10.8 per cent. the tuberculosis was directly responsible for the death. No signs of tuberculosis could be detected in 66.3 per cent. of the 766 nontuberculous cadavers. Cheesy or calcified tuberculous lesions in the tracheobronchial glands or in the lungs were evidently the primary localization of the tuberculosis in nearly every case, and in every case in infants under a year old. In only 72 cases was the tuberculosis restricted to a single organ or system, and in this group, to the brain or meninges in 1.9 per cent.; to the intestines in 0.3; to the mesenteric glands in 1.9; to the peritoneum in 1.1, and to the bones in 1.5 per cent. In 195, various organs or systems were involved, the intestine and mesenteric glands in 12 per cent.; the glands and meninges in 11.2; bones, lungs and glands in 3.8, and lungs, meninges, liver, spleen and glands in 17 per cent. A cavity had formed in the lung in 10.8 per cent. of the patients from 6 to 12 months old, and in 20 per cent. of the patients from 1 to 2 years old.

### Rivista Critica di Clinica Medica, Florence

October, 1919, 20, No. 10

- \*The Gastric Secretion in Intoxication. A. Martini.—p. 373.  
\*Acidosis. A. F. Canelli.—p. 20, No. 10.  
\*Intoxication. C. Cantoni.—p. 37, Bull. de No. 33, p. 385.

**Treatment of Rabies at Florence.**—The mortality among the 100 5 per cent. glycerol preventive treatment during 1916-1918, was 0.13 per cent. In Linnæus's compilation of the records in thirty-two artificial infections in different countries the mortality averaged 0.44 per cent.

### Archivos Brasileiros de Medicina, Brasil

June, 1919, 9, No. 6

- \*The Nervous Tendencies in the Study of the Anatomy and Pathology of the Corpus Striatum. J. Malaguetta.—p. 481.

- \*Treatment of Myiasis. T. De Almeida Junior.—p. 496.  
\*Caution Necessary with Thermal Mineral Waters in Treatment of Disease of the Eyes. O. Curra Netto.—p. 504.

**Myiasis.**—De Almeida relates that inhalation of chloroform will expel maggots and other larvae that have found lodgment in the nose. Myiasis of the mouth, ear or other cavity is not infrequent in Brazil. In three cases among railroad construction workers in 1913, the symptoms caused by the unsuspected larvae in nose or ear suggested meningitis. One man was almost unconscious and could only groan and press his hands to his head. He was treated for meningitis but died the third day, just before death expelling thirty maggots from his nose. There had been nothing, no discharge from the nose, to suggest their presence before. In a second case the nose was edematous and there was a fetid discharge giving the clue. Under inhalation of chloroform and rinsing with diluted chloroform, over 100 maggots were expelled, some still lively, and recovery was complete. In the third case the larvae could be seen in the ear and they were finally driven out by chloroform on a cotton pledget. In another case a young woman complained for twelve days of headache, dizziness, fever and vomiting, and there was a discharge from the nose. On suspicion of a gonococcus process the nose was treated with potassium permanganate without relief, and finally the nasal discharge showed blood admixture. Treatment then with chloroform brought over 100 live larvae, but the maggots had destroyed the tissues so that the tip of the nose perforated, leaving a disfiguring defect. In the fifth case described, the man of 40 was found unconscious beside an empty liquor bottle. To rouse him, camphorated oil was injected and ammonia was held to his nose, and large larvae then began to crawl out of his nose.

### Archivos Españoles de Enf. del Ap. Digestivo, Madrid

September, 1919, 24, No. 9

- \*Surgical Treatment of Stomach Disease. V. Pauchet (Amiens).—p. 513.  
\*Gastric Chemistry. R. Luis y Yagüe.—p. 528.

**Surgery of the Stomach.**—Pauchet analyzes his experience with 1,200 operative cases of gastric and duodenal ulcer, cancer and gastroptosis. Treatment of gastroptosis, he says, requires the cooperation of the physician, the patient, the masseur and—of time, as it has to be a regular course of orthopedics of the abdomen, as with orthopedics of the limbs. In his 30 cases the attempt to cure the gastroptosis failed completely in 6 instances. He found that 75 per cent. of the gastric cancers were located at the edge of an old ulcer, and that 80 per cent. of all gastric cancers are at the pylorus end of the stomach. His experience confirms the advantages of gastro-entostomy two or three weeks before the gastrectomy. It is better not to wait longer than this as the cancer may progress too rapidly. With movable cancers, the operative mortality after gastrectomy averages 5 per cent. He prefers gastrectomy for gastric cancer even when it can be only palliative. This raises the death rate to 25 or 30 per cent. but the postoperative course is better than after simple gastro-entostomy, and the survival longer. He says of operative treatment of gastric ulcer that extensive gastrectomy is the preferable treatment, and simple gastro-entostomy or excision of the ulcer alone is advisable only when there are contraindications to extensive gastrectomy. He describes in detail the technics he advocates for various pathologic conditions in the stomach, defining the indications for each.

**Dissociated Gastric Chemistry.**—Luis applies this term to certain conditions in the secretory functioning of the stomach which he has never seen described elsewhere. The gastric secretion, he explains, is not a simple but a complex activity, varying to adapt itself to the conditions prevailing at the time. There seems to be usually a constant relation between the free and bound hydrochloric acid and the total acidity, but occasionally the free hydrochloric acid is proportionally much above or below the usual standard. The total acidity may be at the normal figure but the proportion between the free and the bound acid may be very irregular and variable, and there may be dyspepsia of the so-called nervous type. The symptoms are those of nervous disturbances, but they

do not fit into the frame of any special neurosis. They render the prognosis more favorable than might otherwise be the case, as they demonstrate the neuropathic or endocrine basis, and guide to appropriate treatment.

**Brazil-Medico, Rio de Janeiro**

Jan. 11, 1919, 33, No. 2, Rec'd Nov. 4

- Babesiasis and Anaplasmosis in Cattle. H. de Beaurepaire Aragão.—p. 9.
- Acquired Mental Impairment. II, de Brito Belford Roxo.—p. 10.
- Aug. 23, 1919, 32, No. 34.
- Flagellate Parasite in Intestine of Rhinoceros. G. Hasselmann.—p. 265.
- Analysis of Gastric Juice. Helio Ribeiro.—p. 265. Begun in No. 33, p. 257.
- Meningitis with Brudzinski's Sign in Child. Perdomo Hurtado.—p. 268.

**Gaceta Médica de Caracas, Venezuela**

Aug. 31, 1919, 26, No. 16

- \*Hydatid Cyst of the Liver. J. M. García Parra.—p. 165; Idem. L. Rizzetti.—p. 166.

**Hydatid Cyst of the Liver.**—Razetti comments on the case described by García Parra that it is the first hydatid cyst known in Venezuela, although hundreds of operative cases of amebic liver cyst have been recorded, and at 400 necropsies special search has been made for hydatid cysts, without results. García operated on the assumption that the cyst was in the ovary. The tumor had been slowly developing through five years, and yet had never caused severe local or general disturbances. The description by García is not very clear as to the hydatid origin of the cyst, and Razetti thinks that probably a cystadenoma was mistaken for echinococcus disease, as he has hitherto preached the clinical dogma that hydatid cysts of the liver or of any organ are unknown in Venezuela.

**Medicina Ibera, Madrid**

Sept. 20, 1919, 8, No. 98

- cavity in Structure of the Stapes Bone. Collar Arias.—p. 213.
- Urethroscopy; Technic; Diagnosis and Interpretation of Findings. Sicilia.—p. 213.

**Revista Española de Med. y Cir., Barcelona**

September, 1919, 2, No. 15

- \*The Overvaluation of the Wassermann Reaction. Umbert.—p. 477.
- The Surgery of 1918. J. M. Bartrina Thomas.—p. 482.
- Vaccine Therapy of Malta Fever. J. Durán de Cottes.—p. 495.

**Overvaluation of the Wassermann Reaction.**—Umbert reiterates that only minute clinical examination can be relied on for the diagnosis of syphilis. The Wassermann reaction may fail in the cases in which its aid is most needed, and we must bear in mind that not every affection in a syphilitic is necessarily of syphilitic origin. He lays great stress on the retrospective diagnosis of syphilis by clinical investigation, organ by organ, and examination of other members of the family. The Wassermann reaction generally proves superfluous when this is done.

**Treatment of Wounds.**—Bartrina reviews recent progress in surgery and his own experience in 657 various operations. An illustration is given of one young woman with a large gap in the outer ear wall. This he reconstructed with a wedge cut from the upper part of the ear. He says of Garde's method that it is the perfecting of principles long cherished in surgery, but that its application requires great skill and perseverance. It is of transcendental importance in treatment of pleural empyema. Film treatment of burns, on the other hand, is pure empiricism, but its application is rapid, simple and effectual.

**Vaccine Therapy in Malta or Undulant Fever.**—Durán has applied vaccine therapy in over 600 cases of Malta fever since 1906, and states that vaccines should be the pivot for treatment except when the heart and kidneys are the seat of old pathologic processes. These contraindicate vaccine treatment, at least during periods of hemorrhage and extremely high fever. He gives the ether-killed vaccine by subcutaneous injection, usually repeating three or four times, aiming to aid in the complete immunization.

**Revista del Instituto Bacteriologico, Buenos Aires**

June, 1919, 2, No. 2

- Serotherapy of Plague; Necessity for International Standardization of Antiplague Serum. R. Kraus.—p. 125.
- Influence of Snake Venoms on Coagulation of Blood. B. A. Houssay and A. Sordelli.—p. 151.
- Physiologic Action of Spider Poison. B. A. Houssay and J. Xerrette.—p. 189.
- Heterogenous Hemolysis. A. Sordelli and G. Fischer.—p. 201.
- Advantages of Concentration of Antitoxic Serums by A. Hamier Method. A. Sordelli.—p. 211.
- Proteolytic Action of Snake Venoms. Maria Julia Otero.—p. 215.

**Revista de Medicina y Cirugía Prácticas, Madrid**

September, 1919, 124, Nos. 1569 to 1572

- Prophylaxis of Typhus. D. Amat Ayala.—p. 321.
- Pathology of the Skin in relation to Nerve Pathology. E. de Oyarzabal.—p. 353.
- Histologic Findings in an Intra-Ocular Tubercle. F. Muñoz Urra.—p. 385.
- Ferrán's Vaccination Against Tuberculosis. J. Codina Castellvi.—p. 421.

**Siglo Médico, Madrid**

Sept. 20, 1919, 68, No. 3432

- \*Gastric Ulcer. R. Luis y Yague.—p. 789.
- Traumatic Shock. J. Segovia y Chabaler.—p. 791. To be cont'd.
- Sept. 27, 1919, 64, No. 3433
- \*Diabetes Insipidus. G. Marañón and P. Gutierrez.—p. 809.
- \*Ferrán's Vaccination Against Tuberculosis. Angel Pulido.—p. 814. Begun in No. 3432, p. 785.
- \*Roentgen Treatment of Hypertrophied Prostate. J. and S. Ratera.—p. 816.

**Gastric Ulcer.**—Luis comments on the frequent absence of actual pain, vomiting and hematemesis with gastric ulcer. Pain in the stomach with digestive disturbance points to ulcer when it is intense and persisting. A boring pain is instructive but is seldom experienced, and then as a rule only with the so-called callous ulcers or those complicated with perigastric inflammation. Vomiting also generally accompanies only chronic ulcer with hyperchlorhydria, and preeminently those ulcers near the pylorus. In itself, vomiting has little diagnostic value.

**Pituitary Insufficiency and Diabetes Insipidus.**—Marañón and Gutierrez present evidence to prove that the cerebrospinal fluid is a factor in polyuria but not by its chemical ingredients—its hormone content, as some believe—but by a mechanical action from its high pressure. Among their arguments are that normal cerebrospinal fluid does not modify the output of urine, and neither does injection of this fluid from a person with diabetes insipidus. No influence on diabetes insipidus was observed after intraspinal injection of pituitary extract. If persons with diabetes insipidus were injected subcutaneously or intraspinally with normal cerebrospinal fluid instead of pituitary extract, this would be further evidence but no one has attempted this. The above testifies, they say, that the oliguria-inducing hormone does not pass into the cerebrospinal fluid, but withdrawal of some of the fluid to reduce its pressure favorably modifies diabetes insipidus. In one of their own three cases the output of urine dropped from 5,600 to 3,200 after escape of 40 cc. of lumbar puncture fluid; in the second case the output dropped from 12,000 to 8,700. In the third case, the drop was only 150 gm. If any oliguric hormone actually passed into the cerebrospinal fluid, the output of urine would naturally increase, instead of dropping, after withdrawal of a portion. The hypertension is the work of the pituitary tumor, but in turn it hampers the functioning of the still functionally capable portions of the pituitary, thus setting up a vicious circle.

**Ferrán's Vaccination Against Tuberculosis.**—See Madrid Letter, October 4, p. 1074.

**Roentgen Treatment of Hypertrophied Prostate.**—Ratera reports fifteen cases of hypertrophied prostate in which systematic deep roentgen treatment was followed by significance of the gland, even when it seemed to present features of an adenomyoma. He warns that cystitis may apparently develop under the treatment, but that this in reality is merely the breaking through of abscesses already in the prostate tissue. This was demonstrated beyond question in one of his cases. The best results are obtained when the bladder

s—retains normal contracting power. The exposure through the coccygeal region seems the preferable technique, alone or combined with exposure of the perineal region. The tissues are no thicker for exposures from two points, each side of the tip of the coccyx, than from the perineum, while the posterior aspect of the prostate presents a better surface for raying from the rear, instead of raying from pole to pole. In two of his cases transient retention of urine followed, evidently from the reaction of the prostate tissue, and the urine was turbid and bloody for some time. The usual dose was 5 H units per zone, once or twice a month, filtered through 3, 4 or 5 mm. of aluminum. In some cases they gave up to 10 or 15 units per field, with thick filters, but in this case the intervals had to be two or three months. No reaction in the skin was observed in any case.

### Mitteilungen aus der Med. Fak. der Univ. zu Tokyo

May 12, 1918, 19, No. 3

- \*Pathogenesis of Epithelial Cancers. K. Yamagiwa and K. Ichikawa. p. 483.  
 \*Accessory Glycosuria in Phosphorus Poisoning. T. Ishikawa. p. 487.  
 \*Cases of Nature of Heat Stroke. U. Koizumi. p. 523.  
 July 13, 1918, 20, No. 1

- \*Action of Pituitary Extract on Puerperal Uterus. M. Shiraki. p. 3.  
 \*Changes in Mouse Mammary Glands after Injection of Scarlet Red. M. Takeuchi. p. 47.  
 \*Mechanism of Immunizing Processes on Sugar Content of Blood. K. Saigo, Ch. I. Hayashi and S. Yezima. p. 64.  
 \*The Status Nerve with Constant Irregular Pulse. S. Yamada. p. 87.  
 \*Study of Pancreas Functioning. Z. Hattai and K. Marui. p. 121.

**Pathogenesis of Epithelial Cancers.**—The preceding research of Yamagiwa and Ichikawa has already been mentioned in these columns. At date of writing (April, 1918) they had a record of 16 well defined carcinomas developing on rabbits ears systematically painted with tar. In 20 other cases incipient carcinoma had developed, and in 23 others there was carcinoma in a transitional phase. The shortest interval before the well defined carcinoma developed was 103 days, and the longest, 565. In only 3 instances was the development of metastases noted. One important practical conclusion from their research is obvious, namely, that carcinoma does not begin as such but passes through the phases of atypical development of the epithelium, follicular psoriasis, and finally carcinoma, and also that the carcinoma may in time have to yield to encroaching connective tissue and thus be compelled to retrogress and heal. Their findings seem to show that the physiologic epithelium cells are like a newly born babe whose character can be trained to good or to evil according to the training and environment in which it grows. The repeated tar applications can influence the cell until it becomes malignant. The cell once become malignant cannot return to its former physiologic state but it may succumb to the encroachments of connective tissue.

**Action of Pituitary Extract on the Puerperal Uterus.**—Shiraki gives fourteen comprehensive full-page tables of his findings with over three pages of bibliography. Among the practical conclusions of his research are the warning that oxytocin treatment should not be given unless the fetal head is in a proper position to stand the resulting contractions of the uterine walls. The proportions between the size of the fetal head and the pelvis are comparatively normal; and unless the fetus is at least 7 cm. as otherwise the powerful spasmodic contractions of the uterus might strangle the fetus or rupture the uterus, especially as under the induced contractions it is a difficult matter to deliver the child rapidly when haste is imperative. As a rule, the success in the operation is the more certain the lower the fetal head is at the time.

**Changes in Mouse Mammary Glands Under Injections of Scarlet Red.**—Takeuchi found the changes much more pronounced in the male than in the female mamma, but no tendency to actual malignant transformation could be detected.

**Blood Sugar During Immunization.**—The twenty-two horses examined showed very little fluctuation of the blood-sugar content through the years, even when the horse was being used for production of diphtheria antitoxin. Similar

lack of fluctuation was noted in rabbits treated with diphtheria antitoxin.

**Constantly Irregular Pulse.**—Yamada tabulates the minute details, clinical and necropsy, in thirty cases, including four from his own practice, with seven photomicrographs of sections of the sino-aortic node. The latter was usually pathologic, but in 13.3 per cent. of the cases it seemed to be free from fibrosis.

### Hospitalstidende, Copenhagen

Aug. 27, 1919, 82, No. 35

- \*Micro-methods for Determination of Sugar Content of Blood and Urine; the Residual Reduction. R. Ege and O. Rasmussen. p. 993.

### Hygica, Stockholm

Sept. 16, 1919, 81, No. 17

- \*Mechanism for Speech, Music and Calculation, and Their Localization in the Brain. S. E. Henschen. p. 721.

Sept. 31, 1919, 81, No. 18

- \*Sugar Content of Blood in Diabetes Mellitus. S. Lindblom. p. 753.  
 \*Polythemia and Enlargement of the Spleen. Harald Öhnell. p. 761.

**Mechanisms for Speech, Music and Calculation.**—Henschen presents arguments to prove that some psychic phenomena form to a certain extent an independent entity, a psychic functional complex. This has an anatomic basis, he explains, formed of certain cortical centers connected by association paths. Both anatomically and functionally one complex may drop out without influencing any of the other complexes. He cites numerous instances to show the interworking of the higher psychic coordinating centers with the lower mechanism, and the correlation between the different complexes, as, for example, between music and speech. A man may be able to sing to a melody certain words but is incapable of speaking the words separately. From the clinical and anatomic data on record in regard to aphasia, etc., Henschen deduces that the left hemisphere of the brain is chiefly responsible for elaborating into ideas the material accumulated by the senses. He suggests that this more complete development of the left hemisphere is an inherited property. He has noticed in ancient and modern art that the left half of the skull is often more prominent, as in the sculptured head of the Young Augustus. Comparison of sculptured heads suggests that the prominence of the left half of the skull testifies to the sculptor's having worked from a living model. It is important from the standpoint of physiology and heredity, he adds, to determine whether this hypothesis is correct. In conclusion he reiterates that study of aphasia and similar complexes allows us a glimpse directly into the mechanism of the mind, and offers a promising field for research on the psychic life.

**Sugar in the Blood in Diabetes.**—Lindblom theorizes that hyperglycemia to a certain extent is a useful phenomenon in diabetes. It serves to warn the sugar-forming and the sugar-destroying organs that formation of sugar must be reduced or the destruction accelerated to restore an approximate balance. The organs gradually become less sensitive to the hyperglycemia, while the ability of the kidneys to eliminate sugar grows less. The urine may be freed from sugar on a proper diet, not in spite of the hyperglycemia but thanks to this. But, of course, hyperglycemia is injurious on the whole, so that efforts to keep it down are indicated, and avoidance of carbohydrates is rational.

### Svenska Läkaresällskapets Handlingar, Stockholm

Sept. 30, 1919, 45, No. 3

- \*Fractures of the Lower End of the Forearm. Abraham Troell. p. 339.

**Fractures of the Forearm.**—Troell reproduces eighty-one fine radiograms showing the three main groups of fractures of the radius close to the wrist. He discusses the mechanism in each type and the treatment, and emphasizes the differences which are evident between the cases with completed ossification and those in which ossification processes are still under way. His article is based on 200 cases personally observed and followed, and he compares his findings with 'Palcher's and others'.

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## DEFECTS IN THE TEACHING OF PATHOLOGY, AND THE LAY PROFESSOR

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Pathologic anatomy has to do with the structural rearrangements brought about by disease; and that individual who approaches the interpretation of any problem in medicine without a comprehensive knowledge of the normal and altered architecture of the tissues concerned, is poorly equipped for his task. The converse is equally true, namely, that individual who confines himself to the study of pathologic anatomy without attempting to bring it into harmony with the signs of altered function is intellectually blind in one eye.

### THE CAUSE FOR DEFECTS IN THE TEACHING OF PATHOLOGY

It is impossible to avoid the conclusion that in this country the teaching of pathologic anatomy is woefully defective, except, perhaps, in isolated instances. There is a disposition in certain quarters to shoulder the blame on the medical schools, and at first glance the stricture appears to be merited. As a matter of truth, I venture the opinion that the responsibility lies elsewhere. In New York State, where one rarely seeks in vain for signs of the New World's progress, the regulations governing the distribution of unclaimed bodies are such as might be expected in a community of avowed obstructionists—in the face of which it is proposed to finance a project to make New York City the medical center of the world! Unfortunately for this plan, the centralization of medical thought and action is a problem less simple than that of the expenditure of money. A medical center must be that place which furnishes the greatest opportunities for the exposure of disease in its anatomic nakedness, and certainly there is little promise of this in any city which consigns the vast majority of its unclaimed dead to a trench in potters' field, where they are abandoned to an end which has nothing to do either with our respect for death or with our regard for the rights of the living. The fault exists in many American centers of population. In these circumstances it is impossible for the schools to secure necropsies in numbers sufficient for the teaching of pathologic anatomy on a scale commensurate with its importance. The subject cannot be taught outside the necropsy room any more than botany may be studied to best advantage without resort to the things

that grow in the fields. The demonstration of museum preparations or of organs more or less freshly removed, while useful, conveys only a tittle of the meaning of pathologic anatomy.

The medical schools cannot be expected to send their graduates into action prepared to harmonize anatomic with clinical findings when it has never been impressed on them by other than the shallowest sort of precept that such correlation is essential to the interests of the sick, to the accuracy of vital statistics, and to their own intellectual well-being. Few interns come to us at Bellevue Hospital prepared, for example, to explain the physical signs of croupous pneumonia on the basis of the naked eye and histologic changes in the lung; and how many of these young men, most of them earnest and anxious students, would anticipate a stricture at the isthmus of the aorta when, on lifting the breast plate at necropsy, the distended internal mammary arteries are brought into view?

As bearing specifically on this phase of medical education, I addressed a questionnaire to the resident staff at Bellevue Hospital. Fifty replies were analyzed. They came from graduates of twenty-six different schools in fifteen different states. Of the fifty interns, twenty-nine (58 per cent.) had never performed a single necropsy previous to receiving the degree in medicine; twenty-one (42 per cent.) had never assisted at a necropsy, and nineteen (38 per cent.) had neither performed nor assisted at the performance of a necropsy. Of twenty-one who had performed necropsies before graduation, eleven (52 per cent.) acted in a voluntary capacity, so that of the fifty graduates only ten, or 20 per cent., had performed necropsies as part of their training for the degree in medicine—and these were done in hopelessly insufficient numbers. Of the fifty, all had witnessed necropsies, it is true. Some of these were provided by the schools as part of the required course in pathology, but attendance on by far the greater number was voluntary.

There was a time, still remembered by the older generation of physicians, when the state was obstinate in its refusal to legalize the dissection of unclaimed bodies for educational purposes. The objection was an emotional one—that dissection is a profanation. The schools were accused of body snatching, ghoulis trafficked in the dead, and every student of medicine was viewed askance as a sort of skulking felon who was unalashed either by the darkness of the churchyard or the sanctity of the grave. The legalization of dissection was finally brought about after numerous long and bitter fights. In Pennsylvania, if I mistake not, the contest was closed and won by the late William S. Forbes, the militant professor of anatomy in Jefferson Medical College, but only after

he had been systematically vilified by press, pulpit and populace.

#### OBJECTIONS TO NECROPSIES FOR EDUCATIONAL PURPOSES

In the new order of things, however, dissection of the dead was soon accepted as a matter of course. Any suggestion to suppress it now would be received as an indication of enfeebled mentality. Nevertheless, there still is a deep prejudice in this country against the performance of necropsies for educational purposes. In various parts of continental Europe the people have long since been convinced that postmortem investigation is a public service, an act to be commended for the welfare of humanity. It is taken as much as a matter of course as is scholastic dissection in this country at the present moment. It seems never to enter any one's head to object, although the continental laws specifically provide that the operation shall not be done if opposition be registered by the family. In this country, on the other hand, necropsy still is all too often regarded as an insult to the dead—a view founded partly on sentiment and derived partly from ignorance. Respect for the presence of death is deep in every one of us. In my own experience in the necropsy room, I have yet to witness a single act which could be construed as a sign of desecration. In seeking consent from responsible relatives, a declaration to the effect that postmortem investigation is a dignified ceremony—not a mutilation—and that the examination will be conducted in a spirit of reverence for the dead, often suffices to elicit a sympathetic response. Even among the more intelligent, such an explanation will be reassuring, but among the less intelligent it should never be withheld and should be emphasized by every force available.

In another and large group of cases, consent is refused because of superstitious religious interdictions. Among the Jews the belief that the Mosaic laws forbid the opening of the body after death is so widely prevalent that it seldom occurs to any one to question it. As a matter of fact, the Jewish religion interposes no objection, and the Jew who denies permission does so of his own election and not because his creed would otherwise be disregarded. He may not be aware of the truth of this statement any more than the Christian is aware of many things in his religion. In one of the large Jewish hospitals in the Middle West, the question of religious objection was met by the superintendent, who invited the heads of the Jewish community to discuss the matter with him. The importance of examination of the body after death was explained to them, and it was related that certain of their coreligionists had refused permission on the ground that the procedure was not sanctioned by ecclesiastical law. Many of the rabbis present were of the same opinion, but the matter was taken under advisement, and, at a second meeting, it was reported that diligent search had failed to uncover any provision which forbade the opening of the body after death.

The most formidable opposition to necropsy is to be found in the laws governing the distribution of the unknown dead. Particularly is this true of New York State. In other communities, notably Pennsylvania, Illinois, Ohio and Louisiana, the laws are more elastic. In Pennsylvania, all unclaimed bodies pass into the keeping of the State Anatomical Board, which appor-

tions them to the several medical colleges for purposes of dissection, and, in certain instances, to the hospital pathologists for instruction by necropsy. In the Philadelphia General Hospital, the chief resident physician informs me that there is a yearly average of about 300 unclaimed bodies. In the summer months, when the medical schools are closed, the State Anatomical Board concedes to the hospital pathologists the right of post-mortem investigation in 25 per cent. of the unclaimed bodies and in 35 per cent. during the winter, the Pennsylvania law requiring that every medical student shall have personally participated in at least seven necropsies before he is entitled to receive his degree. In Illinois the unclaimed bodies are cared for by the Demonstrators' Association. At the Cook County Hospital in Chicago, Dr. Fred H. Stangl, the resident pathologist, tells me that there are about 900 unclaimed bodies every year. The hospital has an arrangement with the Demonstrators' Association by which such bodies to the number of from 200 to 275 are given each year to the hospital pathologists for purposes of instruction by necropsy. From the Charity Hospital in New Orleans, Dr. Duval writes that about 1,000 dead are unclaimed every year. Each body at the end of twenty-four hours becomes automatically a subject for necropsy or dissection, depending on arrangements mutually agreed on by Tulane University and the hospital authorities. In Ohio the laws are equally liberal. Any individual who dies in a hospital, and whose body is unclaimed at the end of thirty-six hours, automatically becomes a subject for examination by the accredited pathologist to the institution, and the pathologist is entitled to retain such organs as he may desire for purposes of teaching or research. Under the provisions of this law, Dr. Woolley at the Cincinnati General Hospital tells me that he secures, on an average, 150 necropsies on unclaimed bodies every year.

In New York State things are different. For example, during the year 1918, in the city of New York alone, 7,245 unclaimed bodies passed through the mortuary (an increase of 400 over the previous year, due to the pandemic disease which raged during 1918) and every one of this tremendous number was buried in potter's field without the legal right of necropsy or dissection of any description, with the exception of 715, which were given into the hands of the Anatomical Board for the use of the medical schools. In Bellevue Hospital alone, between 800 and 1,000 bodies are unclaimed every year, and forty-eight hours after death every one of these passes automatically into the custodianship of the commissioner of public charities, who is charged with their burial in potter's field.

#### "LIVING" PATHOLOGY

An ingenious method of dissolving the difficulties of teaching pathologic anatomy was recently proposed by one of our surgical interns at Bellevue Hospital in an anonymous document which he posted, or caused to be posted, on the bulletin board. The copy which follows is a true one, faithful to the charm of the original. It is an excellent illustration of the necessity for the broader training of medical students in pathology:

#### FOOD FOR THOUGHT

Why is it that so many physicians will get up in the middle of the night and travel miles to see a postmortem examination, and yet, many of these same men, in their minds, will consign to eternal oblivion the very thought of taking the elevator to the fifth floor of this building where

they can witness several operations every day, each of which will demonstrate the same changes produced by disease in living tissue before they are obscured by terminal results?

Since the sponsor of this implied protest is unknown, I am quite unable to say whether the sentiment is original or whether the protestant is a disciple of that distinguished Philadelphia surgeon who, in a paper embodying certain observations on what he terms "living" pathology, closes with the delightfully naive decision that "only by standing at the elbow of the surgeon . . . can the internist hope to attain proficiency in diagnosis and proper conception of treatment . . ."! Parenthetically, is not all pathology "living," is there such a thing as "dead" pathology—is it not true that all pathologic phenomena cease with death? Is there a "living" and a "dead" physiology? As a matter of truth, pathology and physiology are mated, and both are living—the one has to do with normal and the other with perverted function. The study of diseased tissues after death is but an attempt to arrive at an intelligent explanation of those digressions which were present during life. The practice of representing pathology to medical students as something which has to do with the dead rather than with the living is pernicious.

#### THE SURGEON AND THE PATHOLOGIST

There are surgeons that are accomplished pathologists. It is to be feared, however, that the average surgeon is ill prepared to instruct the internist in other than manipulative procedures. Indeed, if a knowledge of pathology were more prevalent among the ordinary run of surgeons and even among certain surgeons of exalted rank, the pathologist would less often be called to the operating room to make a frozen section for the "rapid diagnosis," let us say, of breast tumors. The better trained surgeon knows the naked eye appearance of the benign tumors of the breast and their differentiation from the malignant. He also knows, for example, that adenofibroma of the breast is often a precursor of carcinoma, that not uncommonly an apparently innocent adenofibroma reveals evidences of cancer only after the microscopic examination of sections removed at different levels, and that the necessarily hurried and almost uniformly improper fixation of tissues for diagnosis by frozen section is dangerous. In fact, it was taught by Orth, I believe, that the only really safe method of excluding malignant changes in these circumstances is by serial section of the entire growth; and this, of course, is rarely practicable. Other examples could be multiplied beyond the reaches of this paper. Certain it is that the rapidly prepared frozen section reveals nothing of immediate worth that is not detectable by the properly trained naked eye at a saving of time which is valuable to the anesthetized patient. It is not to be understood that the naked eye interpretation of breast tumors and similar lesions is without its pitfalls; but the microscopic pronouncement of malignancy in rapidly prepared frozen sections, while it may impress the visitor to the clinic, is seldom of further value, although it does place a burden on the pathologist in the event of mistake; and this, from the standpoint of the surgeon, is not without comfort. However true all this may be, it is far from my remotest desire to decry the teaching of pathology by the use of tissues freshly removed at operation or by the observation of changes in the living body. The method is a splendid one, albeit of such limited appli-

cation to general medicine that the internist who confines his inquiries in pathology to the peregrinations of the surgeon's elbow will find himself searching, as it were, for a pot of gold at the foot of the rainbow.

#### THE LAY PROFESSOR

In addition, however, to inadequate facilities for the teaching of pathologic anatomy, there are other defects to be found in certain American schools of medicine and all of them bear directly on pathology. For example, there are schools in this country in which the teaching of physiology and physiologic chemistry is entrusted to men who have received no systematic training in medicine—masters of arts or doctors of philosophy or of science. The consequence is that the student is apt to gather the impression that these subjects are only remotely related to practical medicine—that they constitute a sort of mental hurdle to be leaped and left behind as soon as possible, not necessarily because the nonmedical professor in the medical school is lacking in abstract knowledge of the subject which he is delegated to teach, but because, in the absence of a broad training in theoretical and practical medicine, his sense of proportion, his appreciation of relative values, his perspective is ill adjusted to the remainder of the curriculum and to the labyrinth of medical problems beyond the classroom. Sometimes it happens, also, that the chair of pharmacology is filled by a man whose education does not include a composite training in medicine. In these circumstances the questionable propriety of selecting such a teacher finds little extenuation in the fact that pharmacology occupies a place of secondary importance in the curriculum. It is none the less strictly a medical subject and should be taught by medical men. Moreover, there are at least two representative schools in this country in which the chair of anatomy is filled by men neither of whom holds a degree in medicine. Both, it is true, are scholars of caliber. But anatomy, it seems to me, should be taught by some one who at every turn is able to point out to the student the application of anatomic facts to clinical medicine and surgery. At Guy's and, if I mistake not, in other London schools, anatomy is taught by men who are qualified for surgical rank. The benefits are manifest—the student receives practical instruction and the surgical staff is recruited from masters of anatomy. In an occasional American school the effort to effect a liaison between anatomy and surgery is attempted by special lectures; but, in the majority of teaching institutions, the interval is never bridged, and the student leaves the dissecting room in considerable doubt as to the application of the multitudinous facts which have been crowded on him. The teaching of embryology commonly is left to instructors few, if any, of whom are capable of vitalizing the intimacy between it and pathology, notably in the vast domain of tumors. The teaching of histology is all too often entrusted to an assistant with the alphabetical distinction of a bachelor's degree in arts or science, thus leaving another gateway to pathology guarded by an extramural sentinel. Small wonder is it that so many slip through who do not know the meaning of the structural differences between an artery and a vein, and how many times is just such apparently simple knowledge as this invoked, almost unconsciously it would seem, to help clarify the day's problems? Let

the teacher of histology confide to the student the merest intimation of the importance of the elastic tissues of the aorta in the genesis of aneurysm, and the association is likely to be stored away in anticipation of that day when his knowledge of aneurysm shall have acquired concrete form and practical significance. Otherwise, the student is tempted either to forget that the aorta has any elastic fibers or to wonder why Nature should have gone to the trouble of placing them there.

Then comes the course in pathologic histology—the *pons asinorum* of the curriculum, in crossing which the student wonders all the while by what extraordinary combination of circumstances the microscopic changes in diseased tissues could possibly have to do with the problems of bedside medicine. Later, he is taken to the museum and to him are demonstrated a number of relics, or, in the more highly favored schools, he is permitted to look on collections of discolored or partly decomposed viscera removed at necropsy a week before, and again he wonders why experience still leaves him in confusion.

In this wise it is brought about that in the most impressionable years of his training the student is presented with subjects of enormous importance, but the presentation is made to him in such a fashion that he cannot fathom the relationship that they bear to one another or to clinical medicine. In New York State, to make matters worse, he is permitted at the end of the second scholastic year to take the licensing examinations in the elementary branches—*anatomy, physiology, chemistry, etc.*—passing which he feels that a yoke has been lifted from his neck and that, like other forms of suffering, he is now entitled to forget them and to seek elsewhere for happiness. Thus, he commences the study of the so-called practical branches almost completely bereft of that most valuable working asset of all—an anatomic conception of disease, without which the philosophy of medicine finds itself in constant conflict with the sophistry.

Moreover, the lay professor in the medical school seems disinclined to fill his assistantships with young physicians who, potentially at least, are better qualified to teach a strictly medical subject than is the head of the department himself and who, as they develop, promise to command no small degree of attention from the students. The student reasons that if these branches of medical knowledge, the import of which he has so often heard described in the superlative, are taught by men of academic training, then, indeed, there must be some element of exaggeration in the tales which have been brought to him of their ponderous value in practical medicine. Perhaps the argument is lacking in logic, but at least it has the merit of being human.

The danger does not cease here. The lay professor, himself realizing the necessity for correlating the teaching of his subject with that of the more strictly practical branches, too often yields to the temptation to trespass on that incidental knowledge which he has gathered in his travels with the medical caravan. In this way the student not uncommonly is misinformed at a period of development when his mind is receptive to impressions rather than capable of directive thought, and the eradication of mental weeds often is a far more difficult problem than that of their implantation.

Finally, it is significant not only that the lay members of the medical faculty, by virtue of their votes

and influence, participate in shaping the policy of the schools to which they are accredited, but also that the destiny of the entire system of medical education is thus partially given into their keeping. Even now there are those physicians that profess to see in this an explanation of the present disposition on the part of certain schools to overemphasize the importance of laboratory procedures. This tendency, which is becoming more pronounced each year, appeals strongly to those faddists among whom any test which suggests an easy approach to the solution of any problem, or which promises a division or evasion of responsibility, is assured of a kindly reception. Whether its credentials are written in the language of science or in that of pseudoscience appears to make little difference. It panders to laziness, which is man's most easily accessible weakness.

#### THE GRANTING OF HIGHER DEGREES IN MEDICAL SUBJECTS

There are also those that see another menace reflected from the same source of influence. For example, several American universities are committed to the policy of granting higher academic degrees in pathology, bacteriology, psychiatry and other subjects whose application belongs wholly or largely to the field of medicine. Bacteriology in its commercial or agricultural aspects is an obvious exception. In one of the great American universities, the degree of Doctor of Philosophy is given in psychiatry and carries with it instruction to the effect that psychoanalysis is applicable to the treatment of the feebleminded. It is a striking illustration of the fact that psychoanalysis is a therapeutic explosive which is at once too valuable and too dangerous to be entrusted to amateurs in psychopathology.

#### CONCLUSIONS

1. Faultfinding, unless it be undertaken with a view to constructive suggestion, is at best, I presume, a doubtful virtue. In this paper I have ventured to register two complaints—one has to do with the selection of nonmedical men to teach medical subjects. The means of correction suggest themselves. It would tend to overcome the difficulty if the universities indulged in fewer architectural extravagances—if they exhibited less magnificence in the matter of buildings and more munificence in the form of salaries. The problem is one which strikes at the root of our system of university education, for, with the ceaseless expansion of industry, corporations are calling for trained men, and many respond who otherwise would elect an academic career, but who cannot sacrifice financial emolument to intellectual pursuits. For the same reason the medical schools cannot hope to attract and hold medical men as laboratory teachers at a wage which is incompatible with decent living, when consultations beckon with finger tips of gold.

2. The other complaint concerns the prejudice against using the bodies of the unclaimed dead for purposes of education by necropsy. The remedy is apparently one of legislation. The making or changing of anatomic acts is not an easy matter, although it is to be recalled that the older anatomists prevailed against odds which were terrifying, and our task would appear to be somewhat simplified by their accomplishments.

That state which countenances dissection of unclaimed bodies for educational purposes could not, without being inconsistent, deny the legalization of

necropsy on the unknown dead for the promotion of medical progress, although consistency in such affairs is a somewhat independent quantity. Assuming, however, that it would be practicable to reconstruct existing laws governing the distribution of the unclaimed dead, I believe that amendments should provide, among other things, that if a patient without friends or relatives requests that his body be not touched in the event of death, his wishes are to be respected. If the relatives of a person dying in a hospital or elsewhere are unable to provide for burial and request that the body thus left unclaimed be not touched, their wishes are likewise to be respected. If a patient be admitted to a hospital in an irrational or unconscious state and remain so, his body, in the event of death, although unclaimed, is to be untouched if for no other reason than that, in his last illness, the deceased was given no opportunity to express a desire as to the disposition of his remains. In addition, the law should make it more than ever mandatory on the hospital to exercise every precaution accurately to record the location of responsible relatives at the moment of the patient's admission, to investigate every available clue should the patient die, and to leave the remains intact if it be established that such relatives exist but are not accessible. In every case, at least forty-eight hours should elapse before the body is legally declared abandoned, and the hospital should be allowed to extend this limit if delay is deemed desirable in the interests of those who appear to have been forsaken in death.

## THE TREATMENT OF PERITONITIS\*

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After exhaustion or shock due to the condition for which operation is performed; after starvation from cancer or obstruction; after hemorrhage from perforating ulcers, etc., or following the physiologic disturbance produced by an operation itself—for instance, resection of the stomach, of the gallbladder, of the intestine, etc.—the most common danger incident to abdominal operations is infection. In civilian surgery, the principal sources of abdominal infection are the appendix, the gallbladder, the tubes, ulcers, or the operation itself; while in military surgery, infection may be due to missiles, clothing, or the contents of the hollow viscera—especially the last.

It follows that a consideration of methods of prevention and treatment of abdominal infection has a direct bearing on every type of abdominal operation. The scheme of treatment to be presented is based on a total experience in all types of operations of my colleagues Dr. F. E. Bunts, Dr. W. E. Lower and Dr. H. G. Sloan, my associates at Lakeside Hospital and myself, including 13,145 laparotomies among which are: 6,820 operations for appendicitis; 1,261 operations on the stomach and intestine; 1,289 gallbladder operations, and 2,837 operations on the female pelvic organs. By the general management to be outlined in this paper, our mortality in all abdominal operations has been decreased 33¼ per cent.; in acute appendix operations alone, the reduction in mortality has been 67.6 per cent.

The presence of infection is readily determined by two characteristic groups of symptoms—general and local. The general symptoms—accelerated pulse and respiration, raised blood pressure, increased temperature and rapid loss of strength and weight—indicate the presence of some acid-forming activation. On the other hand, the local symptoms—pain, tenderness, distention, muscular rigidity, intestinal paresis, vomiting—indicate the protective response of the organism to the bacterial invasion—its effort to secure immobilization in order that the spread of the infection may be inhibited. This increased activation of the organism in its self-defense against the infection, and the acids formed by the infection added to those due to chronic disease, by so much lower the resistance of the patient.

The prime problem of abdominal infection, therefore, is the same as the prime problem of abdominal surgery in general—the reduced resistance and mounting acidosis of the patient.

These facts point the way to the two prime requisites in treatment: (1) the conservation of the remaining energy in the body against further depletion, and (2) the neutralization and elimination of the superabundant waste products. In the abdominal case in which immediate operation is not imperative, the vitality of the patient may be increased by obvious measures—diet, fresh air, and above all *rest and sleep*, until a favorable condition for operation is obtained.

In the soldier with perforated intestines, however, and in the starved civilian patient with partial obstruction, or with acute infection, operative measures cannot be postponed. In these cases the administration by rectum of a 5 per cent. solution of sodium bicarbonate with 5 per cent. glucose, and an immediate transfusion of blood may effect a sufficient restoration for the operation, or at least for the first séance of a two-stage operation under strict anociation—nitrous oxid-oxygen analgesia, local anesthesia, and the minimum amount of manipulation required to complete the operation; or in grave situations to make a sufficient anatomic adjustment to save the patient until an interim of rest and restoration has sufficiently increased his vitality to permit the performance of the second and major stage of the operation.

As for the technic of the operation, whether it be performed in one or two stages, whether it be the removal of an appendix or gallbladder, resection of the stomach or colon, removal of tumors of the ovaries or uterus, or, in the wounded soldier, the repair of intestinal rents or perforations, every step should be under complete anociation—nitrous oxid oxygen anesthesia or analgesia, supplemented by ether only when it is necessary to secure increased relaxation during the exploration, procain infiltration, gentle manipulations and sharp dissection.

The essential points in the associated treatment of abdominal infection, therefore, are:

1. Nitrous oxid-oxygen.
2. Anesthetized incision.
3. Accurate, clean-cut operation to diminish both infection and shock.
4. Adequate drainage.
5. Fowler's posture.
6. Vast hot packs over the entire abdomen, spreading well down over the sides.
7. Five per cent. sodium bicarbonate, with 5 per cent. glucose by rectal tap, continued as long as it is tolerated.

\* Read before the American Association of Obstetricians and Gynecologists, Cincinnati, Sept. 17, 1919.

8. Primary lavage of the stomach, repeated only if indicated. (It will rarely be indicated if anociation is complete.)

9. From 2,500 to 3,000 cc. of physiologic sodium chloride solution administered simultaneously every twenty-four hours until the period of danger is past.

10. Morphine hypodermically until the respiratory rate is reduced to from 10 to 14 per minute, and held to this rate until danger is past. It should be noted, however, that morphine is not useful in a streptococcus peritonitis.

By employing water, hot packs, and morphine, the surgeon can play the patient almost at will. The control of the drive, as marked by the changes in the respiratory rate in particular, is dramatic. Morphine lowers the respiratory rate, decreases the peristalsis of the intestines, reduces pain and secures physiologic rest and sleep, the prime means of recuperation.

Under this combination of the anociation of peritonitis with the anociated operation, my associate Dr. Lower and I have performed 409 consecutive operations for acute appendicitis with or without generalized peritonitis without a death.

1021 Prospect Avenue.

### SUPERIMPOSED CAVITIES, THE POSSIBLE CAUSE OF CRACKED POT SOUND\*

JOSEPH WALSH, M.D.

PHILADELPHIA

Cracked pot tympany (*bruit de pot fêlé* of Laënnec) is so well known to clinicians that a special description is unnecessary. It was first called attention to by Laënnec about 1820, and in 1860 was so fully described by Walshe<sup>1</sup> that nothing has been added since. It is found under the following conditions:

Pulmonary cavities. Osler<sup>2</sup> says "only over tolerable large cavities with thin walls"; Fowler and Godlee,<sup>3</sup> superficial cavity with slightly yielding walls and free bronchial communication, the mouth being open at the time; Cornet<sup>4</sup> in Nothnagel's Practice, cavities, especially at the apex communicating by a narrow orifice with an open bronchus.

Pleural effusion (*skodaic* cracked pot, though ordinary tympany or hyperresonance is much more common).

Occasional cases of pneumonia when the consolidation is at its height.

Occasional cases of bronchitis, especially in children. Normal lungs of crying children during expiration.

Cornet mentions relaxed or infiltrated or tuberculous lung, or open pneumothorax.

A similar sound can be produced by filling the cheek with the mouth open, or striking the back of the hands, loosely folded across each other, against the face, the contained air being forced out abundantly and quickly between the fingers at each blow, or by filling the hand with coins, shutting it tight enough to allow only a slight space for the coins to move, then shaking the hand.<sup>5</sup>

It is commonly thought that the larger the cavity, and the nearer to the anterior wall, the more likelihood of its production. Yet we often see cavities of the largest size immediately underlying the surface not producing it, so that these circumstances alone do not explain it. Walshe states that in a case showing it, it will cease to be produced if the mouth and nose be closed, though percussion will still show tympany. He contends that the fair interpretation of this fact seems to be that the sudden rush of air from the cavity outward, produced by the forcible blow on the yielding parietes in the ordinary open state of the mouth and nose, but completely prevented by their closure, is the real cause of the phenomenon. It has, therefore, been considered necessary for the cavity to connect freely with bronchi, thereby allowing the air in the cavity to be expelled freely and instantly. Yet we often find at necropsy large cavities apparently connecting freely with large bronchi without the sound having been produced (Case 439, U. S. Army General Hospital No. 17).

It has also been asserted that it depends on the collision of liquid and air in the cavity; but Walshe called attention to cavities which with fluid did not produce it and without fluid did produce it. In addition, in the case of filling the cheek there is no fluid to explain it.

It is ordinarily stated, therefore, that the pathologic conditions producing it are a large cavity communicating freely with a bronchus, and relaxation of the pulmonary tissue.

Dec. 1, 1918, Case 296 at General Hospital No. 17 showed cracked pot in the first interspace near the sternum on the left with dullness to the fourth interspace. December 5, it showed ordinary tympany in the first interspace and cracked pot in the third interspace  $1\frac{1}{2}$  inches from the sternum. A diagnosis of two cavities was made. The roentgen ray, however, showed the appearance of four cavities, two superimposed on two others.

The possibility was suggested that the double cavity might have some influence in the production of cracked pot, and further cases were sought. Only one (Case 17) was found. This manifested cracked pot in the first interspace on the left, and the roentgen ray showed again the appearance of two cavities superimposed. This patient is still living.

Subsequent examinations of Case 296 revealed the cracked pot tympany sometimes in one and sometimes in the other of the two previously mentioned places and sometimes absent in both. For instance, December 14, there was ordinary tympany between the first and second ribs, and dullness between the third and fourth. When present, the cracked pot sound could be elicited both with the mouth open and with it closed, though more satisfactorily when open. Closing of the nasal passages was not tried.

December 30, this patient died. The necropsy disclosed not four cavities, but three, yet so situated that the first underlay the second and the second the third. The first extended from the apex to the second rib, the second from the first to the third rib, the third from the second interspace to the fourth rib. In other words, though only three cavities were present, they were so placed that in the two situations in which cracked pot sound occurred, there was a part of a cavity superimposed on another. On the strength of this finding, the conclusion was reached that the superimposing of cavities may, at least, aid in the production of cracked pot

\* Read at the Conference of the Medical Staff, U. S. Army General Hospital No. 17, Merikton, Pa., Feb. 12, 1919.

1. Walshe: Diseases of the Lungs, Philadelphia, Blanchard & Lea, 1860.

2. Osler, W.: The Principles and Practice of Medicine, New York, D. Appleton & Co., Ed. 8, 1917, p. 201.

3. Fowler and Godlee: Diseases of the Lungs, New York, Longmans, Green & Co., 1898 edition, p. 37.

4. Cornet in volume Tuberculosis Nothnagel's Encyclopedia of Practical Medicine, Philadelphia, W. B. Saunders Company, 1904, p. 424.

5. Sahl, H.: Treatise on Diagnostic Methods of Examination, Philadelphia, W. B. Saunders Company, 1905, p. 153.

sound, and investigations were made by artificially introducing cavities into the removed lungs of animals.

It was found that percussion of two inflated bladders tied so as to prevent the escape of air, either introduced into an animal's lung, or placed over one another outside, gave tympany, but not cracked pot. In other words, communication with the air is evidently necessary; the mere rattling of cavities on one another is not sufficient. An open trachea was percussed both within and without the lung, and found to produce it, though not so typically as occasionally heard; two open tracheas, however, superimposed produced the sound exquisitely.

The application of these facts to its occurrence in pneumonia, above a pleural effusion, and in crying children, affords a more satisfactory explanation than the one usually offered, namely, relaxation of the lung. In pneumonia, the tissue is consolidated around the bronchial tubes, so that they act practically like superimposed cavities, sometimes open, sometimes occluded, only in the former event producing the cracked pot sound. Above a pleural effusion the normal lung is compressed about the bronchial tubes, and since there is no secretion to occlude them, the sound is very common, much more common, for instance, than in pneumonia.

An analogous condition prevails in crying children. Fluoroscopic examination reveals that if we exhale all the air possible and then cough several times, we can raise the diaphragm to the third and even occasionally the second rib, thereby compressing the lung to this extent. The effort of the crying child is practically entirely expiratory, producing a similar condition and one not unlike that above a pleural effusion. In addition, the bronchial tubes of the child are much larger in proportion to the lung space, and give the sound of cavity more evidently.

I have never heard it over pneumothorax, though I have examined and necropsied more than twenty cases, several of which (for instance, Case 210) communicated with the lung by large openings. Stanton<sup>6</sup> reports sixty-one cases without cracked pot ever being noted. With the idea of superimposed cavities in mind we would expect it only over a small pneumothorax communicating freely with the lung with a large cavity behind it.

2026 Chestnut Street.

<sup>6</sup> Stanton: Fifth Annual Report of the Henry Phipps Institute, p. 271.

**Importance of Rural Hygiene.**—Over 50 per cent. of the population of the United States is rural. Therefore, what affects directly and importantly the residents of our rural districts affects vitally the strength of our nation. The reference to my breakfast of this morning illustrates the close and important connection between the residents of our urban centers and the sanitary conditions of our rural districts. Thousands of city residents visit the country every day for business or social reasons. The vast bulk of milk and other fresh foods supplied to our large cities are brought in from farm homes. Most of the cities obtain their water supplies from open streams or lakes which receive drainage from extensive rural territories. Through any of these media—persons, food, or water—and also by flies and mosquitoes, infection spread from insanitary rural premises may be conveyed to persons residing in the city. Thus the sanitation of the rural districts has a direct and important bearing on the health of the whole nation.—L. L. Lumsden, "Rural Hygiene," *Pub. Health Rep.*, Nov 7, 1919.

## A BACTERIOLOGIC INVESTIGATION OF AN OUTBREAK OF INFLUENZA IN AN INSTITUTION

THE INMATES OF WHICH WERE PREVIOUSLY FREE FROM THE INFLUENZA BACILLUS WHEN COMPLETELY VACCINATED WITH INFLUENZA VACCINE

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ALBANY, N. Y.

The New York State Training School for Girls at Hudson, N. Y., is located on the southern outskirts of the city. The population of Hudson was 11,544 in 1915. It accordingly ranks as a third-class city. Early in the influenza epidemic in this country there was an outbreak in Hudson, but the quarantine that was immediately established at the training school was so rigidly and so effectively carried out that no cases of influenza developed in the institution. In order further to safeguard the inmates, all were vaccinated. A vaccine prepared by suspending in salt solution the growth of fifteen strains of the influenza bacillus (a vaccine prepared by the central laboratory at Albany, and one used generally throughout the state) was the vaccine used. Three doses containing 1 billion bacilli per cubic centimeter were given, a first dose of 0.5 c.c., and the second and third doses of 1 c.c. each.

### A SUCCESSFUL QUARANTINE

At this time a bacteriologic investigation was conducted by bacteriologists from the research laboratory of Dr. William H. Park in New York City, in order to ascertain how many of the inmates harbored the influenza bacillus. The influenza bacillus was isolated from the throats of only three of the inmates, who numbered 461 in all. These bacteriologic investigations and the vaccination were completed, Oct. 31, 1918. The epidemic in the city subsided without any cases developing in the institution. It was not certain whether this was owing to the effect of the quarantine or to the complete vaccination of the inmates.

### LATER OUTBREAKS OF INFLUENZA

During the latter part of December, 1918, however, there was an outbreak of influenza in the institution lasting through January, 1919. Unfortunately, it was not possible to secure bacteriologic investigations of the cases early in the outbreak, but later Miss Ella Hoppe of the laboratory staff was sent to the institution to take cultures from the nasopharynx in thirteen cases that had developed. The influenza bacillus was isolated from four of the ten vaccinated patients who were examined, and from two of the three unvaccinated patients. At the same time, cultures were taken from five persons who had been vaccinated but who had not developed influenza. These girls were in the cottage that had the greater number of cases. The influenza bacillus was isolated from one patient.

In February a second outbreak occurred, making the total number of cases, for the two outbreaks, 166 among the vaccinated, and thirty-seven among the unvaccinated. These thirty-seven had doubtless been assigned to the institution after October 31, when the vaccination of the inmates was completed. After the

second outbreak, nasopharyngeal cultures were taken from thirty-eight cases. No negative cases were reported until three specimens had been examined. The influenza bacillus was isolated from thirty-two of the thirty-eight cases examined. Thirty cases developed among the vaccinated, and from these the influenza bacillus was isolated in twenty-six. Eight cases developed among the unvaccinated, and the influenza bacillus was isolated in six of these. At the same time, cultures were taken from five persons who had been vaccinated but who had not developed the disease. Two cultures of the bacillus were isolated. Of the three negative cultures, one had been positive when control cases were taken in January.

#### RESULTS OF THE INVESTIGATION

The results of this investigation are thus of interest in demonstrating not only how much more effective and efficient quarantine is in the prevention of the spread of influenza than the use of an experimental preventive inoculation, the practical value of which is wholly indeterminate, but also that, with changing personnel, a rigid quarantine for a sufficient length of time should be maintained to insure against subsequent outbreaks. It is also considered of special interest to record the observations of influenza and the very general distribution of influenza bacilli during the outbreak without attempting to draw any definite conclusions from these isolated facts.

While at present the dispensary is giving treatment in new cases of discharged soldiers and sailors at the rate of about forty per month, these being referred by the American Red Cross and by the U. S. Public Health Service, and while this organization had entered the field some time before the Social Hygiene divisions of the Army and Navy were established,

STANDARD SYPHILIS THE UNIQUE NUMBER 1

Case No. \_\_\_\_\_ Date \_\_\_\_\_ Finding \_\_\_\_\_ Treatment \_\_\_\_\_ Name \_\_\_\_\_

APPROXIMATELY ONCE WEEKLY FOR SIX WEEKS

MERCURY SUPPLEMENT FOR SIX WEEKS

SPECIAL FLUID WASHINGTON'S

Fig. 2.—Schedule of treatment in early primary syphilis. The original card measures about 5 by 8 inches.

the formation of these efficient bodies supplanted our work, in part, during the period of the war.

However, from the first, the civilian educational propaganda has continued, and it has been most active since January 1 of this year. During that month, the objects of the league were communicated to 5,000 different employers of labor, by means of a series of letters, three in number. Since then, the dispensary superintendent has given twenty-six lectures reaching a total of 9,550 persons at hotels, lodging houses, Y. M. C. A. buildings, and industrial plants. More than 16,500 pamphlets were distributed at these lectures, making a grand total of 113,500 pieces of literature distributed, so far, by the league. At the present time, the requests for talks and pictures are so numerous as to tax the strength of our staff severely.

The films "Fit to Win," "The End of the Road," and "Open Your Eyes," which originally were prepared for the U. S. Public Health Service, are being used and exhibited to excellent advantage. The first showing of "Fit to Win" and an explanatory lecture, at the employees' club house of the great McCormick Reaper Works to an audience of 500, brought such an enthusiastic response from both the officers and men of this concern that ten successive showings were arranged for at the same place, in order to bring the facts before every one of the 9,000 employees of the firm. As a result, arrangements were made to place 100 framed dispensary notices in as many washrooms of this great plant.

More than 1,200 dispensary notices have been placed in sixty of the largest department stores and industrial plants, including the Illinois Steel Mills; Hart, Schaffner & Marx; the great packing plants; the stockyards; bakeries, and so forth. Nearly every Y. M. C. A. building has a display. In addition, there are permanent exhibits, each comprising a set of twenty-four framed pictures, at the city hall comfort station and in twenty-four of the big industrial plants. Framed posters are being exhibited in washrooms in scores of shops and factories.

## THE VENEREAL DISEASE DISPENSARY

INCLUDING A REPORT OF THE WORK DONE AT THE  
ILLINOIS SOCIAL HYGIENE LEAGUE DISPENSARY  
DURING AND SINCE THE WAR\*

B. C. CORBUS, M.D.

Chief of Staff, Illinois Social Hygiene Dispensary  
CHICAGO

In the summer of 1915, a charter was applied for and obtained from the state of Illinois for the establishment of the Red League of Chicago, which is now known as the Illinois Social Hygiene League. A campaign was started immediately to enlist the aid of the general public in promoting the aims of this organization. In addition to popular education in social diseases (venereal diseases), their prevention and treatment were included in the objects of the league.

In order to ascertain the exact facilities of the Chicago dispensaries and hospitals for attending and housing patients with venereal diseases, a questionnaire was sent out, the results being compiled and published in a survey by Dr. Mary Lincoln of this city. Excepting a very few instances, both hospitals and dispensaries were found to be far below the standard that had been set for the dispensary of the league. It was the intention of the organization to open this dispensary in the spring of 1917, but war was declared and sufficient funds were not available until the following spring (1918.) However, during the first year of its activities, the league conducted an intensive educational campaign.

\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

\* Owing in lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprint.

DISPENSARY ORGANIZATION

*The Civilian Drive.*—Having familiarized themselves with the venereal situation as it existed in the armies and among the civilian population of the United Kingdom, the directors of the league decided to concentrate their interest and activities in an effort to put into effect the venereal disease program as outlined by the Advisory Board to the Surgeon-General in relation to these diseases among the laity. Therefore, being convinced that the time had arrived to fight venereal disease openly, in the civilian population, they equipped and established the first dispensary of the Illinois Social Hygiene League, at 118 West Grand Avenue, Chicago.

Since the program of the league is not only a medical one, but affects the social and the economic life equally, the public was invited to join and contribute to the work of the organization. From May 1, 1917, to May 19, 1919, 436 members have made contributions to the expenses of the league.

*The Dispensary Staff.*—Eleven specially trained physicians are now on the staff of the Illinois Social Hygiene League. Of these, three are women who treat only women patients and young children. Several other physicians, at present, are receiving instruction and training; and their number will be increased as rapidly as an increase in the available space can be secured, as it has been found unwise to hold clinics crowded by both patients and medical men receiving instruction.

With a view to increasing the interest and the efficiency of the staff members, it was decided from the beginning to pay each attending physician a fee of \$5 for each period of attendance. Thus, if a staff physician serves in the clinic for three weekly periods, he receives about \$60 per month. This principle of remunerating physicians for their work in the clinic has proved highly successful, and the staff members are rarely absent from the clinics.

All staff members are required to sign a medical ethics standard.<sup>1</sup>

*Improvements in Dispensary Practice.*—Some of the things that have been accomplished in our work are as follows:

Frequent meetings of the medical staff to discuss details of treatment.

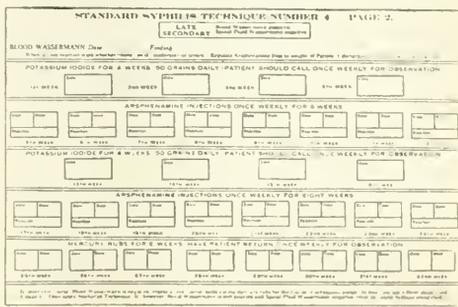


Fig. 7.—Schedule of treatment in late secondary syphilis, page 2

The development of a standardized technic of examination and treatment for syphilis; also a definite discharge technic.

The development of a standardized technic of examination and treatment for urethritis; also a definite discharge technic.

A plan of study of case records.

The evolving of a new social service record and the securing of a social worker for women patients.

Separation of syphilis and gonorrhea clinics; also of clinics for men and women.

The appointing on the staff of women physicians for women and children patients.

The devising of new medical charts and history cards calculated to secure the greatest possible efficiency in history records.

The reducing of the business management, the collection of fees, and the soliciting of funds to an efficient basis.

*Equipment.*—Being located in the north central section of the Chicago business district, the dispensary is easily accessible. It occupies a two-story building, the first floor being used by the executive staff, with private telephone communication to the dispensary operating room. In addition, there is a private reception room for women.

On the second floor, there is a large waiting room, well furnished, with attractive pictures on the walls, also a cystoscopy room, a women's treatment room, an irrigating room, and the laboratory. Most important of all is a room, fitted with a comfortable bed, where the patients may remain several hours after having undergone a spinal puncture.

The dispensary periods last from one to three hours according to the number of patients calling for treatment. There are fourteen weekly clinics held, covering separate syphilis clinics for men and women; separate genito-urinary clinics for men and women; all groups of clinics being served by one nurse.

The hours at which clinics are held are arranged suitably for working people; namely, early morning;

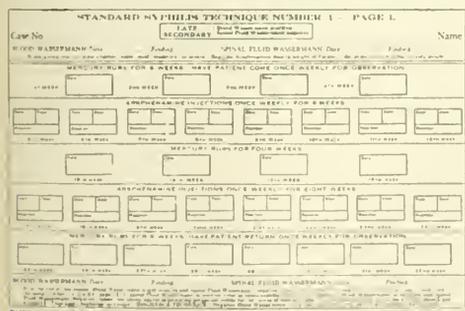


Fig. 6.—Schedule of treatment in late secondary syphilis, page 1.

The chief of staff is not paid for his services, nor are the physicians in training and the occasional volunteers. A social worker is paid by the Chicago women's clubs. Besides the superintendent, there are two clerks, as much of the superintendent's time is being devoted to educational work which soon will include the supervision of a second, or branch dispensary in the stockyards district. A laboratory was established recently with one technician in charge.

1. This appears in the author's reprints.

hours for night workers, evening hours for those who work during the day, and noon hours for working women. The clinics are held for charity patients and for those who pay a fee for services received. Such a mixed clinic has been proved quite feasible and successful in actual operation. While certain relatively high fees are charged for arsenamin treatments (\$5), for Wassermann tests (\$5) and for spinal punctures (\$5), these charges are regulated to meet the financial status of the patients. The average fees received amount to \$2.50. The fee charged depends on the patient's earning capacity, on the number of persons dependent on him, and on his savings. However, no patient is turned away because of lack of means, and discharged soldiers and sailors are treated free of charge regardless of their willingness or ability to pay.

Thus, there is no real competition with private practice; for capable specialists in venereal diseases charge fees far beyond the pocketbooks of married men earning less than \$100 per month. As the medical service in the dispensary is salaried, there cannot be a possible exception taken to this arrangement on the part of the medical profession.

An excellent feature of the system of the dispensary is that the physicians and the nurse have nothing to do with the collection of the patients' fees, this being attended to by the lay clerical and social service staff under the direction of the superintendent. Therefore, the staff members are obliged to treat pay patients and charity patients with the same care and efficiency.

It is of interest to note that, during the first year of operation, the dispensary received \$4,300 from patients, nearly \$3,000 of which was paid to the medical staff.

**Records.**—The card system of records in use in the dispensary is unique in some respects. The medical and social service histories are kept on separate cards

The record system is so arranged that all of the facts of statistical importance are easily and quickly summarized. Our state and city departments of public health require complete records, which are furnished promptly. Reports also are made to previous medical attendants. Finally, the records permit ready arrangement for the purposes of clinical study.

The follow-up system, referred to in the foregoing, assures the constant and regular attendance of the

Fig. 11.—Schedule of treatment in tertiary syphilis, page 2.

patients. If these are neglectful, they are reported to the department of health.

Most of the drugs required for treatment are supplied to the patients, and no extra charge is made for them except in the case of mercury rubs, for which a week's supply calls for a payment of 50 cents. Occasionally, however, a prescription is written that must be filled at a drugstore.

**Clinical Material.**—The patients come to the dispensary largely from these sources, named in the order of their importance:

1. Exhibit, public comfort station at the city hall.
2. Referred by patients or former patients.
3. Signs in washroom in shop or factory.
4. Referred by private physicians, hospitals, philanthropic agencies, other dispensaries, and, surprising to relate, by druggists.
5. Newspaper publicity.

Thus are indicated the most successful methods of attracting patients to the dispensary. The educational work of the Social Hygiene League is, therefore, organized to give its greatest attention to the following publicity methods, also named in the order of their importance:

1. Permanent exhibits, comprising framed photographs and posters in public places.
2. Installation of three stereomicrographs in public places, such as the municipal pier, public bathing beaches, amusement resorts conducted by private capital (White City, Riverview Park, etc.).
3. Dispensary notices and posters in washrooms of shops, stores and factories.
4. Newspaper publicity.
5. Lectures illustrated with slides and films, at which literature is distributed.

**Safety in Industry.**—Employers and state and federal departments and safety organizations are working for the decrease of danger. But it can never be entirely abolished. When the machinery is as safe as it can be made employees still cause injury to themselves and to others by carelessness or blundering.—Wright, "Industrial Nursing."

Fig. 10.—Schedule of treatment in tertiary syphilis, page 1.

but in the same folder, thus automatically providing for an effective follow-up system of delinquent patients and, at the same time, a record of fees paid and owed. A signal system indicates at a glance what cases have been discharged within the month. A separate discharge slip of distinctive color, which must be filled out and signed by the last physician on the case, is attached to the record and contains the discharge record, the technic of which must be carried out carefully; otherwise the superintendent will return record and patient to the physician.

## THE EARLY DIAGNOSIS OF SYPHILIS AND A COMPARATIVE STANDARDIZATION OF THE TREATMENT\*

E. B. TAUBER, M.D.  
CINCINNATI

In the problem of syphilis it is imperative to secure an earlier and more efficient diagnosis of the disease than is the case at the present and a more generalized effective treatment. This should be the keynote of our endeavors.

The early diagnosis of syphilis is an unknown quantity to many men who are practicing medicine in our times. To men who have the older ideas of the disease to guide them, ideas that are firmly planted in their minds by a couple of decades of practice, it seems almost sacrilege to insist that waiting for secondaries is a criminal action and that we lose the benefit of the one psychologic moment in the life history of syphilis when we can seize our real opportunity.

The definite diagnosis in the early primary stage before the spirochete has spread to the lymphatic system near the primary lesion and before the serologic reaction is positive is the one and only time that, taken advantage of, may lead to success; and it is the time for action instant and effective. This is the time for radical cure if such is possible. An injection of arsenphenamin here can put an immediate end to infectivity of the case. A sterilization complete and entire seems possible here. The suppression of the biologic and serologic evidence of the disease is possible and maybe probable here. This should be our treatment for paresis, tabes dorsalis, iritis, etc.

### PROPHYLAXIS OR TREATMENT THAT WILL PREVENT THESE CONDITIONS

The first week or so of the initial lesion, while syphilis is still a local condition, is the time that we should employ every energy and endeavor of our diagnostic and therapeutic armamentarium to cure, for never again in the picture of syphilis for the individual patient or the state will this moment return.

Our public health services, medical colleges, hospitals, and clinics must teach this point and ever impress it on all in contact with them; that is, the student groups, the nursing groups and the public in general, these facts and necessities.

The dark field examination must be a routine at the clinics, in the hospitals and in our private practice. The organism must be known and recognized by all.

The newer staining methods, such as the Medalia method, must be taught generally. There can be no valid objection to teaching the profession of the future and the present the only means of diagnosis for the period when the dangerous sequelae may be mastered and dominated by us.

Every sore, whether on the genitalia or elsewhere, is or should be open to a suspicion of chancre and should be repeatedly examined for *Spirochaeta pallida*. Every papule, nodule, crack, excoriation, and herpetic or other erosion should be viewed with the possibility of an initial lesion and should be examined for *Spirochaeta pallida*. Chancroids should not be accepted as

uncomplicated with syphilis; double infection is always possible.

Antiseptics applied, especially mercurials, make the finding of *Spirochaeta pallida* difficult or almost impossible; and because of this we should teach that no mercurial dressings, or better still, no antiseptics, should be applied to any lesions until the examination for *Spirochaeta pallida* has been made, and if any have been used, it should be made a routine to irrigate thoroughly with physiologic sodium chlorid solution and to apply a wet dressing of the solution for twelve hours or more before examining for *Spirochaeta pallida*. To obtain *Spirochaeta pallida*, a definite method is important. We have used in the Cincinnati General Hospital this method:

The surface of the lesion is wiped with a cotton sponge to remove superficial organisms. The wound may be rubbed or teased lightly, but one should not cause bleeding; just an oozing that will give serum to transfer to a new clean slide and slip should be produced. Immersion oil is put on both the under surface of the slide and upper surface of the cover. This will give a continuous airless medium from dark field to objective. A focus with fine adjustment should be secured until one gets a dark background with the glistening moving particles in white rings. Then a search for the twisting spirochetes may be instituted.

As a professional body, let us be honest and acknowledge we have not spread the vital importance of early diagnosis. It has taken a world war to impress on us that the modern conceptions of syphilis have not been taught in our medical colleges. We have zealously striven to whitewash the episodes occurring in the wrecks due to this disease. We have had clinical characteristics and endless discussions as to secondaries and tertiaries and neurosyphilis; forgetting that we were proving our guilt in this very manner; and now we must scrap our clinical differences and turn to laboratory diagnosis to the finding of *Spirochaeta pallida*. I do not mean here the serologic diagnosis, for then we are losing our great opportunity.

### TRAINING THE PROFESSION TO EARLY DIAGNOSIS

How can we create this? This is our tremendous duty. You must all aid this. We must aid all the men who will do dark-field work in the smaller towns and villages and show them and others by our support that we are back of them. The internist, the surgeons of the smaller localities must call on the man in that locality who has special knowledge of syphilis, and this will cause the demand to be supplied. We must send to Coventry the man who cauterizes or applies some medicament to the sore on the penis or other location before advice, and competent advice at that, is given and the dark-field tests are made.

In early syphilis, systematic treatment must be immediate and must be pushed vigorously; sledge hammer treatment here is indicated, not feather duster types of treatment. Syphilographers will doubtless agree that the effective time for arsenphenamin is early, before the serologic tests are positive. So, then, this places on us the burden of outlining a method or schema for treatment that shall be more or less standardized. Here I mean a treatment for the majority of cases, not for individual ones; also a treatment that will not be inflexible but one that has been tried over a long period of time in a sufficient number of cases to at least have the merit of being successful. The

\*Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

outline I wish to submit has been tried at the Cincinnati General Hospital, the outpatient dispensary, the night venereal clinic and in my private practice, all of which I have under my control, and our results have been very good. Our method is as follows:

#### A SUCCESSFUL METHOD OF TREATMENT

Courses of from four to six intravenous injections of arsphenamin of from 0.3 to 0.6 gm. at intervals of from three to seven days are given, combined with mercury. Here we may with one or two such courses effect a cure. But even with such vigorous treatment a second or third course of arsphenamin of the same type is advisable after a two months' interval, given with the same courses of mercury.

In all cases, after the Wassermann test is positive, I believe at least three such courses of both arsphenamin and mercury to be the minimum, and more can be given as indicated. I believe that mercury, given either by intramuscular injections of soluble or insoluble preparations or by rubs, is of great aid to our arsphenamin therapy, and in the rational cure of syphilis, mercury and arsphenamin must be combined.

The courses of mercury should be from ten to twelve injections, at weekly intervals, of an insoluble; or from twenty-four to thirty, given every other day, of a soluble, or thirty to forty daily injections. I myself believe in giving one course of each type of mercury with each course of arsphenamin. Serologic tests should be made once a month at first, and later at two month intervals, until the test seems to become permanently negative as shown by at least five unbroken negative tests, each six months apart, with no treatment and no clinical evidence of syphilis before we should become in the least optimistic in regard to the case as being checked or cured.

It is my opinion that provocative injections and spinal puncture with the colloidal gold test may be made; but there is a difference of opinion as to this need, except in cases that require these special methods.

In late syphilis, mercury and iodids should be pushed in courses with arsphenamin given in the same way.

In secondary syphilis, the first year, three courses as above outlined of from six to eight doses of arsphenamin in each course, combined with mercury, and not less than three of such courses are indicated.

The second year, if the Wassermann test remains positive or there is recurrence of any lesion, practically a repetition of the first year's treatment, as outlined, will be necessary.

If the Wassermann test is negative and remains negative and there is no recurrence of lesions, at least four doses of arsphenamin in conjunction with two courses of mercury are recommended.

The third year, if the Wassermann test remains negative and there have been no recurrences from the first year, a patient should pass into a period of observation with regular periods for a serologic examination. If there is any nerve involvement or tabes and paresis, the treatment will depend on the individual case and will be covered by any general methods; but treatment must be pushed for years.

Congenital or hereditary syphilis requires longer and more persistent treatment; but again more individual treatment is necessary and cannot be outlined in the same way that early acquired syphilis can be. To recapitulate, my outline is as follows as regards standardization for early syphilis:

Arsphenamin and mercury to be given combined. Arsphenamin, each course from four to six doses of from 0.3 to 0.6 gm. intravenously at three to seven day intervals. Mercury (insoluble), gray oil, mercuric salicylate, twelve doses at weekly intervals, dose from three to five minims.

Mercury (soluble), twenty-four to thirty injections of mercuric cyanid or mercuric chlorid, given every other day. Rubs, twenty-four to thirty given every day.

*First Year.*—First course of treatment, from two to two and one-half months. Rest, one month. Second course of treatment, from two to two and one-half months. Rest, two months. Third course, from two to two and one-half months.

*Second Year.*—If Wassermann is negative, rest after third course for four months; mercury, two months; rest, four months; mercury, two months.

If Wassermann is positive, rest, two months; course of arsphenamin and mercury, two months; rest, two months; arsphenamin and mercury, two months; rest, two months; arsphenamin and mercury, two months.

*Third Year.*—If Wassermann is negative, patient passes to period of observation with regular serologic examinations.

If Wassermann is positive, rest after last course, two months; arsphenamin and mercury, two months; rest, two months; mercury course, two months; rest, two months; arsphenamin and mercury, two months, and so on, being controlled by serologic findings.

It is not easy to state when a cure is accomplished; but, in general, we can only say, by intensive therapy safety can be secured and in most cases a cure can be effected. This may result in overtreatment in some cases, but it is better to err in this way than to undertreat a single one, and some cures require a definite amount of treatment on a definite basis, if the needed results are to be obtained. Therefore, before patients are told they are well, even after repeated negative Wassermann tests without treatment (for negative Wassermann tests during treatment only indicate that progress is being made), I consider it necessary that at least two or three years of negative serologic tests without treatment or recurrence of any symptoms indicative of syphilis shall elapse before we can even say that we think the pathologic condition is eliminated. In so brief a paper I could cover only majority cases, and no attempt has been made as regards treatment or outline for individual cases.

#### CONCLUSIONS

1. No single sign of improvement should be accepted as definite or final, and treatment should not be stopped at such indication. Only cessation of all around symptoms is indicative, and that only if it continues through years.

2. Arsphenamin therapy is necessary, since it controls infectivity and contagion. It yields quick results.

3. Mercury is essential but as a splint to our arsenic therapy and as an aid to permanence in cure.

4. Most syphilis is undertreated. Sledge hammer blows are indicated. Overtreatment is to be preferred to undertreatment.

5. It is better to be overconservative rather than optimistic in stating that a cure has been effected. Our modern therapy is still in too infantile a stage to justify anything but overconservatism.

I believe that specializing and efficiency tendencies can be obtained, and very ably, in the treatment of syphilis.

Hospitals and clinical centers in our larger cities can be used by smaller centers. The extension of wartime methods in the army to civil practice will and should come.

In a few words, I believe syphilis is as easily preventable as other infectious diseases. With syphilis an actual condition, it must be recognized early and treated early if its economic results are to be prevented. Thus our problem is early recognition and early treatment. The early period is its period of greatest transmission; also the period in which our chances of curing a patient are greatest. This places the burden squarely where it belongs, on us, the medical profession, and also on the public health service, medical schools, hospitals and clinics. These different agencies must individually disseminate knowledge, acquire competent teachers, and adequate equipment to give adequate treatment and to graduate competent physicians. This means that syphilis needs centralization, efficiency, control, and the teaching of the early diagnosis of syphilis and a comparative standardization of its treatment.

19 West Seventh Street.

### UROLOGY IN THE UNITED STATES NAVY\*

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The most important problem which presents itself to any one in charge of groups of individuals, civilian or military, is the maintenance of the good health of such persons. It has long been recognized that it is much more economical and, in fact, much easier to prevent certain diseases than to cure them. Smallpox, typhoid fever and last, and probably most important, venereal diseases are the most spectacular representatives of this group.

The urologist, serving with the United States Navy in the world war, was occupied to a certain extent with so-called major urologic problems, such as instrumentation (cystoscopy, endoscopy, etc.), and major and minor operations. His most important duties, however, were concerned with the prophylaxis and treatment of venereal diseases.

#### VENEREAL DISEASE IN U. S. NAVAL HISTORY

One examines the history of prophylaxis against venereal diseases in the United States Navy with a certain amount of pride. Admiral W. C. Braisted,<sup>1</sup> Surgeon-General of the Navy, said in his last annual report:

The medical department of the Navy began fifteen years ago to apply prophylactic measures against venereal diseases, and since that time has steadily broadened its campaign into a well rounded program for the prevention and control of these diseases. In addition to purely medical measures, an increasing amount of attention has been given to the moral and educational phases of the problem.

As individual opinions vary widely as to what steps may be properly undertaken to promote upright living and prevent the incidence of venereal diseases, and as there may be some misconception in regard to the attitude of the Navy in this matter, it seems fitting to outline the position taken by the bureau. Medical officers, both afloat and ashore, are charged with the duty of warning all persons in the naval service and particularly the newer, younger men, of the

danger of acquiring venereal disease through illicit intercourse, and of the serious consequences of such disease. In the instruction given on health and personal hygiene they are required to emphasize the sin of impurity and the necessity of pure living for the fullest enjoyment of health and happiness and the best and most loyal service to the country.

As far back as 1905, a method of venereal prophylaxis was recommended for general use in the U. S. Navy by Medical Inspector Oliver Diehl.<sup>2</sup> Various methods of conducting the prophylaxis were instituted during the succeeding five years, reports of which were rendered from time to time. Surg. Raymond Spear<sup>3</sup> rendered an interesting report:

In 1905, while the U. S. S. *Baltimore* was on the Asiatic Station, preventive treatment was given the men after their return from liberty, with the result that although the ship visited the ports of Sydney, Melbourne and the Auckland for a month each, there were practically no venereal cases on board, and the crew was "clean." This happy state of affairs was brought about by an intelligent commanding officer, who aided the medical officer in all his recommendations. The English ships which were in these ports at the same time as the *Baltimore*, in most cases, had over 25 per cent. of their crews infected with some sort of venereal disease; so the nonexistence of venereal disease on the *Baltimore* was due to the preventive treatment entirely.

P. A. Surg. W. J. Zalesky,<sup>4</sup> while stationed in New Orleans, in 1908, instituted a system of prophylaxis. Of his experience there he said:

The personnel of the station consisted of eighteen sailor men and about sixty-six marines. During the fall of 1908 the men were given several talks as to precautionary measures, and urged to apply for prophylactic treatments at the yard dispensary. For three weeks following, twenty-three men applied for such treatments, but gradually the number of applicants declined, the men losing interest in the treatments. During these three weeks, no venereal trouble broke out, and with the decline of applicants the venereal cases again increased. Liberty was freely granted, the limits of the station ended nowhere. Under these conditions, control of the men was necessary, and in endeavoring to impress on them the importance of prophylactic treatments, the aid of the commanding officer was sought. The interview with this officer resulted in the publication and posting of the following order:

1. Men who have had intercourse or have been exposed to venereal infection in any way will report immediately on their return to the barracks to the medical officer or his assistant on duty, at the sick bay.
2. It is important that men so exposed report for a preventive treatment at least twelve or eighteen hours after contact, as a delay in treatment is less likely to prevent disease.
3. Men will be examined at frequent intervals by the medical officer, and any man found concealing venereal troubles will be reported to the commanding officer.
4. No reports are entered on the sickness and disability sheets of the enlistment records in carrying out preventive treatments.
5. Men are informed that by reporting promptly and cooperating with the medical department in receiving preventive treatment they stand little chance of contracting venereal diseases and keep their body, record and surroundings clean.

Signed.....  
Captain..... U. S. M. C.

Approved:.....  
.....Commandant.

\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

\* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reports. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

<sup>1</sup> Braisted, W. C.: Annual Report, Surgeon-General U. S. Navy, 1918, p. 172.

<sup>2</sup> Diehl, Oliver: Venereal Prophylaxis on the Asiatic Station, U. S. Naval M. Bull., July, 1910, pp. 355-37.

<sup>3</sup> Spear, Raymond: The Prophylaxis of Venereal Diseases on the Navy, U. S. Naval M. Bull., April, 1910, pp. 146-15.

<sup>4</sup> Zalesky, W. J.: Venereal Prophylaxis, U. S. Naval M. Bull., January, 1910, pp. 3-3.

At the time that the order was published, all men were examined and carefully instructed as to the intentions of the order. During the first month after publication of the order, fifty-six out of sixty-six men took the preventive treatment, with no developing venereal trouble. This good record has continued, as I have been advised that up to September 1, following over 500 applications of the treatment, not a single case of venereal disease has developed or been detected on that station for the past five months.

#### PROPHYLACTIC METHODS NOW IN FORCE

The Reports on Venereal Prophylaxis<sup>5</sup> made by P. A. Surg. W. S. Pugh, Jr., P. A. Surg. W. A. Angwin, P. A. Surg. N. T. McLean, Medical Inspector J. M. Edgar, Surg. J. S. Taylor and P. A. Surg. F. G. Abeken were published in the *U. S. Naval Medical Bulletin* for April, 1910, and on every ship the results were so excellent that prophylaxis became general throughout the entire navy. Below is a description of the method in practice.

The following direct orders were given to the crew:

1. Liberty will be given daily from 1 to 5:30 p. m.; on Sundays, from 9:30 a. m. to 5:30 p. m. Chief petty officers have liberty until 10 p. m. This applies to Central American towns.

2. All men who have been exposed to venereal disease will report at the sick bay and be given prophylactic treatment.

3. Those men who have not reported and then develop venereal disease will be punished for disobedience of orders.

4. A member of the hospital corps will be on duty for supervision of the treatments from 4 until 10:30 p. m., and from 7 to 9 a. m.

**Immediate Precautionary Measure.**—It was recommended to the men to use tablets of mercuric chlorid ashore directly after intercourse, and I have learned that a number of them did so.

**Preventive Treatment in the Sick Bay.**—The subsequent preventive measures to be taken in the sick bay, in guarding against infection, are these:

1. A thorough cleansing in hot soap and water must follow urination.

2. The external genitals are washed with a 1:1,000 mercuric chlorid solution. (Despite the experiences of others, I have never seen this strength produce irritation).

3. An injection of 2 per cent. protargol is given, about 5 c.c. being used. It was found in the use of this injection that the great difficulty was in getting the men to hold it five minutes, to do so, apparently, being too much trouble. To overcome this difficulty and have some of the solution retained, even if only for one minute, I decided to add 20 per cent. of glycerin to the solution. This did not prove to be an extra irritant, and it made the substance adhere, even when held only for a few minutes. I later found 15 per cent. of glycerin to be sufficient. The injections, in all these cases, were supposed to be held for five minutes.

4. Following the injection, calomel ointment (Metchnikoff's formula) was used. When first starting our crusade the foregoing ointment was made up with equal parts of benzoin, red lead and petrolatum as a base, but experience demonstrated that equal parts of lanolin and petrolatum were more tenacious, and had greater penetrating powers; at present the latter combination is used. After the penis is thoroughly dried, this ointment is spread over its entire surface from the external meatus to the root at the symphysis pubis. It is then thoroughly rubbed in and left on for two hours. A number of men have left it on all night with no evil effects.

Medical Inspector Oliver Diehl tabulated for the Asiatic Station the data which appear in Tables 1 and 2.

<sup>5</sup> Reports on Venereal Prophylaxis, U. S. Naval M. Bull., April, 1910.

The figures in Tables 1 and 2 are for the entire year of 1909. During the last six months, the cases of venereal disease have been further classified thus: The total number of cases during this period was 373, of which 246 were gonorrhoea; 108, chancroid, and 19, syphilis. They are subdivided, with reference to cause, as is shown in Table 3.

The number of men reported here as going on liberty, 70,954, does not include every man. But it

TABLE 1.—RESPONSE OF MEN TO PROPHYLACTIC TREATMENT

Classification	Number	Per Cent.
Men who went on liberty	70,954	100.0
Men who reported on return from liberty	65,655	92.5
Men who failed to report on return from liberty	5,319	7.5
Men who admitted exposure and received treatment	21,166	32.2
Men who denied exposure	43,469	67.7
Total number of primary venereal admissions during 1909 (gonorrhoea, chancroid or syphilis)	609	
Percentage (based on number of men going on liberty)		0.84

covers most of the liberty given by ships during the year, and the number (exceeding the average strength of the Navy and the Marine Corps) is considered sufficiently large to serve as a basis for a fair estimate of the value of the scheme.

Dr. Diehl calls attention to the prevalence of venereal disease in the navy in these words:

The extent to which venereal disease has caused damage to the service may be gathered from the following: In his last annual report, the Surgeon-General gives the following

TABLE 2.—TOTAL NUMBER OF CASES OF VENEREAL DISEASE (FIVE HUNDRED AND NINETY-NINE) CLASSIFIED WITH REFERENCE TO THE PROBABLE CAUSE OF DEVELOPMENT OF INFECTION

Probable Cause of Development of Infection	No. of Cases	Per Cent.
Failure to report	113	18.86
Denial of exposure	85	14.19
Overstaying liberty	85	14.19
Extended liberty	140	23.37
Failure of treatment	176	29.58
Failure of treatment (based on total number of men admitting exposure)		0.83

as the number of admissions in the entire Navy and Marine Corps during 1908: gonorrhoea, 3,015; chancroid, 665; syphilis, 1,001; total, 4,681. This, based on the average strength, which is given as 50,984, makes a ratio of 91.8 per 1,000. The venereal admissions constituted 17.76 per cent. of the total admissions for all diseases, and caused a total of 106,526 sick days. In his report for 1907, it was also stated that if applied to the force afloat, venereal disease alone

TABLE 3.—PROBABLE CAUSES OF DEVELOPMENT OF INFECTION IN SIX RECENT MONTHS

Probable Cause of Development of Infection	Gonorrhoea	Chancroid	Syphilis	Totals
Failure to report	48	13	5	66
Denial of exposure	23	17	3	43
Overstaying liberty	33	10		43
Extended liberty	70	30	6	106
Failure of treatment	72	38	5	

would have operated to render entirely inactive for over a month three battleships with a complement of 1,000 officers and men each.

From these early experiences, the present method of venereal prophylaxis has evolved and has become general, not only in the Navy but in the Army as well; and a decided effort is now being made to have the civilian population receive the benefits of the valuable lesson learned in the various branches of the service.

At the present time, the men in the Navy are given systematic education on the subject of venereal dis-

case, personal hygiene and the high value attaching to continence. By posters on shipboard and at training stations, by moving picture exhibits, by lectures and informal talks, everything possible is done to create proper sentiment on these topics as well as to warn against the danger of venereal infections. Men returning from liberty after incurring the risk of infection are urged to avail themselves of prophylaxis, for which facilities are provided at the sick bay under a trained attendant. They wash the genitalia with soap and water. Protargol, in a strength of from 0.5 to 2 per cent. is then injected into the urethra and held for a period of at least five minutes. Thirty per cent. calomel ointment is then rubbed on the penis and left on all night.

Men who contract a venereal disease are reported for misconduct and isolated. This means that they lose their pay until they become noninfectious.

Syphilitics have the subjoined abstract attached to the health record which follows them throughout their service, and hence does away with any possibility of the disease being neglected in the Navy:

Exposed at [city]; primary on [site]; spirochetes ———; Wassermann ———; luetin ———; secondaries ———; tertiary ———.  
Description ———.  
Signature of medical officer making diagnosis.  
Serum reactions: where made; date; reactions.

PREVALENCE OF DISEASE IN 1918

The statistics given in Table 4, concerning venereal diseases in the Navy for the six-month period ending June 30, 1918, were compiled from Form F cards received in the bureau. Only original admissions are included.

TABLE 4. VENEREAL DISEASES IN THE NAVY FOR THE SIX MONTHS' PERIOD ENDING JUNE 30, 1918

Estimated average complement	322,270
Total admissions for gonorrhoea	12,752
Number of days lost	88,820
Average number of days lost	7.0
Annual rate per thousand	63.96
Total admissions for syphilis	1,110
Number of days lost	6,333
Average number of days lost	5.74
Annual rate per thousand	3.44
Total admissions for chancroid	2,810
Number of days lost	29,000
Average number of days lost	10.32
Annual rate per thousand	18.14
Total days lost, all venereal diseases	124,143
Average number of days lost, all venereal diseases	9.50
Annual rate per thousand, all venereal diseases	41.30

The wonderful work done in venereal prophylaxis has written a page in medical history which will live forever. We of the Navy point with a certain amount of pride to the fact that it was the Navy Medical Corps which first brought out the efficacy of prophylaxis along venereal lines. It was so thoroughly done and was so convincing that the entire medical profession has adopted the methods developed. Every credit must be given the Venereal Prophylactic Department of the Army for its extensive and efficient campaign for the protection of our soldiers, which has attained the same perfect success that characterized the original work done by the Navy.

ESTABLISHMENT OF A UROLOGIC CLINIC

The United States Navy has always had a reputation for speed and efficiency, and the establishment of a urologic clinic at the Pelham Bay Naval Training Camp bears out this reputation.

After being in the camp doing influenza work for a few days, it seemed to me that there was decided need for a urologic clinic. A building was therefore found which was being held in reserve for the observation of suspected contagious cases. Rough plans of the changes desirable in the building to make it suitable for a clinic were prepared by a sailor. A list of the physicians and hospital apprentices needed was then made out. Finally, a complete list of all equipment and instruments necessary to the proper conduct of an up-to-date, scientific clinic was compiled. Armed with this material and a letter describing my ideas on

TABLE 5.—TABULATIONS BY DEPARTMENT OF SERVICE SHOWING A COMPARISON OF THE PREVALENCE OF GONORRHEA, SYPHILIS AND CHANCROID IN THE NAVY FOR THE SIX MONTHS' PERIOD ENDING JUNE 30, 1918

VENEREAL DISEASE	REPORTED FROM THE FLEET			Total for Six Months' Period
	First Quarter (Jan. and Feb. and March)	Second Quarter (April, May and June)		
Gonorrhoea Infection:				
Number of admissions	2,794	2,721	5,515	
Days lost	11,361	9,567	20,928	
Average days lost	4.1	3.5	3.8	
Syphilis:				
Number of admissions	417	54	471	
Days lost	6,840	484	7,324	
Average days lost	16.57	8.77	14.1	
Chancroid:				
Number of admissions	1,978	1,225	3,203	
Days lost	3,349	4,428	7,777	
Average days lost	1.69	3.62	2.43	
Admissions, all venereal diseases	5,189	4,020	9,209	
Days lost, all venereal diseases	21,559	16,563	38,122	
Average days lost, all venereal diseases	4.16	4.12	4.17	
VENEREAL DISEASES REPORTED IN THE STATES WITHIN THE UNITED STATES				
Gonorrhoea Infection:				
Number of admissions	2,518	2,281	4,799	
Days lost	20,982	17,714	38,696	
Average days lost	8.33	7.77	8.07	
Syphilis:				
Number of admissions	197	69	266	
Days lost	18,788	2,700	21,488	
Average days lost	95.89	41.14	68.4	
Chancroid:				
Number of admissions	318	274	592	
Days lost	1,117	1,009	2,126	
Average days lost	3.51	3.68	3.59	
Admissions, all venereal diseases in the States	2,833	2,624	5,457	
Days lost, all venereal diseases	22,907	19,423	42,330	
Average days lost, all venereal diseases	8.09	7.36	7.76	

the subject, the senior medical officer, Commander B. L. Wright, was interviewed. Within one week's time after the senior medical officer had approved the suggestions made, the clinic was in full swing; the building had been reconstructed; all equipment was in place and in working order, and all instruments were at the clinic or on the way there.

Rooms suitable for cystoscopy, urethroscopy, minor operations, irrigations and other treatments were provided. In addition, there was a large writing room with a recorder's desk, a ward containing four beds, a utility room, a small kit bin, and a room for men on night duty.

The floor plan (Fig. 1) is self-explanatory.

The personnel of the clinic comprises nine persons, three lieutenants (one the director and the other two his assistants), five hospital apprentices, and one orderly.

The patients were all referred to the clinic by medical officers in the regimental infirmaries. At the first visit, each patient had a card made out, on which was recorded his name, age, race, location and the date on the top line. Below that was a brief outline of the patient's history, including his chief complaint, the symptoms, their duration, the source of infection, the previous venereal history, and the present condition.

capacity. A space was provided for a record of the findings at examination, for the final diagnosis, the medicine and an outline of his treatment. On each patient's first visit, his card was made out, as far as possible, by the recorder. He was then passed on to one of the medical officers, who completed the history taking, and gave the patient a thorough examination, taking as much time as necessary for this purpose. The form of the card used for the patients appears below.

G-U. Clinic, U. S. N. T. C., Pelham Bay Park, N. Y.  
Name \_\_\_\_\_; Age \_\_\_\_\_; Rate \_\_\_\_\_; Location \_\_\_\_\_;  
Date \_\_\_\_\_  
Diagnosis \_\_\_\_\_  
Complaint \_\_\_\_\_  
Duration \_\_\_\_\_  
Symptoms \_\_\_\_\_  
Source \_\_\_\_\_  
Previous Venereal History \_\_\_\_\_  
Sexual \_\_\_\_\_  
Examination \_\_\_\_\_  
Treatment \_\_\_\_\_  
Medication \_\_\_\_\_

The clinic was thoroughly equipped for accurate work, and there was intimate cooperation between the camp laboratory and the roentgen-ray department at the base hospital. The clinic gave us every modern aid necessary in arriving at a correct diagnosis.

TABLE 5.—TABULATIONS BY DEPARTMENT OF SERVICE SHOWING A COMPARISON OF THE PREVALENCE OF GONORRHOEA, SYPHILIS AND CHANCEROID IN THE NAVY FOR THE SIX MONTHS' PERIOD ENDING JUNE 30, 1918—Continued

VENEREAL DISEASES REPORTED FROM SHORE STATIONS OUTSIDE OF THE UNITED STATES	First Quarter (January, February and March)		Second Quarter (April, May and June)	Total for Six Months' Period
<b>Gonorrhoeal Infection:</b>				
Number of admissions.....	7.0	5.8	10.8	
Days lost.....	2,910	3,401	6,317	
Average days lost.....	419	6.70	6.14	
<b>Syphilis:</b>				
Number of admissions.....	11	13	24	
Days lost.....	2,495	2,777	5,272	
Average days lost.....	227	22.57	19.67	
<b>Chanceroid:</b>				
Number of admissions.....	297	293	590	
Days lost.....	2,673	2,519	5,192	
Average days lost.....	8.99	8.60	8.44	
<b>All venereal diseases, all venereal diseases.....</b>			1,914	
<b>Days lost, all venereal diseases.....</b>			16,817	
<b>Average days lost, all venereal diseases.....</b>			8.78	

VENEREAL DISEASES REPORTED FROM ALL STATIONS AND SHIPS			
<b>Gonorrhoeal Infection:</b>			
Number of admissions.....	5,852	6,473	12,325
Days lost.....	41,163	47,596	88,759
Average days lost.....	7.05	7.42	7.25
<b>Syphilis:</b>			
Number of admissions.....	1,687	1,333	3,020
Days lost.....	27,973	24,861	52,834
Average days lost.....	16.44	18.65	17.81
<b>Chanceroid:</b>			
Number of admissions.....	1,393	1,899	3,292
Days lost.....	12,795	12,173	24,968
Average days lost.....	9.19	6.41	6.37

Continued from above figures with reports for the six months' period ending June 30, 1919 reported in Bulletin No. 29, the figures for the fiscal year ended June 30 are:

Total average cost per patient..... 320,775  
 Total average cost per day..... 21,743  
 Number of days lost..... 166,548  
 Average number of days lost..... 7.65  
 Annual rate per thousand..... 63.73  
 Total admissions for syphilis..... 3,888  
 Number of days lost..... 99,896  
 Average number of days lost..... 25.67  
 Annual rate per thousand..... 11.11  
 Total admissions for chanceroid..... 7,293  
 Number of days lost..... 47,136  
 Average number of days lost..... 6.42  
 Annual rate per thousand..... 22.16  
 Total admissions, all venereal diseases..... 32,964  
 Total days lost, all venereal diseases..... 313,512  
 Average number of days lost..... 9.51  
 Annual rate per thousand, all venereal diseases..... 99.67

The general plan followed was for the medical officer to give as much time as necessary to each patient, in order that a correct diagnosis might be made. To this end, the hospital apprentices were trained to give the usual type of treatments, such as prostatic massage, bladder irrigations, sounds, the administration of arsphenamin, and the injection of mercury. After the patient was started on his treatment, he might not see the medical officer for a period of a week or ten days, unless he expressed the desire to do so, or the hospital apprentice in charge considered the interview necessary.

At the morning clinic, appointments were made with patients in need of cystoscopy, urethroscopy, minor operations, major operations, and various other procedures, which required the time of the medical officer.

Here is an outline of the week's work: The clinic's duties began at 8:30 a. m. daily. Passing sounds and

TABLE 6.—ATTENDANCE REPORT OF GENITO-URINARY CLINIC

Day	November	December	January	February
1.....	..	..	61	86
2.....	..	67	..	..
3.....	..	64	65	100
4.....	..	52	47	92
5.....	..	64	..	163
6.....	10	47	..	74
7.....	14	38	39	198
8.....	10	..	60	..
9.....	..	73	141	..
10.....	..	40	..	84
11.....	26	42	60	84
12.....	25	49	..	81
13.....	27	41	..	93
14.....	30	46	69	47
15.....	39	..	56	75
16.....	20	..	68	72
17.....	..	47	68	..
18.....	54	79	..	..
19.....	42	89	..	..
20.....	45	82	72	..
21.....	47	66	71	..
22.....	39	66	60	..
23.....	42	82	77	..
24.....	..	60	72	..
25.....	..	64	51	..
26.....	..	64	66	..
27.....	..	45	61	..
28.....	..	57	51	..
29.....	..	70	76	..
30.....	..	41	63	..
31.....	..	..	51	82
<b>Total.....</b>	<b>703</b>	<b>1,448</b>	<b>1,691</b>	<b>1,182</b>
Average daily attendance.....				61
Maximum daily attendance.....				141
Minimum daily attendance.....				8

other instrumental work was done at 10 a. m. Mondays and Thursdays, at 1 p. m., cystoscopy and urethroscopy were performed, on Tuesdays and Fridays, at 1 p. m., minor operations. Wednesday was arsphenamin administration day. Saturday afternoon and Sunday, only routine treatments were given.

Through the kindness of Commander P. T. Desze, the medical officers of this clinic were permitted to do certain necessary investigative work in the hospital roentgen-ray room, such as passing of lead ureteral catheters, immediately followed by roentgenoscopy and the giving of injections of thorium, sodium bromid, etc. Authority to operate in major operative cases discovered in this clinic was granted by the base hospital officers.

Acute venereal diseases and infectious skin diseases were definitely diagnosed and sent to the base hospital in the usual manner, through the regimental surgeon, who made out the health records in accordance with the findings of this clinic.

Charts were kept for the pathologic condition of each anatomic structure. These were kept up to date by the recorder, who made them out at the end of each

clinic day. There were special charts for syphilitic cases, chronic prostatitis and minor operations.

A perusal of the statistics proves to be very illuminating. Before discussing these in detail, attention is called to the fact that Pelham Bay Naval Training Camp is changed somewhat in its character. During the war, it was almost entirely a training camp for officers and petty officers. Therefore, the men comprising it were picked men, both as regards their intellectual capacity and their physical ability. In addition to the men in the training school, there have been stationed here a number of orchestras, bands, groups of athletes, actors and the usual number of mechanics, yeomen, and the like.

As soon as the armistice was declared, a large majority of the men originally in the camp were graduated from the schools, or discharged from the service. More recently, the camp has been utilized as a point for the physical examination and discharge of sailors, particularly those who have been abroad.

The remainder were infections of the skin of the scrotum. The hydrocele and varicocele patients were operated on under local anesthesia and then kept in bed for a period of four days. Drainage with rubber

LESIONS OF BLADDER

Name and Location	Complaint	Symptoms	Urinary Symptoms	Investigation	Treatment: Operative	Results
		Duration Pain Fever Rectal Dysuria Hematuria Nocturia Frequency Irritating Residual Cystoscopy Roentgen Ray Fibrinoh Test Fever	Operator Type Anesthetic Drainage In Bed In Hospital Medication Instrumentation Complications Cured Unimproved Moved to Dead	Results		

Heading of chart for record of bladder lesions.

tubing was employed in the hydrocele cases.

By far the greatest number of individual cases for any lesion were the cases of chronic prostatitis. These patients varied in age from 18 to 31 years, the average being 23 years. Fifty-two of these patients complained of morning drop; forty-one complained of more or less continuous mucous discharge; six complained of pain; ten had dysuria; four had nocturia, and one complained of premature ejaculation.

All chronic prostatitis patients were treated by rectal massage, followed by irrigations of permanganate or silver nitrate. Sounds were passed at intervals. The prostatic fluid was examined in a fresh state with a microscope at regular intervals. No patient was discharged as cured until all pus had disappeared from the prostatic fluid. Most chronic prostatitis patients were subjected to both a cystoscopic and an endoscopic investigation at some time during the course of their treatment.

We found numerous cases of enuresis, in practically every one of which we were able to discover, by the use of the cystoscope and the endoscope, a lesion of the prostate or of the posterior urethra, or both. These patients were subjected to treatment of the prostate by massage, etc., and by application of cauterizing agents

LESIONS OF PENIS

Name and Location	Complaint	Signs and Symptoms	Treatment		Results
			Operative	Nonop.	
		Pain Fever General Condition Duration Previous Attacks Operator Type Anesthetic Drainage Stitches In Hospital Medication Instrumentation Manipulation Complications Unimproved Cured Moved to Dead			

Heading of chart for record of lesions of penis.

TREATMENT PRACTICED

The attendance of the clinic was very gratifying, indeed. The total daily attendance averaged 141 (Table 6). The clinic was used largely in a consultative capacity. Patients requiring treatment, such as urethral injections, daily, have been referred to the regimental infirmaries and do not appear on the list.

The types of cases treated included practically every lesion of the genito-urinary tract. Because of the fact that most of the men were young, healthy adults, there were very few cases of major lesions of kidneys, ureters, etc.

All of the phimosis patients were operated on under local anesthesia in the clinic, 0.1 per cent. cocaine being the drug used.

It was our practice to put such patients to bed in the clinic for a period of from one to three days, after which they were returned to their barracks.

Lesions of the scrotum were fairly rare, only fourteen instances having been noted. Of these, five were varicocele; four were hydrocele; three, hernias, and

through the endoscope, and were practically universally cured.

We had two cases of stone in the ureter, in both of which operations were performed in the base hospital. We had one case of bilateral renal hemorrhage, which cleared up after rest in bed, hot applications and uri-

LESIONS OF KIDNEYS

Location, Name	Complaint	Signs and Symptoms	Investigation	Treatment: Operative	Results
		Duration Previous Attacks Roentgen Ray Cystoscopy Fibrinoh Test Wax-Tip Cauterizer Test Fever	Operator Type Anesthetic Drainage In Bed In Hospital Medication Instrumentation Complications Unimproved Cured Moved to Dead	Results	
Hematuria Dysuria Pain in Back Pain in Bladder Referred Pain General Condition Acute Duration Previous Attacks Roentgen Ray Cystoscopy Fibrinoh Test Wax-Tip Cauterizer Test Fever					

Heading of chart for record of kidney lesions.

nary antiseptics. We had no cases of tuberculosis of the genito-urinary tract.

An interesting fact was brought out in the treatment of acute gonorrhoea. It was found that a cessation of the discharge was brought about in three weeks from the onset in the average case. Several cases were aborted, being cleared up within a week. On the other hand, a few cases persisted for about six weeks. These cases were all treated according to this routine: Inter-

## PREVENTIVE MEDICINE AS APPLIED TO VENEREAL AND SKIN DISEASES \*

HUGH HAMPTON YOUNG, M.D., D.C.M.

BALTIMORE

General Gorgas said early in the war:

Venereal diseases present the most serious communicable disease problem of the war. . . . The army loses more days of service from its men on account of venereal disease than from any other cause. During the twelve months ending September, 1918, there were 170,000 cases of venereal disease in our army (in the United States). This means a loss of approximately two and a quarter million training days in a year. Add to this the cost of medical care and hospital equipment, and the loss of possible relapse later and you commence to see what venereal diseases cost a nation at war. . . . During the period from Sept. 2, 1917, to May 31, 1918, the annual rate per thousand for our troops in the United States was 102.3 per cent.; the rate from all other communicable diseases, 29.4 per cent., pneumonia, scarlet fever, typhoid and paratyphoid (measles not included).

En route to France, by request of General Pershing I spoke to his officers and men on the S. S. *Baltic*, June 3, 1917, on the army venereal problem. In this lecture I presented a chart to demonstrate the excellent progress that had been made in the reduction of infectious diseases in the United States Army from 1906 to 1916 (Fig. 1). As shown here, a most remarkable result had been obtained in the practical eradication of typhoid fever and a great reduction in malaria. Alcoholism had been reduced to a third of its previous frequency.

After the introduction of prophylaxis in 1911, venereal disease had dropped from 155 per thousand per year to 84. I expressed the hope that it would

### LESIONS OF SCROTUM

Name and Location	Complaint	Signs and Symptoms		Treatment		Results
		Pain Irritation Fever General Condition Previous Attacks	Type Operator	Operative	Nono	
				Drainage Stiches In Hospital Medication Instrumentation Manipulation Combinations Cure	Unimproved Moved to Dead	

Heading of chart for record of scrotal lesions.

nal medication, acid sodium phosphate or sodium benzoate, 10 grains before meals; hexamethylenamin, 15 grains after meals. Local treatment, 10 per cent. silver protein compound of the argyrol type injected for five minutes three times daily.

Cases in which the disease had become posterior were treated by irrigation of potassium permanganate once daily and injection of a silver protein compound of the argyrol type twice daily.

We were not able to obtain any acriflavine, and were therefore unable to try out this drug, which, according to some reports, has been remarkable in its cure of acute gonorrhoea.<sup>6</sup>

### STATISTICS ON VENEREAL DISEASES IN U. S. NAVY<sup>7</sup>

The annual venereal disease rate in the Navy during the eight years previous to the war was without appreciable variation, as follows:

Syphilis	42.97 per 1,000
Gonorrhoea	90.36 per 1,000
Chancroid	33.31 per 1,000
Total	166.54 per 1,000

During the fiscal year, July 1, 1917, to July 1, 1918, the period during which educational and preventive measures were introduced into naval training camps, methods practically parallel to those adopted in Army camps, and developed through the Navy Department's Commission on Training Camp Activities, the rates were decreased by 60.75 per cent. In figures the rate for this year is as follows:

Syphilis	12.28 per 1,000
Gonorrhoea	69.39 per 1,000
Chancroid	24.10 per 1,000
Total	105.79 per 1,000

Furthermore, according to latest reports, this rate still continues to decrease, reaching in August, 1918, an average of 80.34. The annual rate is obtained in the following way: The figure representing the total original admissions to the sick list during the week is multiplied by 1,000 and divided by the complement of men. The quotient is then multiplied by 52.

<sup>6</sup> In addition to the references already given, the following will be found of interest:

Confidential notes on Preventive Medicine for Medical Officers, U. S. Navy, Nov. 15, 1918.

<sup>7</sup> From the Social Hygiene Monthly.

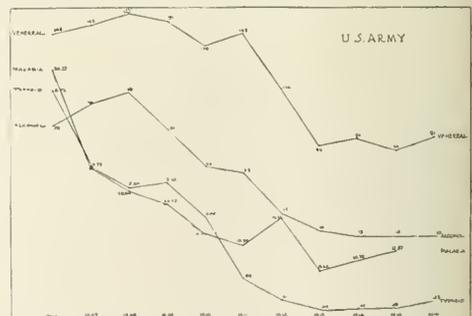


Fig. 1.—Decrease in infectious diseases in the United States Army during the ten-year period from 1906 to 1916.

be possible to better these figures considerably in the American Expeditionary Forces. It will be subsequently seen how this prophecy was fulfilled. In this lecture, stress was laid on the value of education as to the frequency and danger of venereal disease.

\* Read before the Section on Urology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

<sup>8</sup> Owing to lack of space, this article has been greatly abbreviated in THE JOURNAL by the omission of tabular matter, reproduction of official orders, etc. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Venereal Disease, No. 11, U. S. P. H. S.

I dwelt on the fact that continence was quite compatible with sturdy health in young men leading active outdoor lives, and called attention to the excellent results that had been obtained on the Mexican border by closing houses of prostitution, and driving out all clandestine

phenamin had been given. During the years 1915-1916, this hospital had given treatment in 22,596 cases of gonorrhoea, which totaled for the patients 1,082,621 days in hospital, an average of forty-eight days per patient. Sixty per cent. of these cases presented complications, usually prostatitis, and epididymitis, and 17 per cent. of the patients were readmitted for relapse of the disease after being discharged as cured. In addition, all patients lost from one to two weeks each in travel to and from the hospital.

*The French Army.*—No accurate statistics were obtainable as to the amount of venereal disease in the French army, partly owing to the fact that uncomplicated gonorrhoea is treated by the French in the regimental organizations. Thibierge,<sup>2</sup> however, estimated that up to the end of 1916 there had probably been 200,000 cases of syphilis in the French army. These were treated in about twenty hospitals varying in capacity from 100 to 800 beds, each patient remaining in hospital for from four to seven weeks. The French had established throughout their country "Centres dermatovénérologiques" at which patients with venereal disease, in both the civil and military population, are under treatment at clinic and as bed patients.

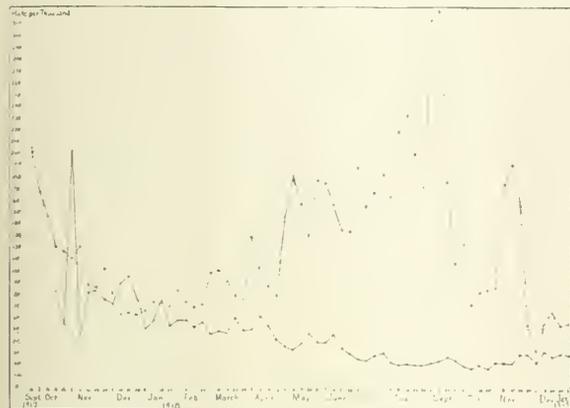


Fig. 2.—Venereal rate per thousand per year for each week from September, 1917, to January, 1919, in both the American Expeditionary Forces (solid line) and in the troops in the United States (broken line).

prostitutes and saloons in nearby towns. Emphasis was also laid on early prophylaxis, and the remarkable results obtained by it.

Then and afterward General Pershing evinced the keenest interest and knowledge of the subject of venereal disease as an army problem.

Arriving in England, I was assigned to the study of the venereal problem there with three other officers, namely, Capts. L. C. Lehr and M. L. Boyd and Lieut. H. L. Cecil. We reported to the British authorities in England, June 8, 1917, and devoted about a month to the study of the treatment of venereal diseases in England and with the British troops on the continent. Numerous hospitals in England and France were visited, and the routing of venereal patients was studied from their diagnosis in the various organizations to their admission to the hospitals. A second month was then spent in the study of the methods employed in the hospitals attached to the French army, and an extended tour was made with Captain Lehr and *Médecin-Major* Simon of the French army, during which the Second, Fourth, Fifth, Sixth and Eighth Armies were visited and sanitary organizations were studied and followed from base to trenches in various places.

VENEREAL DISEASES IN BRITISH AND FRENCH ARMIES

*The British Army.*—It was found that during the year 1916-1917, treatment was given in 112,259 cases of venereal diseases in the British army hospitals. Of these, 52,495 were treated in fourteen hospitals in England and 59,764 in five hospitals in France. The capacity of these hospitals varied in England from 100 to 1,500 beds, and in France from 500 to 3,500 beds. The largest of them, with a capacity of 3,500 beds, had given treatment, up to the end of September, 1917, in 55,634 cases of venereal disease, among which were 12,000 syphilitics, to whom 94,021 injections of ars-

RECOMMENDATIONS FOR UROLOGIC SERVICE

August 6, 1917, I reported to the chief surgeon of the American Expeditionary Forces, and was requested

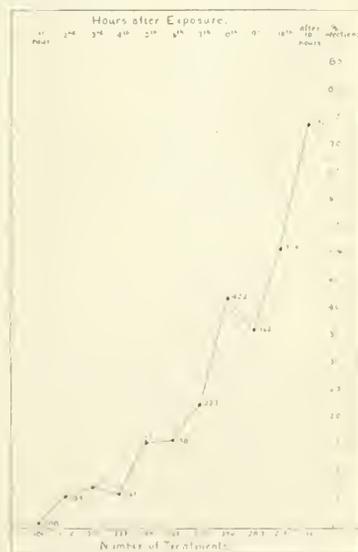


Fig. 3.—Efficacy of venereal prophylaxis. The percentage of infections (or failures) gradually rises from 0.08 per cent. during the first hour after sexual contact to 1.57 per cent. after four hours, and reaches 7.4 per cent. after ten hours.

to prepare recommendations for the organization of a urologic service of the American Expeditionary Forces.

2. Thibierge: Syphilis et Pirmée.

In a preliminary argument the disadvantages of the methods employed in the French and British armies were briefly detailed, particular stress being laid on the absence of educational propaganda, of prophylactic

sent there as "division urologist," to put the new methods in operation, and was given the most hearty cooperation by the division surgeon, Colonel Ashford. The effects of the methods adopted soon began to show themselves.

In September the venereal rate was 80, but by October 26 it had fallen to 54 per thousand per year. In November, however, came a terrible increase in the venereal rate, which rose rapidly to 201. Investigation revealed that men in the new divisions that had begun to arrive through the Port of St. Nazaire had become greatly infected there.

I received orders to investigate the situation. It was found that this small seaport was utterly inadequate to take care of the ships arriving from America. As a result of this, it would often be many days before the soldiers could be debarked, and during this time the men were given shore leave for the purposes of exercise, relaxation and amusement. St. Nazaire was a typical dirty seaport town with numerous grog shops and many houses of prostitution, and was inadequately policed.

In a camp near by, many thousand soldiers were detained while waiting to be dispatched to training areas which were being organized to receive them in eastern France. The soldiers had free access to the town, and as a result there was much drunkenness, and the houses of prostitution did a flourishing business, the adjacent streets being blocked by hundreds of soldiers, and the individual women taking on from thirty to sixty men each in an afternoon and evening. Men returning to the ships found no prophylactic stations, and those in the town and camp were inadequate. The sudden rise in the venereal rate was thus immediately explained.

The following memorandum was presented:

Paris, Oct. 20, 1917, a memorandum for a cable to Secretary of War given to General Pershing.



Fig. 4.—Record of prophylactic treatments at Rennes.

methods, the disadvantage of moving men from the front to hospitals far distant for treatment of venereal diseases, the inadequate treatment obtained owing to the inability to treat the patient more than a limited period of time, and the bad effect on morale in removing from the front men with venereal disease.

Steps were at once taken to make the necessary preparations for inaugurating the plan which had been adopted.

A set to be known as the "regimental infirmary urologic set," with a splendid equipment of glass syringes, platinum needles and other instruments, necessary for syphilis and minor genito-urinary work, was devised and ordered in quantity in Paris.

A simplified standard treatment for syphilis was devised, namely, special ampules of neo-arsphenamin; ampules of bidistilled sterile water, 2 c.c. (the solution to be made direct in the ampule of neo-arsphenamin); 1 c.c. ampules of 1 per cent. mercuric cyanid, and ampule syringes of 40 per cent. mercurial (gray) oil (mercury for intramuscular injections).

INAUGURATION OF PLAN IN THE DIVISIONS

The first division had already arrived in France and was encamped in the training section of which Gondrecourt on the Meuse River, about 20 miles from Toul, was the headquarters. Capt. M. L. Boyd was

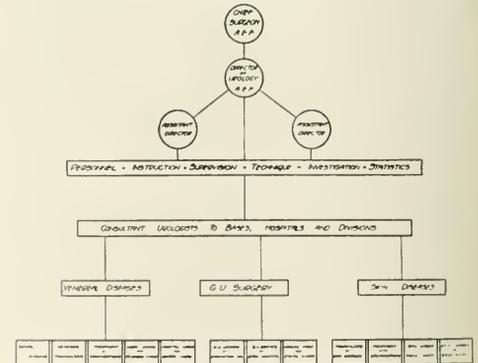


Fig. 5.—Graphic outline of the organization of the division of urology and its activities.

Commanding and medical officers should give more attention to the instruction of men on venereal diseases and their prevention.

Incoming troops show evidence of contracting venereal disease while on leave just before embarking.

Equipment for the treatment of venereal disease on shipboard has been very inadequate. Cases developing on sea, especially syphilis, have gone untreated. Transports should be thoroughly equipped for all this work.

Regiments have arrived without proper equipment and drugs for prophylactic stations at their camps, and for the treatment of venereal disease.

Officers do not seem to be sufficiently impressed with the gravity of the venereal situation in Europe, of the especial danger to incoming troops, and of the great loss of effectiveness which has been produced by venereal diseases.

*Comment.*—During the months of August, September, October and the first half of November, the houses of prostitution flourished and were filled with soldiers. November 15, rigid orders were issued placing these houses out of bounds, and the immediate result was a great reduction in the number of sexual contacts, as shown by the number who took venereal prophylaxis. As a result, there was a steady decline in venereal infections among resident troops, and the monthly rate per thousand, which in October reached 16.8, dropped in January to 2.1 among the white troops. During the same period there was an even more startling drop in the venereal infections among the negro laborers, the percentage dropping from 108.7 per thousand per month to 11 per thousand. No statistics could speak more eloquently for the doctrine of closing the houses of prostitution. Our studies had previously shown numerous infections coming from houses regularly "inspected" three times a week.

As a result of the measures that were taken, there was a continued decrease in the venereal rate of the American Expeditionary Forces, which, according to the statistics of the Surgeon-General's Office, fell to 16 per thousand per year in October, 1918, as shown in Figure 2. In the meantime the army had been growing rapidly, and the personnel of the division of urology had greatly increased.

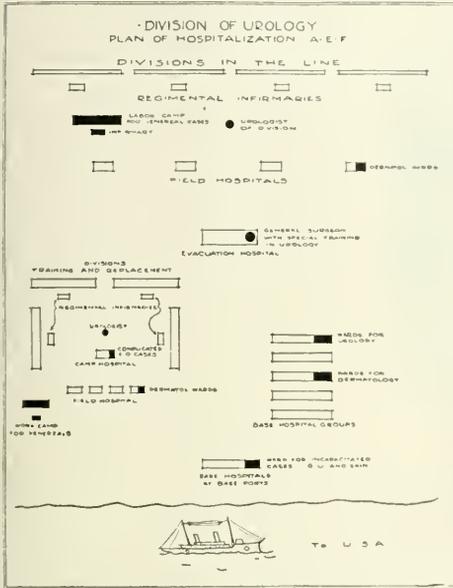


Fig. 6.—Plan of handling venereal and urologic surgical cases in the American Expeditionary Forces.

Information, instruction and advice, by means of cards, leaflets and posters, as well as by lectures delivered on shipboard, would be very helpful.

On arrival of transports, shore leave should not be given to troops, and they should be kept in camp pending their transportation to training camps.

HUGH H. YOUNG,  
Major, M. R. C., Consultant Urologist, A. E. F.

In addition to the foregoing memorandum a detailed report on the situation at St. Nazaire was presented and as a result General Pershing made a special trip to St. Nazaire and promulgated General Order 77, which is one of the most notable of army health orders. This general order put the houses of prostitution out of bounds, stopped the sale of strong liquors, and confined the troops on transports until ready to be debarked.

The stringent provisions of this excellent order, particularly the provision that the "venereal reports be filed at these headquarters with personal records of organization commanders, and will be used in determining a commander's efficiency and suitability of continuing his command," produced a profound impression and stimulated both line and medical officers to keep down the venereal rates in their organizations. The immediate effect of this order was seen in the venereal reports of the troops permanently stationed in St. Nazaire, as shown in Table 2.

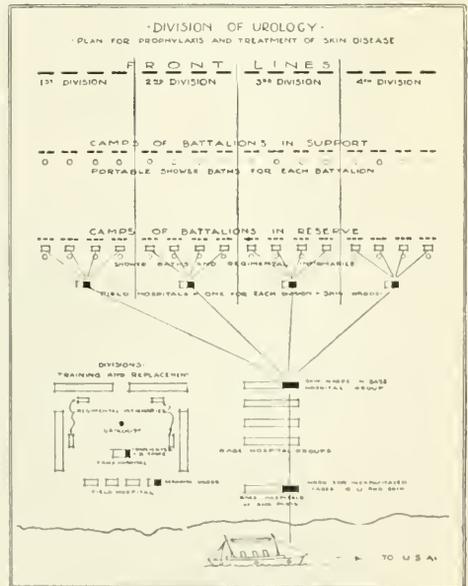


Fig. 7.—Plan for the prophylaxis and treatment of skin disease in the A. E. F., by bathing, disinfecting and laundries. The special wards in base hospitals never became necessary.

FEATURES OF THE CAMPAIGN AGAINST VENEREAL DISEASE

The campaign against venereal disease in the American Expeditionary Forces consisted briefly of the following:

1. Social hygiene, which had for its purpose the minimizing of the number of sexual contacts.

2. Prophylactic treatment, bi-weekly examinations, the object of which was to detect venereal disease and to institute prompt and efficient treatment, in order to reduce the number of days sick, and to restrict leave in order to combat the spread of infection.

3. Repression of prostitution by placing houses out of bounds.

4. The reporting of sources of infection and dispensary treatment of the civil population.

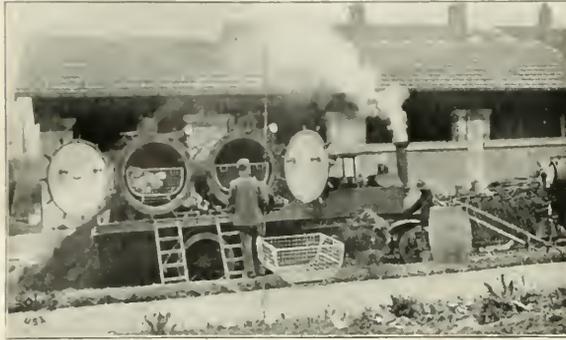


Fig. 8.—The Foden-Thresh steam disinfecter in operation at bathing establishment of the Twenty-Sixth Division within 1 mile of front-line trenches.

5. Enforcement of laws relating to alcoholism.

6. Court-martial for venereal disease.

7. Treatment of venereal disease with the organizations, in order to reduce the loss of effective strength and to avoid making venereal disease an excuse for escaping duty.

#### SEXUAL CONTINENCE

In various general orders and circulars, sexual continence was urged on the troops of the American Expeditionary Forces. Is this in any way possible in armies?

The total number of men covered by Table 3 was 7,401; the average length of stay in France was seven weeks; the total number taking venereal prophylaxis was fifty-six. Among these 7,000 men, during a period of almost two months, only one new case of venereal disease was discovered after four careful physical examinations were made. This record, of course, is remarkably good—probably better than that of the army as a whole, but these organizations are cited as evidence that sexual continence can be followed by large bodies of troops for a considerable period of time.

This long drawn-out war of the trenches has exploded another old-time fallacy, namely, that the soldier must be a libertine in order to be a good fighter.

#### EFFICACY OF PROPHYLAXIS

The army statistics for sixteen years have effectively demonstrated the excellent results that can be obtained by prophylactic treatment in preventing venereal disease. One of the most careful studies on the subject is that contained in a recent report of Riggs (Fig. 3). Riggs has shown that if given during the

first hour after sexual contact, the failure of prophylaxis was less than 0.1 per cent., and during the first four hours was less than 1 per cent. After that it rose rapidly to 7.5 per cent. after ten hours. Study of the medical records of the American Expeditionary Forces testified to the accuracy of Riggs' statistics. Among 100,000 instances of prophylaxis given in Bordeaux, the percentage of failure was 1.7. An analysis of the conditions among the troops in Paris showed that the failure when prophylaxis was taken in three hours or less was 0.5 per cent. (785 cases).

#### RESULTS OBTAINED

The plan of keeping and treating men with venereal diseases within their organizations was followed to the end of hostilities. As long as the troops were in training areas or in very quiet sectors, little difficulty was experienced in treating men at regimental infirmaries; but when an active sector was occupied, the medical officer was so busy with other duties that it became necessary to organize venereal labor camps at which all the cases could be concentrated within the division, only a little more remote from the front lines. This plan was first promulgated by Major L. C. Lehr, in the First Division, and was afterward amplified by Major H. L. Sanford, in the Forty-Second Division.

Owing to the small amount of venereal disease present, none of these divisional venereal camps exceeded 180 men, even though certain cases of chronic gonorrhoea and latent syphilis were taken for treatment. From 60 to 80 per cent. of these men were on a full duty status doing important work for the division, such as repair of roads, stone crushing, erection of barracks, horse lines, sanitary work, carpenter work and general mechanical work. It was shown that com-



Fig. 9.—French movable steam laundry, with compact, modern machinery driven by gasoline motor; hot-air drying room; capacity, 2,000 suits per day (service de santé type).

plications were not more frequent here than with men who had been hospitalized, and the active exercise and outdoor life had a wonderful effect in maintaining health and morale. Of great importance was the opportunity afforded to bring back to these divisional camps cases of syphilis for successive courses of treatment as the months passed by. In periods of great activity, and when an offensive was planned, these men were often sent forward to do their bit with their com-

rades, being allowed to return afterward to complete their treatment. Many of them made the supreme sacrifice, but there was no evidence to show that they did not fight as well as the others.

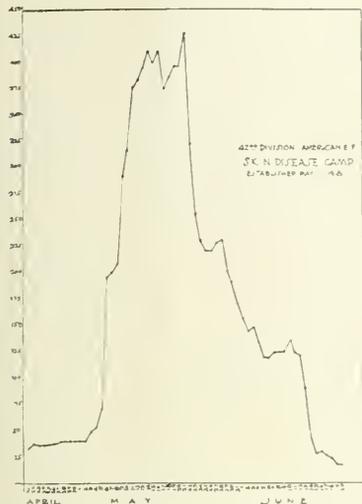


Fig. 10.—Number of cases of skin disease in field hospital, Forty-Second Division, A. E. F., during the months of April, May and June, 1918, showing rapid decrease when general bathing and early diagnosis and treatment were vigorously pushed.

Figure 5 shows graphically the organization of the Division of Urology, American Expeditionary Forces, and Figure 6 shows the plan adopted for the treatment of venereal diseases and urologic surgical cases in the American Expeditionary Forces.

In many of the divisions, particularly those at the front, the amount of venereal disease contracted monthly was astonishingly small. The Forty-Second Division had only six new cases in one month and eight in another month among 26,000 men. When, however, troops were allowed to go on leave, the venereal rate often increased considerably. During the last stages of the great conflict, when the divisions were being rushed forward into battle, almost continuously for several months, the maintenance of the venereal labor camps was quite difficult, and it was proposed to organize army venereal labor camps to which all cases incapable of being handled with divisions would be sent. These were to be situated not too remote from the front, at places where work companies were needed for employment in useful occupations and as much as possible on a full duty status. The sudden ending of the war made it unnecessary to organize these army camps. In the depot or replacement divisions venereal camps handled the problem among replacement troops very effectively.

General Pershing's interest in the venereal problem was actively maintained throughout the war, as evinced by the frequent orders, memoranda and bulletins that

he issued from time to time. His letter to Lord Milner shows his deep interest in the subject. This letter was incorporated in Bulletin 54, which was drawn up at his request. Although engaged in one of the great battles of the war, General Pershing took the time to review the manuscript and give his personal approval to it.

RESULTS

The figures as officially announced to the entire American Expeditionary Forces by the Surgeon-General of the United States Army, are shown in Figure 2. As seen here, after the early rise, the result of the bad conditions at St. Nazaire, there was a steady decline until Nov. 1, 1918, when the rate reached 16 per thousand per year. Since the signing of the armistice there has been a slight increase, the rate during December and on January 1 being 28 per thousand per year, less than one third of the rate in the regular army in 1916. In Figure 2 is also seen the venereal rate of the United States Army stationed in the United States. As seen here in September, 1917, there was a rapid increase of the venereal rate due to the men coming in with the draft from civil life. From 1 to 8 per cent. of these men were infected with venereal disease (average: white men, 5 per cent., negroes, 15 per cent.), and the annual venereal rate of the army took a sudden great rise to 200. During the winter months of 1917 there were fewer drafts, and the curve fell; but during the spring and summer of 1918, with the huge increase from civil life, the venereal rate rose steadily until it presented the monthly rate of 228 per thousand per year, and one week it reached the great height of 342 per thousand per year. With the cessation of hostilities and the stopping of the draft, the rate rapidly dropped to 72, December 1.



Fig. 11.—Field hospital devoted to treatment of skin cases of the Forty-Second Division, near Bacarat, on the river Meurtle. This hospital was better known among the doughboys as "Scratchville by the Sea."

Statistics show that for every case of venereal disease acquired in the Army in the United States, five were acquired from civil life and brought in with the draft.

A recent report shows that "in slightly over a year and a half, since the first drafted men were mobilized,

there have been reported to the Surgeon-General over 225,000 cases of venereal disease among all troops in the United States. Approximately 200,000 of these cases were contracted in civilian life."

Experiences obtained in the American Expeditionary Forces, in which the venereal rate had been reduced to such a low figure (16), testify to the great value of the army methods for combating venereal disease, and the splendid effect of military discipline and the well ordered life of the soldier.

#### HOSPITALIZATION

Following advices from other armies in Europe, preparations had been made by the Surgeon-General's Office to provide one base hospital of 1,000 beds for venereal diseases, alone, for every 100,000 troops sent to France. Personnel and equipment of many of these hospitals were organized and dispatched to France, but venereal diseases had been so effectively combated, and the measures for their treatment with the organizations in the divisions and in the depot labor camps had been so effective and satisfactory, that it was decided not to use any of these hospitals for venereal disease, and they were promptly turned over to the treatment of the wounded and the sick.

In October, 1918, when the hospital resources in the American Expeditionary Forces were terribly taxed to take care of the wounded and sick, it was extremely gratifying to realize that of the twenty base hospitals which it was planned to provide for an army of two million men, according to the original intentions of the War Department, none were required for the treatment of venereal disease, and that every one of them was in use for other purposes and was available for the treatment of the wounded at that most trying time in the medical history of the American Expeditionary Forces.

## PART II

### SKIN DISEASES

Circular No. 2, chief surgeon's office, Nov. 9, 1917, provided for eight professional divisions in the medical department, and named the director for each division. In the fifth division, venereal, skin and genito-urinary surgery were grouped together and placed under a "director of urology."

An investigation was at once made as to the frequency of skin disease, and the best methods for its prevention and treatment that had been evolved in the French and British Armies. A memorandum was then sent to the office of the chief surgeon, American Expe-

ditionary Forces, calling attention to the fact that trench fever, scabies and inflammatory processes in the skin had caused 90 per cent. of all the diseases of the British armies in France and that, being largely due to pediculosis and scabies, they were almost entirely preventable; that it was of utmost importance that every effort should be made toward prevention of skin diseases, namely, provision of requisite facilities for bathing, disinfestors and adequate supply of underclothing; that since the beginning of the war great improvements have been made in bathing apparatus, steam and hot air disinfestors and movable laundries, and that every effort should be made to obtain these in as great quantity as possible from France and England, as it was evident that with the great difficulties of transportation from America we would certainly be faced with a considerable shortage.

On Jan. 8, 1918, the Manual of Military Urology, which had been prepared by the division of urology, was presented and approved for publication by the chief surgeon and the commander-in-chief. In this manual skin diseases and their prevention were discussed at length and a "plan for the prevention and early treatment of dermatologic cases" was announced.

General Order 38, American Expeditionary Forces, Sept. 17, 1917, delegated to the engineering corps the furnishing and installation of bathing apparatus, and General Order 13, Jan. 21, 1918, delegated to the quartermaster corps the furnishing and installation of laundries and sterilizers and the provision of a supply of clean underclothing.

General Order 18, American Expeditionary Forces, Jan. 31, 1918, held the town major responsible for the location and maintenance of baths, washing and incinerating facilities. The medical department was not authorized to take part in the management of the bathing, disinfesting or laundering for the troops. In compliance with the directions embodied in a letter of Feb. 21, 1918, from the chief surgeon, American Expeditionary Forces, to Major Hugh H. Young, a report on the prevention of skin diseases in the American Expeditionary Forces was made by a board consisting of Majors Hugh H. Young, Hans Zinsser and Haven Emerson.

It is possible to give in THE JOURNAL only the headings of this official report, namely: The great frequency of disease due to vermin, especially skin diseases; methods of disinfestation, its relation to position of troops; choice of methods; relative value of steam, hot air, chemicals; laundries; repellants; scabies stations; proposed organization.

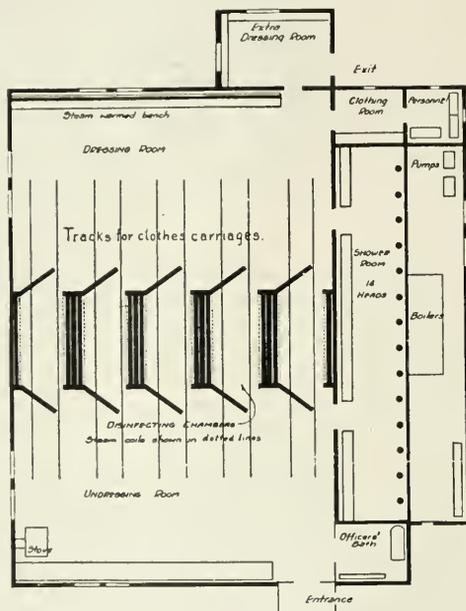


Fig. 12.—Plan of an excellent German steam bathing and disinfesting plant, captured in the Argonne.

The splendid work and remarkable ingenuity of certain division urologists in improvising apparatus and in bathing and disinfesting their troops under great difficulties deserve extended notice; but unfortunately our time is too short and space does not admit of even mentioning their names. These men struggled at all times with great problems of preventive medicine, and obtained results in the prevention of skin and venereal disease that were indeed remarkable. When the divisions were engaged in combat they were allowed no rest, but took active part in the operations, sometimes as battalion surgeons, at other times with the ambulance or triage, in the shock wards, or as operators in the divisional hospitals for the desperately wounded. The debt of gratitude that I owe these faithful assistants, whom I delighted in visiting, as frequently as possible, up and down the front, could never be repaid. The results obtained by them is forcibly shown by the fact that their work in preventing diseases of the skin and in sterilizing those patients who were early brought in to the field hospitals devoted to skin diseases were so effective that it was very rarely necessary to evacuate patients with skin disease out of the divisions, and in an exhaustive report made by Major Knowles, assistant consultant in dermatology, it is shown that in October there were probably not more than 100 cases of pyoderma in the entire American Expeditionary Forces. As a result, it was never necessary to organize a special hospital for skin diseases, and our only clinic was a small one in Paris. Instead of 90 per cent. of the evacuations for disease from the organizations being the result of vermin, as reported to have been the case in the British Army, it is safe to say that a very small percentage of the cases of disease evacuated from the American Expeditionary Forces was due to such causes. These magnificent results were obtained under most trying circumstances, with great shortage of apparatus, with equipment of varied character, and confronted by the necessity of improvising all sorts of crude methods in order to bathe and disinfect the troops. Had it been possible to have twenty portable shower baths, two portable disinfestors and two portable laundries per division with the proper personnel and transportation, no difficulty would have been encountered in practically eliminating lousiness and scabies from the troops.

In the most active period of warfare, that of the great battle of the Argonne, the need of army and corps supervision of bathing and disinfesting equipment was shown, and provisions were made for a corps urologist to carry out this work for the divisions as fast as they come out of the lines to rest. But space does not permit reference to the detailed plans that were finally adopted to insure the proper functioning of the sanitary measures. In this last phase of the war the advance was so swift that it was necessary to make use of captured German bathing establishments, one of which is shown in Figure 12.

#### ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CORBUS, TAUBER, LOWSLEY AND YOUNG.

DR. ABRAHAM L. WOLBARST, New York: With reference to the standard treatment of syphilis, it is easier to speak of it than to carry it out in actual practice. Strictly speaking, there is no standard treatment for syphilis or any other disease, because there are no standard human beings, and we must treat the individual and not the disease. If we

start out on the assumption that syphilis requires so many arsenamin injections, and so many mercury injections, we are going to strike a snag. We must study the individual, and unless we do that we are not going to cure him. I regret that the author did not say anything about the clinical aspects of syphilis, and especially the primary lesion. We are attaching altogether too much importance to the laboratory findings and giving not enough attention to the clinical features. It is the fashion in some quarters to make the diagnosis of syphilis on a positive Wassermann reaction, even though clinical data might be absent. I think this is a serious error. We should be able to recognize a chancre when we see one. It is far better to let a man with syphilis go untreated until he shows definite clinical symptoms, than to take a man who has chancroid or something of that sort and treat him for syphilis just because a laboratory found a positive Wassermann. I do not wish to underrate the value of the Wassermann test; but I believe it means nothing unless it is employed intelligently in conjunction with the clinical aspects of the case. Different laboratory workers get contrary results on the same serum taken at the same time. How, then, can we rely implicitly on such a test? You have no moral right to convict a man of having syphilis unless the positive Wassermann is corroborated by clinical data supporting such a diagnosis. Another expedient of great value is the excision of venereal ulcers whenever it can be done. If the lesion is on the foreskin, I invariably circumcise the patient, thus removing at one stroke the foreskin as well as the ulcer. If it be a chancroid, we have an immediate cure; if it is a chancre, the future course of the disease is greatly modified for the better by this excision of the infecting focus. As to the arsenamin technic: I have given over 1,700 injections in my office without a single severe reaction of any kind. I think this is due to the water which I use. I use an "aerated distilled water" (made by an old established mineral water manufacturer in New York). I have found this water much more satisfactory in every respect than the pure distilled water. The manufacturer informs me that the water contains (per 100 volumes) 0.70 volumes of oxygen, 1.26 volumes of nitrogen and 0.06 volumes of CO<sub>2</sub>. Those gases are forced through distilled water under high pressure. I am of the opinion that the oxygen in the water may possibly have some stimulating effect by oxygenating the red blood cells and thereby overcoming any possible toxic effects of the arsenamin in the blood. In cases in which arsenamin and mercury do not give the desired results, I recommend pituitary extract. It has been pointed out by eminent students of endocrinology that syphilis is essentially a pituitary disease and that syphilis has a very distinct and close bearing on the pituitary. A man deficient in pituitary extract is more easily infected than a normal man, and once such a man is infected, it is harder for him to get rid of his infection than for a man with normal pituitary substance. Small doses, almost homeopathic in character, have been of great service in such cases.

DR. HARRY W. PLAGGEMEYER, Detroit: With regard to the urologic school at Fort Oglethorpe, I do not think that Dr. Timberlake has sufficiently brought out just what was done there. I am not saying that critically. Possibly it is a matter of bashfulness. I had the privilege of being a "rookie" in Oglethorpe and, of course, like many of the rest of us here, I slept in the barracks, and I heard the same talk, and one of the chief sources of conversation was the urologic clinic, at the time I got there, and the work that Dr. Timberlake was doing. The point is that although he has given us a rather amusing sketch, and made a bit light of his endeavors there, I think that from a practically inchoate mass he developed one of the finest and best organizations in the way of teaching, in concentrated form, that I have ever seen; and the point I want to bring out is this, in case of possible argument; I heard some remarks, after I came away from Oglethorpe, against the dangers of so-called tabloid teaching. At Oglethorpe, in addition to engendering in the minds of all the men in the barracks, a kindly democratic feeling, he inspired them with a very

healthful fear of their subject, which is the beginning of wisdom. I am sure that he has sent out from that school hundreds of men, who otherwise would probably have dabbled in urology, who have been given not only a fundamental training in details, but an atmosphere on the subject which will redound to the glory of this section in the future. The school of urology at Oglethorpe, as conducted by Major Timberlake, is a lasting monument to his work.

DR. V. D. LESPINASSE, Chicago: Germane to Dr. Young's paper in regard to reconstruction work, I would like to mention an apparatus for reconstruction of the penis. This apparatus was designed originally to help the condition of a very undeveloped penis. In answer to the patient's appeal I developed an appliance and fitted it to his penis. This appliance was used with satisfaction and has also been used on one case where the shaft of the penis was about two-thirds gone.

DR. ANTON G. RYTINA, Baltimore: I would like to say a few words about the clinic we established in Baltimore, which is known as the U. S. government night clinic. We have sufficient funds available to conduct the clinic along very highly efficient lines, but the main thing I want to bring out is the connection therewith of the detention ward, and I think the influence of this organization, and all organizations, ought to be along the lines of controlling prostitution by the establishment of detention wards. We have, in connection with our clinic, this detention ward, which is made very efficient by the splendid cooperation we have in the Baltimore police department and the city courts. There is a statute on the books of Maryland which states that any individual who is suffering with an infectious disease can be detained, or can be quarantined, and these women are picked up off the streets and are brought to us. We detain them for arsenphenamin treatments as long as we think it is necessary, and it is surprising to see the wonderful work we are doing. The only opposition we have been receiving has been on the part of the suffragists. They cannot see why we should detain women and not men, and in conversation with one of these women I told her it was an economic problem entirely; that in Baltimore about the most infections that a man could give in one evening would be one or two; whereas we have women brought in who sometimes infect as many as forty men a night. I remember one woman especially who had extensive condylomas of the vulva, and she told us confidentially that she had been having intercourse with about forty soldiers every evening. We have about twenty-five beds. We ought to have about five hundred. A civic organization has just been established, and I feel it is going to accomplish a lot, and be very successful, because Dr. Young is going to head it.

DR. WILLIAM E. KEANE, Detroit: I would like to bring out a method used in the outpatient department of St. Mary's Hospital, where we are unable to secure the serum from the sore for the dark field, and where we are unable to diagnose the chancre clinically, and it is too early for the blood tests—cases where the foreskin cannot be retracted and yet the diagnosis should be made as quickly as possible. We have circumcised the patient and in several cases were able to grow a serum in artificial serum and demonstrate spirochetes in the dark field within a day or two and, of course, proceed with specific treatment. This is a distinct advantage in all doubtful cases it certainly is justifiable to take such means to enable us to make a very early diagnosis. I certainly agree that the time to treat syphilis is in the very early stage, and the earlier we can make our diagnosis, the more we are going to do for the patient later on. The excision of the sore certainly seems to be rational treatment. Not only that, but where for reasons we are unable to excise the sore, we should direct treatment particularly locally, with the cautery, or with mercurial ointment, because it is a distinct advantage to do as much as possible to eradicate the focus of infection.

DR. JAMES R. DILLON, San Francisco: I agree with Dr. Tauber that every venereal sore should be examined for syphilitic infection, such as herpes, simple ulcers, chancroids or hard chancres. Frequently the spirochetes are not found in

the first examination, especially if the patient has used a mercurial preparation. If the lesion is treated with a mild boracic solution, or with a physiologic sodium chlorid solution, the spirochete may reappear in three or four days. Regarding standards for arsenphenamin treatment in primary syphilis, I followed a series of cases at the Stanford medical school, taking the blood Wassermann twenty-four hours after each arsenphenamin injection, and found some cases in which the provocative Wassermann was positive where the chancres were only two weeks old; in other cases, after the second or third injection the Wassermann became positive, where it had previously been negative. You cannot limit treatment to any particular number of injections. In some cases it will take as many as ten or twelve, with mercury, to render the provocative test negative. Another thing, there is undoubtedly a specific strain of spirochete that enters the blood stream and attacks the nerve centers early, even in the first few days of the primary sore. Occasionally, a positive spinal fluid is found in the early stages of primary and secondary syphilis and in spite of intensive antisyphilitic treatment in the early stages, with blood tests to guide the treatment at intervals of from six months to a year, for two or three years afterward, the blood Wassermann would return positive. Possibly the only way of curing such patients is by the Swift-Ellis method or other intraspinal injections. Ordinarily, I give at least three additional injections after the provocative Wassermann has become negative.

DR. P. A. JACOBS, Cleveland: I have listened with a great deal of interest to the various methods of standardization for the treatment of syphilis. It is my opinion that the standardized treatment for syphilis cannot be accomplished. What I would suggest, first, is that some standardized method for the carrying out of the Wassermann reaction be first instituted. No two serologists perform the Wassermann test or technic alike. One uses an alcoholic extract, and the other cholesterin, or what not. If I am not mistaken, the British have at this time a commission for the purpose of bringing about a standardization for the performance of the Wassermann test.

DR. ELMORE B. TAUBER, Cincinnati: In Ohio we have a law which is even a little bit better than that of Maryland, I believe. If there is a reasonable doubt that a person has venereal disease, we have the right to put him in detention. So at the present time we are arresting both men and women on the streets of Cincinnati. We have eighty beds for women and thirty-seven for men at the present time at the Cincinnati General Hospital, and we are getting remarkably good results in this way. We are taking these women (they usually come in negative, as they have had a douche, or something of the sort to make them negative) and their first slide is negative as regards gonorrhoeal diseases usually, and the Wassermann is taken immediately. But after being there for twenty-four or forty-eight hours you would be surprised at the 95 to 98 per cent. of positive slides that we get. We only discharge them after they have three negative slides, without any treatment. In regard to Dr. Wolbarst's idea of the serum, I was not speaking of the condition when the serologic test becomes positive. My method is entirely directed to try and standardize, and as Dr. Corbus said, we must arrive at some method of standardization. My method is directed purely at the early diagnosis, and the treatment under those conditions, before the serologic condition is positive. Because without that we are in a deplorable state. While it may not do anything it is at least a step forward in the right direction. Dr. Keane's method of circumcision and growing a culture seems to be rather logical, and one I will be glad to try out.

DR. HUGH H. YOUNG, Baltimore: This question of standardization is an extremely important one. It was absolutely necessary in the A. E. F. to suggest a thorough method of treatment of syphilis. We did not lay down any fixed law as to how the disease should be treated, but we standardized more or less the drugs to be used, because it was impossible to have everything. Mercury and arsenic were given simultaneously during the first course, and in the after courses neo-arsphenamin was preferred to arsenphenamin. You

do not have to have Dr. Wolbarst's special water, aerated with certain gases, and things of that sort; just a little tube of ordinary sterile water was all that was necessary, and you could entrust it to men who had little experience before. I am a strong believer in an effort to get at what might be called an ideal treatment for syphilis, rather than a standard treatment. The work these men are doing in Chicago, Cincinnati and elsewhere is bound to spread. We studied the whole question of infection of prostitutes very carefully with the French. I saw at St. Nazaire prostitutes who had infected our soldiers, and yet it was impossible to see that they had any venereal disease at all. We got a lot of syphilis in one house, and yet you could find no syphilis among those women. We investigated further and found that not infrequently the prostitute transmitted the diseases, not because she herself had it, but because she simply was a carrier from one man to another. Where a woman would have intercourse with from fifty to one hundred men in an evening, if one fellow came in whose secretion was filled with staphylococcus, the woman might easily, if she did not wash, transmit the infection to the men who followed. We found one house where eighteen men got venereal disease, and one of the women had as a helper a small boy who opened the door and welcomed everybody. He had a large chancre on his penis and would reinfest her two or three times a day, and she spread it to the soldiers who came along. There is no question about it that one of the greatest dangers in houses of prostitution is lack of cleanliness, and the fact that these women transmit disease by being just temporary carriers of deposits left by applicants for her favor.

DR. BUDD C. CORBUS, Chicago: In regard to the standardization of treatment, especially in regard to syphilis. Looking up our army records, and every record that was available, there was no definite standard set for the treatment of this disease, that could be followed with any degree of accuracy. By standardization I do not mean that every case is going to measure up to this one standard and be treated that way. Ordinarily there are certain salient features that stand out in the treatment of syphilis, that are not adhered to. We have attempted to standardize the treatment of syphilis. Our standard is not perfect, but it is flexible, and is an attempt at something ideal. If it is imperfect, we can regulate it some time later. Systematic standardization in the treatment of syphilis is universally needed.

**On Teaching Hygiene.**—No greater service can be rendered the college youth than requiring him to devote some time to the conscientious study of both personal and public hygiene. This is so universally accepted by academicians that it would be but useless repetition to present arguments in its behalf. That universities regard hygiene as an essential subject is demonstrated by a perusal of their catalogues. A criticism called forth by the average course in hygiene, however, is the half heartedness or laxness with which it is conducted. . . . Hygiene, both personal and public, can be made one of the most interesting subjects in the college curriculum. Is it not true that people are fundamentally interested in health? It has been stated that matters relative to health and physical well-being make up the bulk of the laity's conversation. If this is true why not by education substitute facts for the world of harmful misstatements and prevalent superstition?—John Sundwall, *Pub. Health Rep.*, Nov. 7, 1919.

PATHOLOGY AND OPERATIVE TREATMENT OF CONTRACTURE OF NECK OF BLADDER\*

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NEW YORK

We may apply the general term "contracture of the neck of the bladder" to designate all those pathologic processes involving the region of the internal vesical sphincter and the adjacent periurethral tissues of the prostatic urethra that do not belong to the class of true neoplastic formations, and that result in a greater or less coarctation, rigidity or distortion of this portion of the urethrovesical canal. The fibromas or adenomas that may be located in this region are usually grouped in the category of so-called "hypertrophy of the prostate," although, correctly speaking, fibro-adenomas of the prostate would be a better appellation. When the latter are unaccompanied by fibrotic and inflammatory lesions leading to stenosis of the vesical sphincteric ring, they make a variety quite distinct from what we wish to term "contracture of the neck of the bladder."

The appellation "median bar" should not be employed because its application is confusing, for the term is not sufficiently comprehensive to include all the lesions that belong to this class of cases. Although it is an accompanying objective manifestation of some lesions of contracture of the neck of the bladder, it is frequently absent, and can in no sense be regarded as a primary lesion. Nor is it for the most part responsible for the clinical symptoms. Its use, I believe, should be discarded in this connection.

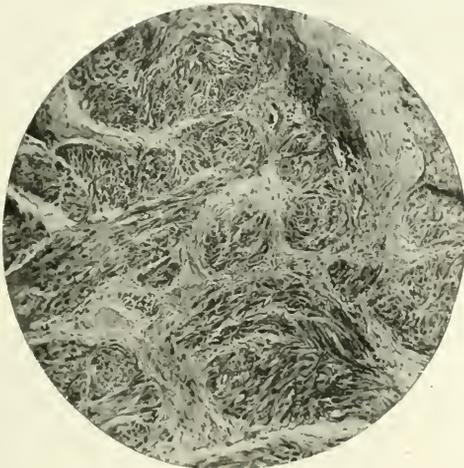


Fig. 1.—Fibrotic lesions.

It was the pathologic study of cases that gave the clinical symptoms of contracture of the neck of the bladder, cases that did not belong to the class of adenomas, that led me to adopt a more extensive operative procedure than that which merely has for its purpose the removal of a small portion of tissue from the floor of the sphincteric region. These pathologic investigations on material obtained by a wide excision of tissue from the affected region have brought me to the conclusion that, although no single lesion may occur to make up the complex of contracture of the neck of the bladder, nevertheless, the anatomic alterations which lead to the narrowing of the bladder outlet are so extensive and deep that the radical surgical procedure suggested should give better results than some of the methods applied heretofore.

My pathologic studies of seventeen cases have brought to light that we are dealing here with single lesions in some cases and with a combination of changes

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in others, always, however, representing invasion of the sphincteric and periurethral tissues extending far beyond the mucous membrane. These lesions may be

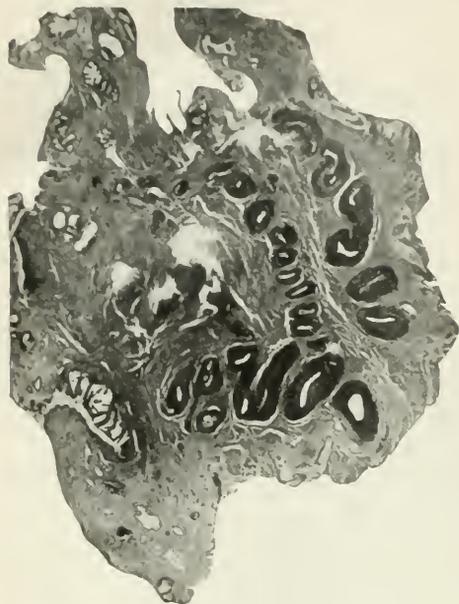


Fig. 2.—Arteriosclerotic sphincteric fibrosis showing multiple enlarged sclerotic vessels.

a simple fibrosis of the sphincter without evidences of a previous inflammatory process, the fibrosis being of varying depth or there may be fibrosis accompanied by an inflammatory process; or there may be submucous and periurethral inflammatory lesions involving the sphincteric region and posterior urethra extending centrifugally for a variable distance into the surrounding tissues, forming an inflammatory fibrosclerotic sheath of varying thickness; or, there may be diffuse glandular invasion of the sphincteric region with or without periacinar inflammation associated with more or less sphincteric fibrosis; and, finally there may be mixed forms in which any of the foregoing changes may be accompanied by the accidental formation of small adenomas or fibromas.

It must be well understood that any observations on the nature of nonneoplastic lesions at the neck of the bladder are open to fallacious interpretation, in view of the fact that the very incipience of the process can rarely, if ever, come to our notice. What can be submitted for histologic section are tissues which represent results of more or less chronic processes, that may have taken on new aspects by virtue of the advent of secondary complications, as well as secondary mechanical distortions. On the one hand, chronic cystitis, with or without pyelonephritis, vesical calculus, and chronic inflammation of the prostate may be responsible for alterations in the neck of the bladder that are quite distinct from the original lesion, causing confusion in our subsequent estimations of the pathology; and, on the other hand, distortions of the bladder, the mechanical effect of the distention of chronic retention, may

bring about pseudovalves or bar formations at the vesical neck that are in reality not the cause but the result of a number of anatomic, mechanical and pathologic factors.

A critical analysis of the dignity of all the elements concerned in the pathology of each of my own cases, however, has enabled me to come to certain conclusions that are somewhat at variance with the observations of those whose investigations are based for the most part on necropsy material. Although such work as that of Randall and the anatomic studies of Lowsley are exceedingly valuable in demonstrating beyond peradventure that vesical obstructions other than the pure adenomas and so-called hypertrophies frequently exist, nevertheless, my own clinical and pathologic observations seem to be in accord rather with the occasional clinical findings of other authors, who report true stenosis of a fibrotic nature at the internal urethrovesical outlet. Although other forms have been encountered, they all have this in common: that an essentially fibrotic or inflammatory fibrotic lesion occupying the internal vesical sphincter, and the periurethral intraprostatic region is always present, even though accompanied by other changes.

I do not feel at liberty to express myself definitely regarding the etiology, nor do I wish to discuss in detail the nature of the processes, whether they are purely recessive and of the involution type, degenerative, or arteriosclerotic in cases of the fibroses, or induced by contiguity from the prostate and sexual adnexa, or by metastatic paths in the cases of the inflammatory varieties.

My purpose is rather to demonstrate how extensive is the involvement of adjacent parts in these sphincteric lesions, and to show what varieties of pathologic processes are encountered, for the reason for the surgical



Fig. 3.—Inflammatory type of contracture.

operation that I recommend is wholly based on the nature of my pathologic findings.

#### PATHOLOGIC CLASSIFICATION

A simple and satisfactory grouping of my seventeen cases divides the material into three classes: (1) fibro-

sis (eight cases); (2) fibrosis and inflammation (four cases), and (3) fibrosis associated with adenomas or fibromas, or with infiltrating adenomas (five cases).

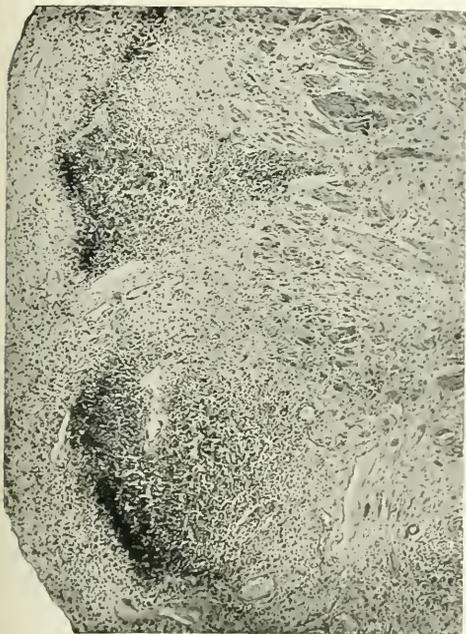


Fig. 4.—Inflammatory sheath formation plus fibrosis.

*The Fibroses.*—At operation, with the bladder opened suprapubically, we encounter the following evidences of regional alterations in and about the internal sphincter:

Visually, the striking abnormalities are an unusually small internal vesical orifice, and the presence of a horizontally situated transverse prominence (median bar) in the situation of the postero-inferior lip of the sphincter, neither of these being essential for the existence of a contracture of the neck of the bladder, since the latter may occur in the form of extensive and diffuse rigidity of the sphincter and prostatic portion of the urethral channel, the sphincteric ring being seemingly patent. When a bar is well developed, it may be exaggerated by edema or by enormously congested capillaries and veins, or it may involve merely the floor of the vesical orifice or extend laterally for varying distances, in some cases being truly eccentric and almost laterally placed.

Often a distinct shortening of the sagittal trigonal distance, with transverse plication of the retrosphincteric area will be appreciated, a furrow separating this interureteric bar from the vesical orifice. When the median bar is well developed, or when edema and marked vascularization are intense, the aspect of a congested and inflamed vaginal cervical ostium is simulated.

In other cases when a diffuse fibrosis of the prostate is an attendant lesion, in the group that is often suspected as prostatic carcinoma, there is on the contrary

a distinct mound in the distal trigonal area, although no true fibro-adenomas or even fibromas may be present.

The tip of the index finger introduced into the internal vesical orifice finds a hard, infiltrated, annular band or fibrous ring, effectually preventing its introduction into the urethra. When force is employed, the engagement of the posterior urethra is at once followed by tearing of the outlet, most frequently at the roof of the neck.

When the coarctation of the sphincter is but slight or doubtful, the tissues of the posterior urethra as well as the sphincter will be appreciated as having been converted into a fibrotic, hard sheath that reveals none of that resilience and elasticity so characteristic of the normal urethrovaginal outlet. Or, in addition to these lesions, small areas of increased density may be palpated, these being manifestly due (as sections show) to multiple discrete fibromatous nodules.

As to the situation and extent of the lesions, these may be described as being the submucous tissue of the internal sphincter, the sphincteric muscle itself and the periurethral tissues of the posterior urethra usually behind the verumontanum. The depth or amount of centrifugal involvement varies considerably, so that histologically, as well as objectively with the palpating finger, we can readily detect a superficial and deep form, depending on whether the structure of the pros-



Fig. 5.—Chronic inflammatory sheath.

tate itself and the tissues even beyond the sphincter suffer in the process. In a sense and in truth, all the "contractures" may be regarded as being deep lesions, since the submucosa and sphincteric muscle are always affected. But when, in addition to this, tissues at a

considerable distance from the urethra are inseparably bound up in the pathologic lesion, the unusual extent of infringement on the integrity of the vesical outlet can be both histologically and surgically recognized.



Fig. 6.—Inflammatory sheath plus hypertrophy.

*The Microscopic Lesions.*—The material obtained for study comprised a pyramidal piece (or wedge) of tissue excised at suprapubic operation in such a fashion as to ablate the greater part or whole of the floor of the internal sphincteric ring, the apex of the pyramid lying in the prostate, its distal end just above the verumontanum, and its proximal side being cut transversely just beyond the sphincteric margin in the trigon. It was attempted to obtain as large a section, in a sagittal sense, as possible, one border of the section being covered with mucous membrane.

*Lesions in the Pure Fibroses.*—In making arbitrary divisions for purposes of clarity and possible clinical grouping, it must be again emphasized that we may be dealing with histologic pictures that, although seemingly of degenerative, involutive or atrophic type, are in reality in some, or possibly in all instances, the end-product of antecedent active inflammatory processes. This is not at all likely in view of the histories, the clinical course, the cystoscopic and urinary findings, and the microscopic architecture of the tissue; still, it is a possibility that cannot be excluded in all cases.

Fibrosis, as seen in the sections of our cases of contracture of the neck of the bladder, is of various types. It may be described, according to its disposition and its relation to the muscular bundles, as perifascicular

or intrafascicular. We may consider it, according to the type of tissue, as either represented by well developed connective tissue in the intermediate stages of maturation, or as evidenced by the presence of an inflammatory process.

In general, the fibrotic replacement of muscle fibers of the sphincter is striking, the latter muscle being normal in thickness, hypertrophied or atrophied. Usually the diffuse nature of the process is noteworthy, the muscle bundles being often widely separated by either dense or at times edematous connective tissue. The latter type is more frequently disposed in the neighborhood of the mucous membrane. Figure 1 illustrates the extensive invasion of the muscle with connective tissue in a case of true fibrotic contracture, there being nowhere any evidences of inflammation, the sphincter tearing when the finger was forcibly made to enter.

Atrophy, disappearance of, and degeneration of muscle fibers can be observed going on *pari passu* with the proliferative process of the connective tissue. The process usually implicates the greater part of the sphincter, but may be associated with evidences of recent inflammation (secondary) or with deep fibrosis, much of the prostate gland being invaded, or with the formation of a sheath of sclerotic tissue extending far distally in the urethra (even beyond the verumontanum), or finally with multiple minute submucous or intraprostatic fibromas.

For the most part, it is the sphincteric disorganization that makes for the coarctation of the urethrovesical outlet in these cases; but there is the interesting type just referred to, in which a veritable sheath of fibrotic tissue lying between the mucosa of the supramontane urethra (between the sphincter and the verumontanum) forms a cylindrical narrowing in this region.

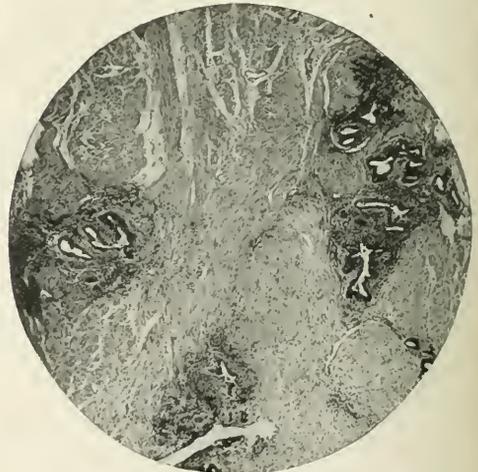


Fig. 7.—Diffuse glandular infiltration of sphincter with fibrosis (mixed form).

Associated with this lesion, multiple minute fibromas, submucous and intraprostatic, may give the palpating finger the impression of a carcinomatous prostate.

Another striking example of atrophic prostate associated with arteriosclerotic fibrosis of the sphincter is

well depicted in Figure 2, in which the proliferation of sclerotic vessels is a feature.

Summing up briefly the types of fibroses, we find the pure fibroses of the sphincter, those accompanied

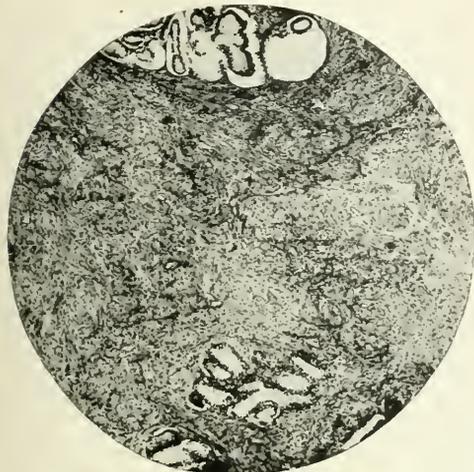


Fig. 8.—Intense fibrosis with glandular infiltration (mixed form).—

by some recent inflammation, those with deep fibrous involvement of the prostatic tissues, those complicated by a sclerotic connective tissue submucous sheath in the posterior urethra, by fibromas, and the arterio-sclerotic variety (Table 1).

TABLE 1.—GROUPING OF PATHOLOGY OF CONTRACTURE OF NECK OF BLADDER IN SEVENTEEN CASES

FIBROSIS	
Case	
1. Se.	
2. Ma.	
3. W.	Plus recent inflammation
4. Am.	Plus some inflammation
5. Al.	Deep fibrosis
6. R.	Deep fibrosis
7. Hy.	Sheath and fibromas
8. Sam.	Arteriosclerotic

FIBROSIS AND INFLAMMATION	FIBROSIS AND ADENOMA OR INFILTRATING ADENOMA
Case	Case
9. St.	13. Bl.
10. Me.	14. St.
11. San.	15. Sp.
12. D.	16. He.
	17. Ba.

*Fibrosis and Inflammation.*—Is it in this variety particularly that it is difficult to find convincing argument for or against the primary nature of the inflammatory process. Careful pathologic and clinical study has given justification for the assumption that an inflammatory process is responsible for many of the cases of contracture, and that fibrosis of the sphincter and prostatic region may be the sequence of such lesion. Nevertheless, I feel assured, too, that this fact in no way precludes the possibility of the simultaneous occurrence of both lesions, namely, the pure fibrosis and the inflammatory changes. In four of the cases, the predominance of the inflammatory process was noteworthy. Figure 3, taken from a case of marked stenosis of the vesical orifice, demonstrates the extensive inflammatory infiltration of the muscle, and the

destruction of the sphincteric fibrosis, proving conclusively the rôle that inflammation plays in the destructive process that disintegrates the muscle, thereby impairing its functional activity. In this case, acute and subacute as well as chronic types of lesions were all exemplified in different sections. Even a cursory glance at Figure 3 leaves a strong impression as to the intensity of the destructive process that has affected the musculature of the sphincter. The sparsity of the muscle fibers standing out prominently against the infiltrating inflammatory background, and the large amount of older connective tissue in other sections afford exquisite demonstrations of the lesions.

In this case we found, first, large zones in which no sign of muscle tissue could be detected with a low power magnification, inflammatory tissue and disintegrated muscle fibers being the substituting elements; secondly, areas in which muscle fibers were widely separated by larger collections of inflammatory cells, and, thirdly, areas of old connective tissue which indicate an old process and which separate the bundles rather than the individual muscle fibers.

In cases such as these, there can be no question as to the inflammatory nature of the lesion.

Another variety of inflammatory contracture is illustrated by three other cases (Figs. 4, 5 and 6), in which



Fig. 9.—True fibroma and adenoma, the sphincter being involved.

we can study the formation of the sclerotic inflammatory ring (Fig. 4) or of a dense fibrous sheath of greater tubular extent.

In Figure 4 both the recent inflammatory, as well as the old sclerotic, process can be seen side by side. Two types of lesions, chronic and active proliferative, are

presented here, the former manifesting itself in a finished connective tissue product, the latter in an active inflammatory lesion destroying the muscle elements. From a study of the material in this case it would appear that the inflammatory process has had exacerbations and remissions leaving their early recognizable imprint on the musculature.

Even more exquisite an example of inflammatory sheath formation with sclerosis of the sphincter and the development of a fibrotic periurethral envelop between verumontanum and vesical outlet is that depicted in Figure 5. Here, too, there are active and chronic lesions, a slowly developing fibrotic lesion involving the whole sphincteric muscle, a more recent productive inflammation in the muscle, and a still more recent (acute) lesion which may be an extension from the mucous membrane. Just how much influence the process in the mucous membrane has on the production of the deeper lesions it is hard to say. It is conceivable and highly probable that in some of these cases recent infection may add just enough additional infiltration to occlude the sphincteric orifice and produce complete urinary retention.

Another excellent example in which an extensive rigid periurethral and sphincteric inflammatory infiltration is associated with marked muscular hypertrophy is offered in the section photographed in Figure 6.

**Mixed Forms (Fibrosis and Adenoma, or Fibrosis with Glandular Infiltration).**—There is another most interesting complex of lesions at the vesical neck that may readily be confused with the so-called hypertrophies of the prostate, which should, however, be separated into a special class, both from the clinical and the pathologic standpoints, namely, the group in which concomitant glandular infiltration or submucous adenomas play an important part in the pathologic product. These may be divided into one variety with discrete fibro-adenomas, and another in which there is a diffuse infiltration of the muscle of the sphincter, either with glandular proliferations from the middle lobe or of subcervical origin.

**Fibrosis with Discrete Adenomas.**—At first glance, it would appear difficult to meet the criticism that fibrosis with discrete adenomas is pathologically equivalent to and indistinguishable from the so-called hypertrophies or adenomas. A study of the cases in point reveals, however, that both clinically and histo-anatomically there is enough difference to warrant the division into separate classes. Occurring frequently in very young adults, the contractures associated with minute precocious adenomas are characterized histologically by a preponderance of fibrosis with but minute adenomatous proliferations, the latter being in my experience of

unusually insignificant size, even though the material was obtained from elderly individuals. That the extensive fibrosis also present may be a deterrent to the rapid growth of the adenomas seems possible and even likely. Theoretically, it is conceivable that a case of contracture of long standing, with small precocious adenomas in a young man could develop subsequently a picture in which adenoma and contracture play an equal rôle. Only a few such cases have come to my notice. When the two lesions have progressed hand in hand for years, we regularly find at the operating table that the fibrosis predominates, so much so that I do not hesitate to group these cases with the contractures.

The fibroses with discrete adenomas do not, in my experience, tally with the subtrigonal and subcervical glandular hypertrophies of other authors (Lowsley and Randall). For I find, first, that the fibrotic sphincteric alterations are the essential lesions, and, secondly,

that the adenomas are irregularly distributed under the mucosa, in the posterior urethra or prostatic region, or at any portion of the sphincteric ring. Hypertrophies of Albarran's and Holmes' glands do occur, it is true; but unless associated with marked sphincteric fibrosis, they must be relegated to the class of hypertrophies or adenomas of the prostate. In short, localized glandular neoplastic formations which complicate sphincteric fibrosis may form a part of the total lesion, may exaggerate the rigidity of the vesical outlet, and may even contribute in offering an additional obstacle to the outflow of urine. *They must not be regarded as the essential lesions.*

**The Infiltrating Adenomas.**—Finally, I may call attention to another variety



Fig. 10.—Elevation of bar prior to excision.

of mixed lesion, which, as far as I know, has not been described, namely, a diffuse glandular invasion of the sphincter by noncircumscribed elements. Considerable disorganization of the muscle may be caused thereby, and there is regularly associated with it a very marked fibrotic process, often with periacinar inflammation (Fig. 7). An example of more intense connective tissue change coupled with infiltrating adenoma is depicted in Figure 8, in which there were also some minute discrete adenomas. Interesting for comparison is the photomicrograph shown in Figure 9, which is a sagittal section through the floor of the sphincter and prostatic urethra in a case of true adenoma or "hypertrophy." Here the sphincter, although compressed and displaced, is still intact and is not fibrotic, the neoplastic formations being represented by a beautifully encapsulated fibroma, and another adenoma arising in the middle lobe region. Under the mucosa of the posterior urethra are two minute fibromas.

THE AUTHOR'S OPERATION FOR CONTRACTURE OF THE NECK OF THE BLADDER

Although the mere ablation of a subvercal adenoma would suffice to cure such a condition, the lesions in cases of contracture are too extensive and deep to be materially influenced by anything but a more radical operation. With a view to relieving the stenotic sphincter and to enlarging the rigid inflammatory sheath, the following simple operation was devised and carried out with some beneficial results during the last three or four years. Possibly similar procedures have been used now and then by other surgeons:

The bladder neck is exposed in the usual way by the suprapubic route. The peritoneum is pushed well out of the way and an adequate vertical incision is made into the anterior wall of the bladder, but no larger than is necessary for the proper introduction of retractors and for the exposure of the sphincteric region. With adequate illumination, the sphincteric region is found. It is first viewed carefully, the presence of the transversely placed ridge or bar being noted. Such bars may be true bars, owing to the invasion of this region by glandular and fibrotic or inflammatory tissue, or pseudobars, due to edema with inflammation of the mucous membrane and dilatation of large veins. A small submucous adenomatous lobule should not be regarded as a true bar.

One then attempts to insert the finger, or at least to measure the size of the internal sphincteric ring, which in most cases will be found to be sclerotic, tightly contracted, too small for the tip of the finger to enter. If possible, the finger is forced through the sphincteric ring, which procedure is usually followed by the tearing of the anterior commissure, the latter being involved in the sclerotic and inflammatory process in most of the cases. The inferior or posterior lip of the sphincteric region is then grasped (Fig. 10) with long angulated many-toothed volsella or fixation forceps, drawn upward and toward the head of the patient, the floor of the sphincter being thus put on the stretch, and brought into better view. The amount of tissue that is thus grasped should depend on the nature of the lesion. When the lesion is very deep, when there is a great deal of fibrous tissue possibly accompanied with some adenomatous infiltration, a larger bite will have to be taken than when we are dealing with a case in which an inflammatory sheath surrounds the sphincteric region. It is well in most cases to obtain a sufficient amount of tissue in the grasp of the forceps, so that the next step can be carefully carried out without losing the grip on the tissue that is to be excised.

A long, sharp knife is then employed to remove a large pyramidal piece of the sphincter. The base of the pyramid is formed by a portion of the bladder floor extending from the inferior sphincteric margin backward for a centimeter along the apex of the trigon. Its lateral walls are limited by the lateral margins of the sphincter, and its apex lies in the fossula prostatica not far from the verumontanum. The incision is carried downward for at least 1.5 cm. or more, through the sphincter and into the prostate. The excision can usually be made so as to remove an intact piece, if a sufficiently sharp knife is at hand, and if the traction on the sphincteric region is not too great.

The finger is then made to enter the sphincter once more, in order to dilate this as well as the supramontane urethra, a careful exploration being made for the presence of any complicating adenomatous or fibrotic neoplasms.

Sounds are then passed through the urethra, the dilatation being carried to at least 32 French.

If the bleeding is active, a small packing may be placed into the sphincteric region and posterior urethra, and carried through the suprapubic wound alongside of the drainage tube. When the bleeding is profuse, it is best to place one or two catgut hemostatic sutures through one or both lips of the wound area, inserting the needle so that the edges are not brought together. The mucosa must not be included,

the stitches entering and emerging on the same side of the divided area. The bladder is then closed over a moderate sized suprapubic rubber drain.

OPERATIVE RESULTS

Of the seventeen cases in which the diagnosis was confirmed by thorough pathologic studies, there were thirteen good results. Two could be regarded as failures, one in a case of complete retention of urine, and the other in a highly neurotic individual. Two other patients were merely improved, although one of these is almost free from symptoms. The first, a man with intense chronic symptoms has observed marked diminution of his urinary frequency, although he can in no sense be regarded as cured, while the condition of the second patient is distinctly ameliorated (Table 2).

TABLE 2.—RESULTS OF OPERATION

Name	Age	Date of Operation	Result
A. S.	29	7-17	Excellent
B. M.	67	1-30-18	Excellent
L. W.	50	1-29-19	Good
J. A.	38	6-13-18	Excellent
M. A.	59	3-11-18	Good
M. R.	62	10-6-17	Excellent
L. H.	57	4-16-19	Improved
S. S.	62	12-7-17	Excellent
J. S.	62	1-2-18	Good
M. M.	50	7-7-17	Excellent
A. S.	52	11-14-17	Poor
M. F.	48	2-4-18	Improved
J. B.	40	9-15-17	Excellent
M. S.	28	4-18-17	Poor
S. S.	60	1-26-18	Excellent
G. H.	41	9-8-15	Excellent
J. B.	69	1-28-19	Good

In short, there were at least thirteen good results out of seventeen, or about 75 per cent. Most astonishing was the "cure"—for thus the patient styles it—obtained in a man (J. A.) who had had complete urinary retention for five months, who had been pronounced as having a paralytic bladder and regarded as incurable by competent urologists, and who acquired complete restoration of function after the excision of the inferior sphincteric margin.

ABSTRACT OF DISCUSSION

Dr. HEN H. YOUNG, Baltimore: We are indebted to Dr. Buerger for a very clear presentation of this very important subject. Attention was called to this condition by some of the very early urologists in America, but for many years it was lost to sight, except, perhaps, to a very few men. It is unquestionably a far more common condition than is usually thought to be the case. Many young men do not realize that they have obstructions from which they get great relief after operation. The condition, as we have found it, is more varied and more multiple than has been described by Dr. Buerger. In more than 200 cases we have operated and found lesions exactly such as he found, and many other types of lesions besides. We found cases that are congenital, unquestionable muscular hypertrophies, in addition to the fibroid type. More important than all is the fact that we found them situated in other places, around the prostatic orifice, and not posteriorly, so that the operation suggested here would not, in my opinion, rectify many of the cases one sees. It has been a mooted question for many years what we should call this condition. All sorts of names have been suggested. No one name will cover all conditions. Contracture of the neck of the bladder certainly does not meet the emergency. Whether an enlargement is a contracture or not I cannot say. Dr. Buerger has devised the best way of getting specimens. He has given us a good pathologic study. As to the necessity of doing that operation, I am in doubt, because removing the posterior part, and possibly part of the

trigon, of that region, will not cure the condition in many cases. We have to make multiple excisions, very frequently anterior, not infrequently posterior, and laterally as well. The punch operation, has been very satisfactory in a large majority of cases, but more than one cut is necessary, and an anterior cut is often as necessary as the posterior. The amount of tissue that can be removed in that way is really very extensive. It is certainly better than the rongeur operation done through the suprapubic region. Recently we modified the operation somewhat by the use of a spear which is first introduced and prevents the tissue from slipping out. That has made the operation more effective where there is a bar, enlargement, hypertrophy or valve. A careful cystoscopy, feeling with the finger in the rectum, is very important in diagnosis. Of course, the punch operation may be followed by hemorrhage. It is possible to stop it by the use of a retention catheter.

Dr. WILLIAM C. QUIMBY, Boston: I have been studying the material from this type of case by means of special staining methods in an endeavor to differentiate the pathologic elements present, and from this I quite agree with what Dr. Buerger says in regard to the wide variation of pathologic tissue found in the region of the internal bladder sphincter. The symptom which this difficulty causes is almost invariably of an obstructive nature. It is rare, in other words, to find symptoms due to inflammatory processes, of which dysuria is a prominent example. Nevertheless, I feel from examination of the histologic material that the most probable cause for the sclerosis and fibrous tissue present is a previous inflammation. For, as Dr. Buerger has shown, one does not get the material until the inflammation has passed, when all that remains is the result of the storm that has gone before. Those cases where glandular elements and hypertrophies are found are not under consideration for the moment because these are more analogous to the middle lobe hypertrophies. In regard to operation: I have recently been following the type of operation which Dr. Buerger described. I have used Dr. Young's punch, and also Dr. Braasch's punch, and while by both of these instruments the punch can be made well, my endeavor has been actually to palpate the condition at the neck of the bladder and see by ocular inspection what it is. An operation may then be planned according to what is found. I came to this conclusion independently, finding, as Dr. Young has said, that frequently these obstructive conditions are not on the floor of the urethra, or in the prostatic urethra, but are either lateral or anterior. I feel that I can do much toward freeing the neck of the bladder if, after dilatation of the posterior urethra, I can feel the tissues between the index finger and thumb, and thus estimate the degree of distensibility of the internal bladder sphincter. When it is definitely indurated and sclerotic, I remove it. Sometimes this may only involve one small area, such as would be represented by one centimeter or one half a centimeter; sometimes the necessary removal is more extensive. Therefore, I feel that until I learn more about what the exact underlying pathologic condition is, I prefer to see it and examine it by the suprapubic operation rather than through an intra-urethral instrument.

Dr. OSWALD S. LOWSLEY, New York: I wish to congratulate Dr. Buerger in calling our attention to this procedure. In the past we have paid too little attention to the small stricture at the vesical orifice. Dr. Buerger's operation is especially applicable to those cases in which we formerly used Chtwaj's operation. By this procedure you do not destroy the sphincters. One sphincter can be destroyed, provided the other is not injured; then no incontinence will result. Destruction, even temporary, of both sphincters, may result in permanent incontinence. Dr. Buerger recently reported a case of stricture following his operation. We had one at Bellevue Hospital following an operation by Dr. Keyes. I imagine that stricture occurred because Dr. Buerger cutured the neck of the bladder up after his operation. If not, I would like to have him explain the reason. The stricture we had was very tight, and quite a serious affair. It required a great deal of effort to relieve the situation. Dr. Keyes removed a sclerotic prostate. We do not yet know

whether the man is cured. I operated on one patient, using this method, with rather a bad result, but that was not entirely the fault of the operation; it was probably the fault of the bad general condition of the patient. The wound did not heal rapidly and broke down suprapubically repeatedly, in spite of the fact that the drainage tract was high. This patient should not have been operated on by this method. I am still very enthusiastic about the Young punch operation. I think in most cases, except a few selected ones, the punch does all that is required, whether the tumor be situated on the floor of the vesical orifice or in the roof.

Dr. H. G. HUGBEE, New York: About eight years ago I attempted to burn out this constricting tissue with the high frequency spark and found that when the stricture was caused by fibrous tissue it took too long a time to carry out this method and that the incisions were not deep enough. For the past three or four years I have been using the punch with complete satisfaction. I have had two recurrences. I did not make enough excision. The second time I took out sections anteriorly, and distinctly felt the ring give way. In both cases we have obtained excellent results. Several of these patients had such a hard prostate that I felt, before operating, that they probably had a carcinomatous ring, but the pieces we removed with the punch showed only fibrosis. The punch is an exceedingly satisfactory operation, in these cases where the constriction is due to a ring of hard fibrous tissue. I have not had any serious complication from hemorrhage. I use a large lisle thread, straight or single catheter, and I occasionally clear out the catheter during the first twenty-four hours. This is all that is necessary. I rarely leave it in three days.

Dr. ALEXANDER RANDALL, Philadelphia: Dr. Buerger's illustrations picture very accurately the fibrosis and the changes it occasions at the vesical orifice, with the contracture, the drawing together, or pinching together, of the vesical trigon, and that deep cleft formation across it. This is one form of obstruction. But there is a second direction in which this same fibrotic process can exert itself, and this he does not picture. This second form seems to exert its influence entirely within the prostatic urethra. The same contracture occurs with, however, a shortening of the distance from the vesical orifice to the verumontanum. The trigon is unchanged, and the suprapubic picture is unchanged, which is probably the reason Dr. Buerger has missed it. It is best appreciated by the study of postmortem specimens, and when once understood can be diagnosed clinically by cystoscopic study. Dr. Quimby's remarks about the careful study of the orifice before deciding on the form of operation are pertinent, though I feel that this is done better by careful cystoscopic study before operation is considered, than at the time of operation. Dr. Buerger's glandular hypertrophy type of obstruction, which his illustrations show very clearly, is the third form of obstruction, and as he has said originates from an entirely different pathologic process. In speaking of the difficulty of selecting a name for this clinical condition, whose pathology is so varied, and yet whose symptomatology is always the same, we must be careful not to select a name essentially descriptive of some special pathologic process, such as "contracture" or "sclerosis," which does not cover the need when we know that frequently inflammation or hypertrophy are the causative factors. For this reason I have always adhered to the original title given by Guthrie of "median bar formation," a clinical, not pathologic, term under which the various known types or forms can be grouped. Zuckerkandl often spoke of these conditions as prostatic hypertrophy in miniature. I realize that Dr. Buerger has purposely passed over the question of the cause of this fibrosis, however, I would like to ask him if he will give us his ideas as to why it takes on this peculiar, localized, limited pathologic process, and whether he has found it associated at any time with fibrotic changes elsewhere in the body.

Dr. LEO BUERGER, New York: I am sorry that some of the speakers still retain the impression that I believe that neoplastic tissue forms an obstacle and that this is the cause of the symptoms in these cases. On the contrary, I believe that

the clinical and secondary pathologic phenomena are produced by coaction of the sphincter, and that complicating fibro-adenomas obstructive lesions play but a subsidiary rôle. I wish to emphasize that the presence of a bar, or fibro-adenomatous nodule is not essential, for neither lesion is present in some of the worst cases. The essential thing is the fibrosis, be it inflammatory, involuntional or arterio-sclerotic in nature in and about the sphincteric region and adjoining prostate. I believe there is often a fibrosis of this whole sphincteric and prostatic region and it is this that permits urine to leak into the posterior urethra and give symptoms of urinary frequency. When doing my operation by which the sphincteric floor is excised not because it presents an obstructing obstacle but because it is anatomically the only mobile part of this region that lends itself to attack, you will find that as soon as you force your finger into the sphincter, a tear will occur which is not so in the normal. The sphincter floor is the proper place for excision also, because it gives access to the fibrotic prostate and permits of the removal of adventitious small prostatic adenomas and fibrotic tissue. Regarding Dr. Randall's question as to the nature of fibrosis, I believe that the true fibroses are of two kinds pathologically, primarily inflammatory and primarily fibrotic. The first are the result of old or still active inflammatory processes, the second are due either to arterio-sclerosis or the accompanying degenerative alterations that go with the involution changes occurring in this region.

TACHYCARDIA FOLLOWING INFLUENZAL PNEUMONIA \*

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In many of the patients at Camp Travis, the pulse rate increased from 80 to 100, or even 120, per minute during the convalescing period of influenzal pneumonia. The pulse curve in these men showed that this increase in pulse rate began at the time they were first allowed on their feet. Frequently it was so marked that they were ordered back to bed. Others who had been discharged from the hospital to quarters or duty were returned for observation. Some complained of shortness of breath, weakness, dizziness, and palpitation of the heart on exertion. The point of especial interest was whether the influenza had produced some organic disease of the heart, such as myocarditis, or had merely served to bring into the open tachycardias that otherwise might have gone unnoticed. This report is based on the study of ninety-five such men. They were observed from the standpoint of (1) the myocardium and (2) the autonomic nervous system.

METHOD OF STUDY

The histories of the men were carefully taken down. The points considered were (1) the family history, as relating to alcoholism, neurosis, insanity and tuberculosis; (2) general health in childhood, as pertaining to illness with acute infectious diseases, and response to games; (3) occupation in civil life, whether sedentary, light, moderate or heavy, and its effects; (4) military training, in respect to its duration, and the men's response to drill, hikes and double time, and (5) the present symptoms, with regard to their date of onset and the occasion under which they arose. The taking down of the history was followed by a physical examination and the routine laboratory work. In the physical examination, special attention was given to the condition of the lungs and the heart. Those men in whom there were evidences of delayed resolution were trans-

ferred to other wards and not included in our figures. In none was there any departure from the normal in the urine, blood counts (including the differential) or in the blood pressure readings.

ANALYSIS OF CASES

*Irritable Heart.*—Thirty-six patients (37.8 per cent.) of the ninety-five studied gave a history of having had the symptoms of an irritable heart prior to their entrance into the army. In every instance these symptoms had been markedly aggravated by their recent illness. They were the men who, after having been discharged from the hospital to quarters, were returned because of the marked tachycardia, shortness of breath, weakness, dizziness, and palpitation of the heart on exertion.

These men were analyzed from the standpoint of possible etiologic factors that existed in civil life. The results are shown in the accompanying table. Twenty-one (58.3 per cent.) were, or had recently been, hookworm positive. Four (11.1 per cent.) had the physical and the roentgen-ray findings of a chronic inactive pulmonary tuberculosis. Two of these tuberculous men were also positive for hookworm. Two (5.5 per cent.) gave a history of having had malaria practically every fall of their childhood life. They stated that they had always been weak. Three (8 per cent.) had the physical and the roentgen-ray findings of chronic bronchitis. This condition, from the history, had been present for years; tuberculosis was suspected but not proved. Five (13.9 per cent.) had families in which two or more members were highly neurotic.

TABLE 1—HISTORY OF THIRTY-SIX PATIENTS WHO HAD HAD SYMPTOMS OF AN IRRITABLE HEART

Affection	No. of Cases
Hookworm	21
Chronic inactive pulmonary tuberculosis	4
Chronic malaria in childhood	2
Chronic bronchitis	3
Alcoholism	1
Neurotic families	5
Total	36

*Hypersensitive Nervous System.*—Thirty-eight (40 per cent.) of the ninety-five men studied had what may be called a hypersensitive nervous system. We were unable to find a physical basis for their tachycardia. They were of a nervous temperament and responded readily to any external stimuli. They had a marked vasomotor instability, perspired freely, and in all respects, from a physical standpoint, presented the symptoms of an irritable heart, except that they had a greater tolerance for work. A majority of them had, to their knowledge, a rapid pulse in civil life. Not a few of them had been held up temporarily by the examining board at the time of their entrance into the army. They, however, had had no symptoms following strenuous exercises and had been admitted. They had all responded well to their military service. Following influenza, however, a few complained of weakness, shortness of breath, and palpitation of the heart on exertion, for a period of from five to six weeks.

*Hyperthyroidism.*—Twenty (21 per cent.) of the ninety-five patients studied are under observation for hyperthyroidism. The results of this work will be given in a later report.

*Organic Heart Disease.*—The diagnosis of acute myocarditis was made in only one instance in the ninety-five cases studied. The course and physical findings of the patient differed markedly from that of

\* From the Medical Service, Base Hospital, Camp Travis, Texas.

the other men. He had a pulse rate of 140 per minute, a definite cardiac enlargement, and a blowing systolic murmur at the apex which was transmitted to the axilla. These findings were associated with shortness of breath, palpitation of the heart, and a feeling of exhaustion on exertion. These symptoms disappeared on rest in bed. The left cardiac border receded to the midclavicular line, the murmur decreased in intensity, and the pulse rate came down to normal.

This was in sharp contrast to what occurred with the remaining ninety-five men. In them the pulse rate did not decrease with rest in bed, nor did their symptoms improve under these circumstances. They were given graded exercises regardless of their tachycardia. Had their symptoms been due to a weakened myocardium, it hardly seems possible that they would have subsided on the type of exercises that was given; for a man's response to exertion may be regarded as the best test of his cardiac efficiency. The fact that the pulse rate of these men decreased on exercise, and that there was no change in the cardiac findings from the standpoint of murmurs and enlargement, justified us in believing that there was no organic heart disease.

#### GRADED EXERCISES

All the men except the one with acute myocarditis were given the graded exercises, as outlined by Lewis.<sup>1</sup> They were assured that they had no cardiac disease and would in time be as strong as ever. At the end of four weeks, all with the exception of four were getting a thirty-minute period of strenuous exercise twice daily, and in addition doing from a 3 to a 4 mile hike. They contended that they felt as well as ever. The pulse rate had decreased, and all had gained in weight. Some were heavier than they had ever been before in their lives. Those men who had had irritable hearts in civil life gained the most slowly. Greater care was taken in advancing the grade of their exercise. The four men who had the physical findings of a chronic inactive pulmonary tuberculosis were even slower than the rest in regaining their tolerance for work. Possibly, in many of these men there would have developed a severe type of irritable heart had they not been carefully handled. In this connection it should be added that those men who had recently been hookworm positive had had treatment. This might have been a factor in the rapid increase in strength of some of these men.

#### REPORTS FROM OTHER CAMPS

The necropsy reports from other camps are in accord with our findings. They are uniform in that few cardiac complications were observed. Hall, Stone and Simpson,<sup>2</sup> at Camp Logan, reported no cardiac complications in thirteen necropsies. Blanton and Irons<sup>3</sup> observed one case of acute myocarditis and three of acute dilations in 123 necropsies at Camp Custer. Synnott and Clark,<sup>4</sup> at Camp Dix, noted no cardiac complications other than a slight dilatation of the right heart. The number of necropsies was not given. Friedlander, McCord, Sladen and Wheeler,<sup>5</sup> at Camp

Sherman, reported twenty-three necropsies, noting slight dilatation of the right heart as the only cardiac complication. Nuzum, Pilot, Stangl and Bonar<sup>6</sup> saw one acute dilatation of the right heart in forty necropsies at the Cook County Hospital, Chicago. Strouse and Bloch<sup>7</sup> reported 500 cases, emphasizing the infrequency with which the myocardium was involved, as judged by clinical evidence. The reports of a detailed study of the morbid anatomy by a number of German authors,<sup>8</sup> based on the study of 174 necropsies, bear out the findings in this country. Twenty-five necropsies were performed at Camp Travis. Dilatation of the right heart was recorded in six instances, and in these hearts there was also hypertrophy of the left ventricle. This would indicate that previous damage to the heart muscle existed. The objection might be raised that microscopic examinations were not reported. It is possibly true that pathologic changes sufficient to cause serious disturbance in later life could have been easily overlooked by the naked eye. Those hearts that we studied microscopically at Camp Travis showed no significant pathologic condition.

#### ATROPIN TEST

The inhibitory action of the vagus was tested in fifty men by the administration of atropin. This was given in doses of  $\frac{1}{33}$  grain, as described by Morris,<sup>9</sup> and later by Mason,<sup>10</sup> in their work on typhoid. The patients were put to bed in a quiet room and allowed to remain until the pulse rate became constant. They were then given  $\frac{1}{33}$  grain of atropin in sulphate hypodermically in the upper arm. The reaction began usually within from fifteen to twenty minutes, and lasted from forty to sixty minutes. The height of the reaction was reached about forty minutes following the injection. Mason states that in most normal persons the pulse rate increases from twenty to forty per minute following the administration of  $\frac{1}{33}$  grain of atropin. Nineteen of the fifty men given the test had an increase in pulse rate of from 1 to 12 over the initial rate; twenty-one, from 20 to 30, and the remaining ten, from 30 to 40. According to the work of Morris and Mason, the results in the nineteen instances possibly suggest a hypotonic vagus nerve. Some of these men, however, had had, to their knowledge, a rapid pulse in civil life. In these cases we are not justified in assuming that the recent illness had had much influence on the action of the vagus nerve. Even in the remaining cases we have no basis for assuming that the action of the vagus nerve resulted from the influenzal pneumonia. It might have resulted from some infection in childhood, as diphtheria, or even have been a normal response for them.

#### EPINEPHRIN TEST

The same fifty men were given threshold doses of epinephrin. The method employed was that devised by Goetsch.<sup>11</sup> The men were put to bed in a quiet room. The pulse and blood pressure readings were taken

1. Special Report of the British Medical Research Committee, Series L, p. 111.  
2. Hall, J. N., Stone, M. C., and Simpson, J. C.: Epidemic of Pneumonia at Camp Logan, Texas, J. A. M. A. **71**: 1562-1566 (Nov. 9) 1918.  
3. Blanton, D. G., and Irons, E. E.: A Recent Epidemic of Respiratory Infection at Camp Custer, Mich., J. A. M. A. **71**: 1988-1992 (Dec. 14) 1918.  
4. Synnott, M. J., and Clark, Albert: Influenza Epidemic at Camp Dix, J. A. M. A. **71**: 1816-1821 (Nov. 30) 1918.  
5. Friedlander, Alfred, McCord, C. P., Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1567-1566 (Nov. 19) 1918.

6. Nuzum, J. W., Pilot, Isadore, Stangl, F. H., and Bonar, B. E.: Pandemic Influenza and Pneumonia in Large Civil Hospital, J. A. M. A. **71**: 1562-1565 (Nov. 9) 1918.  
7. Strouse, Solomon, and Bloch, Leon: Notes on the Present Epidemic of Respiratory Diseases, J. A. M. A. **71**: 1568-1571 (Nov. 9) 1918.  
8. Influenza: Abstracts of Foreign Literature Compiled by British Medical Research Committee, J. A. M. A. **71**: 1573 (Nov. 9) 1918.  
9. Morris, E. A.: Brit. M. J. **2**: 717, 1916.  
10. Mason, E. H.: Atropin Test in Typhoid Fever, Arch. Int. Med. **21**: 1 (Jan.) 1918.  
11. Goetsch, E.: Newer Methods in the Diagnosis of Pathologic and Clinical Thyroid Disorder, New York State J. M. **18**: 259 (July) 1918.

until they became constant. An injection of 5 c.c. of a 1:1,000 solution of epinephrin was made into the deltoid muscle. Records were made of the pulse and the blood pressure every two minutes for ten minutes, and then every five minutes for one hour. Following this, observations were made at intervals of ten minutes for one-half hour.

A reaction was not considered positive unless there was an increase in the pulse rate and the blood pressure of more than from fifteen to twenty points, accompanied by marked tremor of the hands, nervousness, palpitation of the heart and increased arterial pulsation.

Twenty-five of the fifty men were sensitive to small doses of epinephrin. These men had given what is considered a normal reaction to the atropin test. The same factors should be taken into consideration in the explanation of the results of the epinephrin test, as in explanation of those from the use of atropin. The fact that we do not know the reaction these men would have given prior to the influenzal pneumonia will not permit us to draw conclusions from the test as to the effects of this illness on the sympathetic nerve.

SUMMARY AND CONCLUSIONS

1. Ninety-five cases were studied. The diagnosis of acute myocarditis was made in one instance. As far as we were able to determine, organic heart disease was not the basis of the tachycardia in these men.

2. Thirty-six men (37.8 per cent.) gave a history of having had an irritable heart in civil life. These symptoms were aggravated by their recent illness. A possible etiologic factor was found in thirty-one of these cases.

3. In thirty-eight men (40 per cent.) no physical basis was found for the tachycardia. A majority had, to their knowledge, a rapid pulse in civil life.

4. Twenty men (21 per cent.) are under observation for hyperthyroidism. The results of these observations will be given in a later report.

5. Fifty men were given the atropin and the epinephrin tests. The results in nineteen suggest a hypotonic vagus nerve, and in twelve a hypersensitive sympathetic nerve. These men might, however, have given the same reaction to these tests prior to their influenzal pneumonia.

6. The graded exercises were of distinct value in estimating the state of the myocardium and in improving the general condition of these men.

122 South Michigan Avenue.

**Deer Fly Fever, or Pahvant Valley Plague.**—In recent years there has occurred among the rural population of Millard County, Utah, a disease initiated (according to popular belief) by a fly bite on some exposed surface of the body and manifested by the enlargement of the lymph glands which drain the bitten area and by a fever of a septic type lasting from three to six weeks. The site of the bite and the affected lymph glands become tender and inflamed, and they commonly suppurate. There is marked prostration and the patient is confined to his bed. The first case known to have terminated fatally was reported in 1919. The Surgeon-General of the U. S. P. H. Service detached Dr. Edward Francis to investigate this new disease. Cultures made on ordinary laboratory mediums from the lesions of animals dying from the disease were negative; but cultures made on coagulated egg yolk yielded a growth of a small nonmotile coccobacillus. These cultures reproduced the lesions of the disease in guinea-pigs. It is believed that this organism is the *Bacterium tularence*, first described by McCoy and Chapin in 1912.

TOXIC JAUNDICE FOLLOWING "INTENSIVE" ANTISYPHILITIC TREATMENT

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With the advent of the so-called intensive treatment of syphilis by the administration of arsphenamin, the subject of toxic jaundice has become one of practical importance. This is particularly so, in view of the fact that, while many hundreds of doses of the drug may be given without apparently the slightest ill effect, there do appear to be conditions under which the drug has a powerful toxic action on the liver cells, and an intense degeneration occurs with fat deposit in the liver and kidneys in fatal cases.

After the administration of arsphenamin, some slight symptoms due to the direct toxic action of the drug are generally produced, such as nausea or vomiting, transient diarrhea, and a temperature rise of 1 or 2 degrees. These symptoms usually last for a few hours, and no others occur. Very infrequently, however, after a period of three or four days, symptoms of a profound toxemia develop. The patient presents an abnormal mental condition: irritability and delirium rapidly progressing to unconsciousness, with perhaps convulsions and Cheyne-Stokes respiration. Jaundice may or may not appear. Death usually results in from two to three days. This accident is liable to occur following a single dose of the drug. This condition is explained by William H. Wilcox,<sup>1</sup> in his Lettsomian Lectures on jaundice, as undoubtedly due to an auto-intoxication such as occurs in acute yellow atrophy of the liver. This group of apparently delayed symptoms should be carefully distinguished from those of acute arsenical poisoning, in which we have vomiting, diarrhea, skin rashes, etc. When these symptoms occur after the giving of arsphenamin they are probably caused by impurities in the product or by its decomposition.

There is an additional class of cases whose frequency of occurrence we are now recognizing. These occur at variable lengths of time following the administration of large doses of the drug with a short interval of time between doses. In the so-called intensive treatment, from 0.4 to 0.6 gm. are given at weekly intervals over a period of from six to eight weeks. After a rest of one month, the course is repeated.

During the past few weeks we have been able to observe three cases of toxic jaundice, one of which was fatal, following the intensive administration of arsphenamin. All of them occurred in young adult males. All three patients gave a negative history of previous liver involvement, and each was surrounded by every safeguard possible, namely, physical examination, including urinalysis previous to each injection

REPORT OF CASES

**CASE 1.**—*History.*—Private P., enlisted in the army at Jefferson Barracks, Mo., Sept. 26, 1916. The date of his exposure to syphilis is not definitely known. The date of the primary lesion is Dec. 25, 1915. Jan. 1, 1917, there is

<sup>1</sup> Wilcox, W. H. Brit. M. J. 1:439 (May 24, 1919).

a record of multiple sores on the foreskin of the penis. There is no record of any secondary lesions. The serum reactions as recorded on the syphilitic register are shown in Table 1. The treatment given, as recorded in the register, is shown in Table 2. The mercurial medication was:

Jan. 1 to April 5, 1917, mercurial unctio, dose 5 gm., time 115 days. During the months March and April, 1919, the patient had thirty rubs of mercurial ointment. The amount in each rub is not given. The arsenic preparation

TABLE 1.—SERUM REACTIONS IN CASE 1

Date	Place	Reaction
Dec. 24, 1916	Dept. Hospit. H. S. Okla. ....	+ + +
April 1, 1917	Dept. Hospit. H. S. Okla. ....	+
July 7, 1917	Dept. Hospit. H. S. Okla. ....	+
Nov. 28, 1917	Dept. Hospit. H. S. Okla. ....	++
April 19, 1918	Dept. Lab. S. Okla., Dept. ....	++
March 18, 1919	B. S. H. S. Okla., Fort Sill, Okla. ....	++
May 17, 1919	Base Hospit., Fort Sill, Okla. ....	—

used was that put out by the government under the name of "arsenoloid" or "arsphenamin."

The patient was admitted to the post hospital, Fort Sill, Okla., May 2, 1919, aged 23 years. Time of service, two and one-half years. Feb. 6, 1918, a gun exploded and one of the missiles struck the patient in the lumbar region. This produced a severe contusion. The convalescence continued over a period of six months. During this time he complained of pain in the back which was worse at night and when he stooped over. He noticed a decrease in lifting power. The pain had never entirely disappeared. At the end of six months spent in quarters the patient went to work, but kept complaining of pain in his back. From July, 1918, till his admission to the hospital he had in a way been able to stay on duty.

**Physical Examination.**—On entrance into the hospital, the general condition was good, and aside from a slight tenderness on each side of the second, third, fourth and fifth vertebrae, the patient was marked negative. Temperature, pulse and respiration were normal. The roentgenologic examination of the kidneys, the ureters and the lumbar vertebrae failed to demonstrate any definite pathology.

**Clinical Course.**—From May 2 to 7, 1919, the patient was under observation on the medical service, and a provisional diagnosis of myalgia of the lumbar muscles was recorded. About May 8, the patient began to complain of severe pain in the left renal area with radiations down along the course of the ureter. A tentative diagnosis of pyelitis was recorded. With the exception of May 4, when the temperature was recorded at 100, there was no rise of temperature till May 23.

May 21, the patient complained of loss of appetite and some nausea, but did not vomit. The pain in the left upper

TABLE 2.—ARSPHENAMIN TREATMENT IN CASE 1

Date	Dosage (Gm., Intravenously)
Jan. 3, 1918	Ar. phenamin ..... 0.6
Feb. 2, 1919	Ar. phenamin ..... 0.5
Feb. 4, 1919	Ar. phenamin ..... 0.6
Feb. 11, 1919	Ar. phenamin ..... 0.6
Feb. 18, 1919	Ar. phenamin ..... 0.6
March 22, 1919	Ar. phenamin ..... 0.5
March 24, 1919	Ar. phenamin ..... 0.4
April 1, 1919	Ar. phenamin ..... 0.5
April 18, 1919	Ar. phenamin ..... 0.6
Total	4.9

quadrant remained unchanged. May 22, the condition was recorded as unchanged. May 23, the temperature was elevated, a. m., 99.2; at 4 p. m., 103; at 7 p. m., 103.3. The patient complained of a chilly sensation, and was more nauseated than on previous days. The patient did not vomit. Other signs and symptoms were negative. May 24, the temperatures recorded were: 6 a. m., 100; 10 a. m., 101; 1 p. m., 103; 4 p. m., 102. May 25, there was no change in the general condition of the patient. The temperature was a little lower than the previous day, a very slight jaun-

dice appearing. May 26, the jaundice was noted as rapidly increasing in intensity. The patient vomited about 6 ounces of dark coffee-ground vomitus. From then on till death the patient continued to vomit at various intervals. The time between the intervals was usually about three to four hours. The amount of the vomitus varied from 4 to 6 ounces. It had the same characteristics as the first specimen. During the morning of May 27, there was no change in the general condition of the patient. The vomiting, however, continued and toward evening the patient started to hiccup. May 28, the jaundice increased and the vomiting was unchanged. The patient complained that he was unable to see more than 3 or 4 feet and distinguish objects definitely. His mentality became sluggish. Now and then, periods of delirium intervened. The patient vomited and hiccuped almost continuously. Blindness became complete. Cold perspiration stood out over the entire body. The patient was in a dying condition. On the morning of May 29 the patient was wildly delirious and completely unconscious. This continued till about 1 p. m., when he died.

The record of the urinary findings on the various dates is shown in Table 3.

The special tests carried out on the urine after the patient developed the jaundice all betrayed the presence of bile. The tests that were carried out for the presence of arsenic were all negative.

TABLE 3.—RECORD OF THE URINARY FINDINGS IN CASE 1

Date	Macroscopic			Alb.	Microscopic		
	Sp. Gr.	React.	Acid		Sugar	Mucus	W.B.C.
5-19-19	1.025	Acid	—	—	—	—	—
5-15-19	1.028	Acid	—	—	—	++	—
5-17-19	1.018	Acid	—	—	—	++	—
5-18-19	1.026	Acid	Trace	—	—	—	Hyaline
5-19-19	1.031	Alkaline	—	—	—	+	—
5-20-19	1.035	++	—	—	—	++	Phosp.
5-23-19	1.039	+	—	Trace	—	++	—
5-24-19	1.042	Neut.	Trace	—	—	+	Phosp.
5-27-19	1.040	Alkaline	—	—	—	+++	—

TABLE 4.—WHITE BLOOD CELL STUDY, CASE 1

Date	Total	Polymorphonuclears (Percentage)
5-2-19	8,800	80
5-20-19	8,600	70
5-24-19	10,200	80
5-26-19	6,800	70
5-28-19	6,400	70

**Necropsy.**—The pathology will be touched on only as it is considered of a positive nature and in relationship to the diseased condition. Externally there was nothing noticeable except the deep jaundice. On opening up the abdomen it was seen that most of the viscera were studded with small hemorrhagic areas. They varied in size all the way from that of the head of a pin to that of a dime. In the intestine they were beneath the serous coat, while in the kidney and the liver they were beneath the capsule. None had discharged their contents into the abdomen. The liver was about normal in size and of a yellowish mottled appearance much like the so-called nutmeg liver. It was fairly firm, and cut with leather-like resistance. The cut surface oozed blood freely. The capsule was not wrinkled. The left kidney showed an area about the size of a silver dollar that was deep red and contained many coalescing hemorrhages. The stomach, the heart and the lungs were studded with the same type of hemorrhages.

To give in detail the histopathology of the various structures examined would yield very little additional information to that which may be gained by detailing the changes that occurred in the viscera most violently attacked, namely, the liver, and by simply naming the conclusions drawn from the study of the various structures that showed lesions.

The entire structure of the liver was involved to such an extent, and the architecture was so much distorted, that it was difficult to distinguish clearly the various structures concerned in the make-up of the hepatic lobule. It was seen

that certain areas, or rather holes in certain areas, were set off at varying distances from each other. The membrane lining these holes or probable vessels was frayed out and indistinct. Immediately adjacent to this vessel was a zone of rather homogeneous substance that bore a semblance to hepatic tissue. Surrounding this zone was still another zone in a much more advanced stage of degeneration. Leucin and tyrosin crystals were numerous. The interlobular connective tissue presented only indefinite lines that held together the remnants of the hepatic lobule.

The vessel was thought to be the interlobular or afferent vein. The farther away from this vessel one studied, the more necrosis was found. This would yield a picture suggestive of that indefinitely defined group of hepatic changes

TABLE 5.—SERUM REACTIONS IN CASE 2

Date	Place	Reaction
5-21-1918	Dept. Laboratory Southern Dept	++++
1-14-1919	Base Hospital Fort Sill, Okla.	++++
3-31-1919	Base Hospital Fort Sill, Okla.	++++
4-8-1919	Base Hospital Fort Sill, Okla.	+
5-19-1919	Base Hospital Fort Sill, Okla.	—

classed with the acute yellow atrophies. A study of the cells under higher magnification disclosed many of the cells with a poorly stained nucleus and a finely granular cytoplasm. Other cells showed the more advanced stages of degeneration. Sections were stained with the special stains for fat. The attempt to demonstrate the presence of fat was not successful.

A section of the liver was subjected to the various tests for the presence of arsenic. Both this laboratory and the department laboratory failed to demonstrate the presence of the metal in the tissue examined.

*Conclusions Drawn from the Various Pathologic Findings*

Spleen: (a) Acute splenic tumor; (b) diffuse pigmentation of the spleen.

Kidney: (a) Acute tubular nephritis; (b) hemorrhagic nephritis (multiple foci).

Liver: (a) Massive necrosis of the liver cells (acute yellow atrophy); (b) diffuse pigmentation of the liver tissue.

Heart: Localized myocarditis.

Stomach: Hemorrhagic gastritis (multiple foci).

Mesentery and Omentum: Multiple hemorrhagic foci.

Lungs: (a) Hypostatic congestion; (b) hemorrhagic pleurisy (multiple foci).

CASE 2.—*History*.—Private O. P. entered the service, April 13, 1917, at Fort Sill, Okla. His previous history was neg-

*Clinical Course*.—The patient was admitted to the hospital at Fort Sill, Okla., May 13, 1919, aged 24. Length of service was two years. Six days before coming to the hospital the patient traumatized his penis. The injury was not very painful, so he postponed coming to the hospital as long as convenient. On examination he presented a slight tear of the foreskin. This was the only mark on the penis. The patient was kept in the hospital for treatment. May 22, which was about thirteen weeks after the course of treatment, the patient developed jaundice. According to the notes on the physical examination taken at this time, the chest was negative. The abdomen was soft. There were no masses; there was no tenderness and no rigidity. The liver appeared normal in size. There was no tenderness over the liver area. The spleen was not palpable. The clinical course of this case was a close parallel to the one already described in detail, except that the vomiting and hiccuping stage was not reached, as the patient recovered. The jaundice was as deep as in the first case. The convalescence was sluggish but was not interrupted by recrudescence or relapse. The patient was discharged from the hospital, July 1, 1919, apparently well. The jaundice having faded away entirely, he was considered over the attack.

A daily examination of the urine was made and recorded, but in this brief summary it is not necessary to enter it. The albumin finding was positive on every analysis. Sugar was never found. Bile was found in all the examinations except the last four. White blood cells were found constantly. Pns cells were present occasionally. Hyaline and granular casts were present in variable numbers through the entire course.

The blood findings are shown in Table 7.

TABLE 7. BLOOD FINDINGS IN CASE 2

Date	White Blood Cells	Hemoglobin (Per cent.)
6-31-1919	8,600	75
6-13-1919	7,200	75
6-16-1919	8,800	80
6-4-1919	6,300	85

Special tests were being tried again and again to demonstrate the presence of arsenic in the urine, but without success.

CASE 3.—*History*.—Private J. B. entered the hospital, May 14, 1919, complaining that he had been suffering for the previous week with a dull aching pain in the lumbar region, the legs and the arms. The pain was of a continuous nature and worse at night. Along with the pain there had been much headache, nausea and dizziness. The patient was held under observation, as it was thought that there was a possibility of a beginning case of cerebrospinal syphilis. Subsequent study did not substantiate this hypothesis. This obscure condition changed very little between May 14 and 23, May 24, however, the patient developed a slight jaundice. The course from then on was more definite. The jaundice rapidly deepened. The nausea gave way to a few paroxysms of vomiting. Dizziness was very pronounced, and vision became clouded. The patient remained in this condition for about ten days, when he began to improve. The nausea ceased. The pain in the back, arms and legs subsided. The headache stopped. The appetite returned and the jaundice began to fade. The eyesight cleared up and the patient was better in every way. The convalescence was not rapid, nor was it stormy. July 1, he was discharged to quarters to complete his convalescence. The jaundice was not entirely gone from the skin.

*Urinalysis*.—The urine was analyzed every other day over a period of more than a month. During all this time the albumin factor was constant. Never was there a trace of sugar present. The analysis of the urine for bile was started, June 1, and continued till June 27. During this time bile was a constant factor save for the last four analyses. Urinary casts in this case were not a constant factor. When they were present they belonged to the hyaline and the granular variety.

TABLE 6. ARSPHENAMIN TREATMENT IN CASE 2

Date	Arspheamin Dosage (Gm., Intravenously)
5-14-1918	0.3
5-18-1918	0.3
5-24-1918	0.4
6-3-1918	0.6
7-30-1918	0.6
8-20-1918	0.6
9-10-1918	0.6
1-17-1919	0.5
1-24-1919	0.5
1-31-1919	0.6
2-7-1919	0.6
Total	5.6

ative for syphilitic taint in every form. There was no history of illness referable to hepatic origin. The patient was exposed to syphilis some time in March, 1918. About a month later he noticed a little insignificant painless ulcer on the dorsum of the penis. In May, 1918, secondaries appeared in the nature of skin rashes over the arms and the chest.

Serum reactions as recorded on the syphilitic register are shown in Table 5. The treatment given as recorded in the register is shown in Table 6. During the months of May, June and October, 1918, and January, 1919, the patient received injections of mercurial ointment in dram doses daily for periods of thirty days.

The blood study was repeated again and again, but at no time did the white blood count go above 8,200 and no time below 6,000. The hemoglobin ranged between 60 and 85 per cent.

The arsenical treatment in Case 3 is shown in Table 8.

The mercurial treatment consisted of forty-two rubs prior to March 1, and twelve rubs during the second course of arsphenamin. The special tests that were carried out in this case to demonstrate the presence of arsenic were unsuccessful.

## COMMENT

This completes the record, in outline form, to be sure, of the three cases that it has been our privilege to study.

A survey of American literature for a case or cases similar to those described and from which some suggestions or conclusions could be drawn was not rewarded with success. A survey of the British literature gave a record of three cases. Veale and Wedd<sup>2</sup> reported a case of fatal jaundice and discussed its relationship to the antisyphilitic treatment administered. Fenwick, Sweet and Lowe<sup>3</sup> reported two fatal cases of icterus gravis following injections of neo-arsphenamin.

It seems that the best method to follow in summing up the data of the literature would be to pick out the points of similarity and dissimilarity in the cases reported. All the patients were adult men with a record of previous good health and without previous history

increased rapidly till it attained a deep yellow tinge. The urine in the cases of this series was dark brown, and gave positive findings for the presence of bile. Marsh's test for arsenic, repeated again and again on the urines, failed to demonstrate the presence of the metal. The cases reported by Fenwick, Sweet and Lowe failed to show the presence of the metal when tested by the Marsh, the Reinsch, and the Nordent-Koch methods. The patients in this series who recovered were studied over a period of about three weeks, and during that time there was not the slightest trace of the metal demonstrable.

The fecal examinations showed the stools pasty, of light color, and very slightly greasy. Analysis showed the presence of fat. The bile test was negative. The test for occult blood was positive.

The vomitus was of the coffee-ground type, and when analyzed it showed macroscopic blood, low acid content, much mucus, many epithelial cells, and even flakes of gastric mucosa.

Postmortem revealed hemorrhagic phenomena in one or more of the viscera of all the bodies. In one of the cases the petechial hemorrhages were present in almost all the viscera, but especially in the walls of the stomach and the small intestines. There were a few points of hemorrhage in the kidney and the visceral pleura. The other cases showed the walls of the stomach and intestine deeply injected. The pancreas seemed to be free from gross pathology. Microscopically the kidneys showed a type of tubular nephritis much like that seen in cases of mercurial poisoning. This nephritis was localized rather than diffuse, and unilateral rather than bilateral. The liver was small and mottled. It did not favor identically any of the more common types of cirrhosis. There was little or no fatty degeneration in any of the specimens examined. None of the tissues subjected to the various tests for arsenic gave positive findings.

From the brief summary of the one fatal case in this series and of the three fatal cases of the British literature, together with the two cases that ran a similar course with recovery, it seems justifiable to put them into a separate class and to treat them as an entity not included in any of the three classes referred to in the beginning of this paper. The etiology is not established beyond the question of doubt, but the light of present scientific investigation points in accusation against the antisyphilitic treatment. Whether or not we can charge the unfortunate results to the number of full doses of medication as prescribed in the course of intensive treatment; or whether they be due to a combination of the arsenical and mercurial medication; or whether they be due to a selectivity on the part of certain tissues, especially the liver, such that an overwhelming dose should start the degenerative process; or again, whether there could be a visceral syphilis, especially of the liver, that should prove a point of lowest resistance in the defense of degenerative changes, would be beyond the realm of our present knowledge.

The microscopic study of the kidney showed a tubular type of nephritis entirely compatible with that seen in mercurial poisoning. The hepatic findings, however, which are paramount in this series of cases, hurl a discordant note into any mercurial etiology alone. To conclude that negative chemical tests for the presence of arsenic should eliminate this drug from any etiologic responsibility would be hasty and unwar-

TABLE 8—ARSENICAL TREATMENT IN CASE 3

Date	Arsphenamin Dosage (Gm. Intravenously)
1-21-1919	0.4
2-4-1919	0.5
2-11-1919	0.6
2-18-1919	0.6
2-25-1919	0.6
3-3-1919	0.5
4-1-1919	0.4
4-8-1919	0.5
4-15-1919	0.6
4-22-1919	0.6
Total	5.3

of hepatic illness. All gave positive Wassermann blood findings prior to the administration of the antisyphilitic treatment. All received intensive treatment, which included one of the standard arsenical preparations and some form of mercurial medication. The particular preparation of mercury depended on the choice of the medical officer. All patients showed a period following the discontinuance of the intensive treatment that could well be called negative as far as symptoms or signs of arsenical poisoning are concerned. Then followed a brief and rapid onset of a group of symptoms that were for the most part entirely similar. The appearance of rapidly increasing jaundice without apparent cause was one of the early signs. In the three cases of this series, and in the one reported by Veale and Wedd, the patients complained of crippling pains in the right lumbar region. The condition of the patients in all those cases having a fatal termination became rapidly worse. All suffered intensely from the paroxysms of vomiting that occurred shortly before death. Delirium was a more or less constant symptom.

The objective symptoms showed the liver decreased in size in four out of the six cases. All patients complained of liver tenderness, the intensity of which depended on the stage of the disease. The jaundice

<sup>2</sup> Veale, R. A., and Wedd, B. H.: A Case of Fatal Jaundice, Brit. M. J., 2: 341 (Sept. 20) 1918.

<sup>3</sup> Fenwick, P. C.; Sweet, G. B., and Lowe, E. C.: Icterus Gravis after Narsarsenation, Brit. M. J., 1: 448 (April 20) 1918.

ranted. To say that the nephritis was due directly or indirectly to the mercurial medication, which would of itself hamper the chief avenue of elimination of the arsenic and its toxins, and to suggest that this factor, plus the toxicity of the arsenic already in the system, had overwhelmed the hepatic tissue instigating the necrotic process would be compatible with the findings and in harmony with the clinical picture of the case.

## IRRITATIVE URETHRITIS

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Nonspecific urethritis has been defined by Keyes as "an acute urethritis due neither to the gonococcus nor tubercle bacillus and usually excited by no known cause other than sexual excitement or contact." He states further that it is almost, but not quite, universally true that the normal male urethra is immune to infection by any bacterium except the gonococcus. The observation of the bacteriologic findings in a vast number of cases of urethritis, and the not infrequent occurrence of cases in which the discharge failed to show the presence of gonococci, prompted a careful study and analysis of such cases.

Just how frequently this condition occurs is rather difficult to state, since no record of the total number of cases examined is available; however, the twenty-eight cases presented herewith appeared in two different localities during a period of slightly less than five months, and were encountered during the examination of approximately 500 separate cases.

In studying these cases the points considered were: (1) etiology, (2) symptoms, (3) bacteriology, and (4) clinical course.

The etiologic factor which seemed to be constant was an irritation of the urethral mucosa caused by the administration of the venereal prophylactic that is required in the army. All of the patients included in this series received the prophylactic and it may be assumed that the urethritis in all cases, except one, was due to this cause.

The standard American prophylactic, a 2 per cent solution of protargol, was not a frequent offender, and it was usually found in cases in which the urethritis developed following the use of a prophylactic provided by themselves. One group of cases was of particular interest in that British individual prophylactic packets were used, and three of seven men using them developed a urethritis. The identity of the material in that particular lot of prophylactic could not be determined and inquiry of two battalion surgeons of the British Expeditionary Forces disclosed no evidence that severe urethral irritation following the use of their prophylactic was common among their troops.

### IMPROVISED PROPHYLAXIS

The greatest number of cases followed the use of what it has been chosen to call "improvised" prophylaxis, that is urethral injections provided by the soldiers themselves and usually obtained from a French apothecary, who no doubt had a secret formula of his own. It was obviously impossible to determine the content of all the solutions thus dispensed; but potassium permanganate, mercuric chlorid and zinc sulphate were identified beyond doubt in addition to the silver salts.

Clinically, all of the cases showed great similarity, onset from twenty to forty-eight hours after use of the prophylactic, slight pain and burning during urination, and a varying amount of discharge, at first clear and glairy, later creamy and distinctly purulent. Microscopically, this discharge showed many epithelial cells, an increasing number of pus cells with a preponderance of the mononuclear types, and a varying bacteriologic picture.

The course of the disease, that is, the time from the appearance of the discharge to the disappearance of all symptoms, varied from two to eleven days; and in one case a recurrence was noted seven weeks after the patient was discharged as cured.

### BACTERIOLOGIC STUDY OF CASES

The bacteriologic study of these cases revealed no single organism as the causative agent, but did bring to light one striking fact, namely, that the use of urethral injections of bactericidal substances rendered the urethral canal sterile for varying lengths of time.

### STATISTICAL DATA IN SERIES OF URETHRITIS CASES

Case Number	Incubation, Hours	Duration, Days	Prophylactic Used	Organism
1	27	2	Improved	Gram-positive diplococcus
2	40	2	U. S. A.	None
3	48	2	Improved	None
4	36	1	Improved	<i>B. coli</i> ; <i>Staph. albus</i>
5	36	4	U. S. A.	Gram-positive diplococcus
6	20	3	Improved	None
7	24	1	U. S. A.	None
8	50	2	Improved	Gram-positive diplococcus
9	48	3	Improved	Gram-positive diplococcus
10	4	2	U. S. A.	None
11	36	4	U. S. A.	None
12	36	11	None	Gram-positive diplococcus; streptococcus
13	36	3	British	Gram-positive diplococcus
14	10	4	British	None
15	24	2	British	None
16	50	7	U. S. A.	None*
17	24	1	Zinc sulphat	Gram-positive diplococcus
18	48	4	U. S. A.	None
19	36	1	"result"	Many forms
20	28	2	U. S. A.	None
21	28	2	Potassium permanganate	None
22	30	3	Mercuric chlorid	None
23	18	1	Silver salt	None
24	21	2	Silver salt	None
25	36	3	Zinc sulphate	Gram-positive diplococcus
26	27	1	Improved	None
27	46	1	Improved	None
28	48	4	Potassium permanganate	Gram-positive diplococcus

\* Recurred after seven weeks with out further sexual contact

Seventeen, or 60 per cent, of the cases showed no organism in the examination of gram-stained smears and fifteen, or 50 per cent, of the cases, showed no growth after seventy-two hours' incubation of plain agar and hydrocolloid fluid agar. Eight cases, or 28 per cent, showed the presence of a large gram-positive diplococcus, which grew profusely on ordinary mediums and was also cultivated from three out of ten normal urethras. The three remaining cases presented the greatest interest. One showed a mixed infection with *B. coli* and *Staphylococcus albus* which disappeared after three injections of 10 per cent. argyrol. One showed a short chain streptococcus mixed with the gram positive diplococcus mentioned above and ran a very protracted course. In this case, after much questioning, it was learned that the patient had taken no prophylactic, and eighteen months before had had an obstinate posterior urethritis and *syphilis*. The last case followed the injection of a dilution of a popular cresol-disinfectant; the discharge was scanty and soon disappeared. The patient gave a history of a recent

gonorrhoea three years before, and smears of the pus showed a diversified bacterial flora of more than a dozen forms.

The entire series is given in the accompanying table.

#### TREATMENT

The treatment in these cases presented no difficulty. As soon as it was determined that the discharge was not due to infection with the gonococcus, local treatment was stopped, copious drafts of water were recommended, and alkalis were administered. So long as urethral irritation was continued by injections of antiseptic solutions, the discharge persisted.

#### CONCLUSIONS

A consideration of the information presented by these cases prompts these conclusions:

1. The injection of irritating bactericidal substances into the urethra not infrequently causes a urethritis which may easily be confused with the true gonorrhoeal infection.

2. Such injections render the urethral canal sterile for a considerable period of time.

3. In prescribing treatment in such cases of "irritative" urethritis, the local application of antiseptics is to be avoided.

4. Purulent discharges from the urethra should not be considered gonorrhoeal until the gonococcus has been unmistakably demonstrated in the smears.

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## DELAYED DEATH IN CORONARY THROMBOSIS

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That thrombosis in the coronary arteries does not invariably cause sudden death has been recently emphasized.<sup>1</sup> It is possible that fairly frequently in lesions of this sort, life is prolonged a considerable space or that the establishment of a compensatory circulation is accomplished with a complete or nearly complete return of full heart function. It is undoubtedly true that this condition many times goes without diagnosis, and in the absence of a necropsy the true state of affairs is not recognized.

An interesting and important feature is the intense abdominal pain that may be present. This has an important surgical bearing; as, given a sudden, very severe abdominal pain, with tenderness to palpation, which may even be accentuated over appendix or gall-bladder, a laparotomy may be seriously considered and in some instances, probably, logically performed. An interesting question of differential diagnosis is thus raised.

Herrick gives a tentative classification based on the clinical picture of cases of coronary thrombosis:

1. Cases of instantaneous death in which there is no death struggle, the heart beat and breathing stopping at once.

2. Cases of death within a few minutes or few hours after the obstruction.

3. Cases of severity in which death is delayed for several hours, days or months, or recovery occurs.

1. Herrick, J. B.: *Thrombosis of Coronary Arteries*, J. A. M. A. 72:197 (Feb. 8) 1919.

4. A group that may be assumed to exist embracing cases with mild symptoms; for example, a slight precordial pain ordinarily not recognized, due to obstruction in the smallest branches of the arteries.

The case herewith presented falls under Group 3 in the foregoing classification.

#### REPORT OF CASE

A sailor, aged 34, was suddenly seized, January 25, while on board ship, with a severe pain in the left chest, axilla and upper arm. There was some pain in the abdomen. The pain was accompanied by a pronounced feeling of weakness and what he termed "shortness of wind." He was nauseated and vomited several times. He was compelled to stop work and take to his bunk. The following day he felt much better, but the pain persisted. In a few days he was able to be about, but was unable to work and still complained of the constant pain in his chest, arm and abdomen. January 31, he was brought to the hospital.

He had had no attacks similar to this previously. He denied having had pains of any sort in the chest or elsewhere. He states he had taken care of himself and not dissipated and had always been well. He denied any venereal infection.

On admission he complained of pain in the precordium, left shoulder, upper arm and abdomen. He was noticeably weak; the pulse was 88 and small in volume. There was no marked increase in the area of heart dullness. The urine contained considerable albumin and some casts.

His condition improved considerably. Weakness became less marked. The pulse became stronger. Pain in the chest diminished. February 3, the tenth day, he sat up in a chair and even walked about the ward a bit, without discomfort. February 4, his condition was still improved, though dull ache persisted in the precordium and left arm. February 5, he began complaining more of the pain in the abdomen and complained less of the chest and arm. This increase in pain in the abdomen came on rather suddenly and seemed very severe. He was nauseated and vomited. It was necessary to give morphin. February 6, pain in the abdomen still persisted and had grown worse. The patient seemed in agony. He was with difficulty relieved by morphin. On two successive palpations of the abdomen he localized the greatest point of tenderness first over the appendix and next the region of the gallbladder. Repeated examinations failed, however, to substantiate the localized tenderness. The abdomen was not rigid. It was not distended or tympanic. The patient had difficulty in telling exactly where the pain was, but localized it most often in the epigastrium and below the costal margin on both sides.

On the evening of February 6 he suddenly died.

The heart was normal in size and somewhat pale. External examination revealed very little abnormality. There was a partially organized thrombus in the ramus descendens anterior of the left coronary artery. The heart muscle at the apex of the left ventricle and at the lower part of the interventricular septum was soft, very pale and friable.

The anterior papillary muscle was in similar condition. There was no evidence of arteriosclerosis in the aorta or elsewhere. Except at the extreme tip of the ventricle, the anemic area was confined to the inner one half to two thirds of the ventricular wall. The outer shell of muscle immediately beneath the visceral pericardium was not affected. The kidneys had marked interstitial changes. There was a moderate passive congestion of the liver. There were no other pathologic changes in the abdomen.

#### COMMENT

In this case the patient lived for a period of thirteen days from the onset of first symptoms.

The interesting distribution of the anemic infarct, confined almost entirely to the inner portions of the cardiac wall, I have not seen described before.

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THE TREATMENT OF THYROTOXICOSIS  
BY MEANS OF ROENTGEN RAY

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The treatment of exophthalmic goiter and other forms of thyrotoxicosis by the roentgen ray was recommended as early as 1905, and a considerable amount of literature on the subject has since accumulated. In 1916, Pfahler was able to collect seventy-six papers on the treatment of exophthalmic goiter by the roentgen ray. Nevertheless, outside of a few clinics, no general attention has been given to this subject. During the past five years we have treated, in the roentgen-ray department of the Massachusetts General Hospital, 262 patients for thyrotoxicosis. The results of this work have been sufficiently encouraging, we think, to warrant a more general use of this agency in the treatment of thyrotoxicosis.

Experimental and investigative work has shown that it is possible to destroy the glandular structures by subjecting them for a sufficient length of time to the roentgen ray or to radium. It is also generally known that the action of this form of light is most destructive on the higher organized type of cell and that the tissues of the lymphatic system are particularly vulnerable.

Anatomically, the thyroid gland is somewhat allied to the lymphoid structures, and change in it is often accompanied by an enlargement of the thymus. (Koehler found the thymus enlarged in 50 per cent. of his operative cases.)

If these statements are true, and the amount of irradiation sufficient to destroy the thyroid gland is not greater than that which will produce an injurious effect on the skin, we should be able to remove part or all of the gland by means of irradiation and produce results similar to those of surgery without the dangers incident thereto.

A REVIEW OF THE LITERATURE

A review of the literature would seem to prove that such results can be obtained. In 1913, Dr. Florence Stoney reported forty-eight cases of exophthalmic goiter treated by the roentgen ray, in fourteen of which complete cure was effected, and in twenty-two great benefit was derived, so that the patients were able to resume the ordinary habits of life. Four patients derived no benefit; seven quit too soon for any opinion as to the result, and one patient, in whom the pulse rate fell from 136 to 112 after treatment, died twelve hours after operation. Pfahler and Zulick, after a careful review of the literature and a study of their own cases, reach these conclusions:

1. We believe that the trial of treatment for one series with an interval of waiting of one month is justifiable in all cases, for if operation is decided on nothing is lost, and many operations can in this way be avoided.
2. Treatment should be directed toward the thyroid and the thymus glands.
3. Increase in weight and decrease in pulse are the first signs of improvement and are practically always found.
4. Treatment must not be prolonged over too long a period or hypothyroidism may be produced.

5. The goiter and the exophthalmos are the last to show improvement, and in many cases show no change.

Means and Aub<sup>1</sup> base their observations on a considerable number of cases treated medically, surgically and by roentgen ray, and these are their conclusions:

1. The general metabolism shows a characteristic increase in hyperthyroidism.
2. This rise may be used as a functional test of the thyroid activity or as an index of the intensity of the thyroid intoxication.
3. An extended study of the metabolism in various types of toxic goiter shows that:
  - (a) Rest alone usually causes a marked decrease in toxicity.
  - (b) Drugs in addition to rest do not materially accelerate this decrease.
  - (c) The roentgen ray, in some cases, produces a definite improvement, while in others it seems to be quite without effect.
  - (d) The usual immediate effect of surgery is a marked decrease in toxicity, but there is a very definite tendency toward a subsequent recurrence.
4. The lesson in therapeutics to be drawn from these results we believe to be about as follows:
  - (a) Complete rest in bed plus irradiation should be continued until the metabolism reaches a level.
  - (b) If rest and the roentgen ray fail to restore the metabolism to within 20 per cent. of the normal, it is proper to resort to surgery, unless there is some definite contraindication. Among contraindications a rising metabolism, in spite of complete rest, seems to be very important.
  - (c) Following operation, if the metabolism again increases, further active treatment should be carried out. The observations in the cases that we have followed for a long time emphasize the importance of keeping cases of exophthalmic goiter under observation for months rather than weeks, and preferably years rather than months.

ARRANGEMENT OF CASES IN GROUPS

After a study of the case histories of our series, we have arranged the cases into four groups:

1. Patients in whom very definite benefit ensued, apparently as the result of the treatment, and are clinically well.
2. Patients in whom there was definite improvement but who still manifested some evidence of disease.
3. Patients in whom there was no change under treatment or who became definitely worse.
4. Patients in whose cases fairly complete data were obtained, at least one basal metabolism record was made, and sufficient time had elapsed to warrant a definite opinion as to the final result. The cases in this group are selected from the other three.<sup>2</sup>

In addition to the cases grouped, there were 133 patients who received one or more treatments but have not been included because of insufficient data.

DISCUSSION OF THE VARIOUS GROUPS

In Group 1 (patients apparently well), there were thirty-four patients, ten of whom were over 35 years and five under 20 years of age. Three were males and thirty-one were females. Two of the patients had been operated on without complete relief of symptoms. In some instances the histories were incomplete, but the

<sup>1</sup> Means, J. H., and Aub, J. C. A Study of Exophthalmic Goiter from the Point of View of the Basal Metabolism. *J. A. M. A.* 60:33 (July 7) 1917.

<sup>2</sup> The basal metabolism determinations were made by the indirect calorimetry with the Brouha apparatus. The results are reported as a percentage variation from the normal, but possibly per cent. of body surface area. For a more detailed description of the work see as adapted by the Russell Sage Institute. The full details of this work will be published elsewhere by Means and Aub. *Complete Abb.* J. C. and Dr. H. H. P. *Classical Chemistry*, XIX, The J. B. Lippincott Co., Phila., Pa., 1916, Vol. 19, pp. 111 (May 14).

present condition of the patient is known. In some of the cases exophthalmos persists, but the patients are free from symptoms of thyrotoxicosis. The number of treatments received by each patient ranged from three to thirteen, the average number being about seven. The greatest duration of treatment was thirty months, and the shortest four, while the average time was eight months. When a record of the metabolism was made, it showed a sharp drop in most cases. This was true of the pulse also. But in some who never had a high metabolism the pulse remained high, and in these there is some doubt in regard to the diagnosis. In typical thyrotoxicosis the pulse usually follows the metabolism. Seventeen of the number showed a gain in weight; six a loss of weight, and in the remainder the records were incomplete.

In Group 2 (cases improved), there were sixty-eight, thirteen of whom were 36 years of age or older; nine were under 20 years, and the others ranged between 20 and 35 years. Three were males and sixty-five were females. In many of the cases part of the data are missing, owing to the fact that complete records were not kept of the early cases. In a few the diagnosis may have been incorrect, but all of the cases were referred from the medical department for treatment for hyperthyroidism. The opinion as to the result of the treatment is based on a study of the clinical records, and the statement of the patient at the time of the last visit. They were under observation for from three months to two years and a half. The average time, however, was rather less than in Group 1. The average number of treatments received was also less.

In Group 3 (unimproved or bad results), there were fourteen patients, five of whom were over 35 years of age, while there were none under 20 years. All were women. In the case of two of the patients the diagnosis was probably incorrect, as tuberculosis was suspected in one, and the other never had a high metabolism. One died following operation. This patient had received one treatment a few days previously. Two died during the period of treatment from intercurrent disease; six had less than the required number of treatments, making a total of ten in which failure to obtain relief was not due entirely to the method of treatment. In the three remaining cases, two patients showed only slight improvement after prolonged treatment and may definitely be classed as failures (they were comparatively young patients, between 25 and 30 years of age). In the remaining case, myxedema developed, possibly as a result of overtreatment. The number of treatments in Group 3 averaged the same as those of Group 1, but the duration of treatment was rather longer.

Group 4 comprises a fairly complete study of thirty-six cases, in all of which at least one metabolism test was done, while in some the metabolism was determined before and after treatment. In a few of these cases the record was made too soon after treatment to show the best results. In all of them the final observations were made by a disinterested clinician. The comparison of cases in this group is much the same as in the others, eleven patients being over 35 years, only three under 20 years, and the others ranging from 20 to 35 years. Seventeen of the patients were perfectly well, while thirteen were improved, making a total of thirty who were definitely benefited by the treatment. In four of the cases the diagnosis was incorrect, as proved by the metabolism determination and the future

course of the disease. One patient was operated on without relief; two had recurrence of symptoms that responded to future treatment, and in one case myxedema developed as a result of overtreatment. One patient died from unknown cause during the course of treatment. The accompanying table presents the results of treatment in this group.

#### METHOD OF GIVING ROENTGEN-RAY TREATMENT

The method of giving the treatment varied somewhat in the first two years. During the last three years, however (in which the greater number of treatments were given), it has been fairly constant. Most of the work was done with an interrupterless machine, Coolidge tubes being used. The parallel spark was approximately 8 inches. The rays were filtered through 4 mm. of aluminum and 1 mm. of leather. The target skin distance was 8 inches. Three areas were treated at each sitting, each area receiving two thirds of an erythema dose.

The treatment should be applied to both the thymus and the thyroid regions. Fairly hard rays should be used, and the treatment should not be repeated until three weeks have elapsed. After a series of three treatments, there should be an interval of three months before resuming treatment; then a second series of three treatments should be given. If the symptoms have not sufficiently disappeared at the end of this period a third series should be given, making nine treatments in all. Consequently, during this time, the patient will have been under observation about one and a half years.

#### DANGERS INCIDENT TO THE TREATMENT

The dangers and unsatisfactory results incident to this form of treatment are less severe than those of surgery, but they do exist. It is probably true that the function of the thyroid gland may be destroyed and hypothyroidism produced. This is more likely to result if treatment is pushed and the interval of two or three months between each series is omitted. A reexamination in the early cases convinced us that changes go on for some time after treatment is discontinued, and that it is not necessary to have complete cessation of symptoms before stopping treatment.

Another undesirable feature is that of telangiectasis and atrophy in the regions treated. These patients are especially susceptible to changes of this kind, and as the majority of them are young women, when such changes do occur, the resulting disfigurement is of considerable import. These changes are more likely to occur when unfiltered rays are used or an erythema is produced. By using heavy filters and keeping well below the erythema dose, such untoward results can usually be avoided.

The toxemia may be increased to a dangerous degree by the first treatment. This must be guarded against by starting with small doses, preceded by rest in bed until the symptoms are reduced as much as possible. In cases in which surgical treatment has been employed but no complete cure effected, the treatment should be given with the utmost caution, as the danger of hypothyroidism is then greater. Treatment should not be commenced too soon after the operation, and should never be prolonged.

#### DIAGNOSIS OF TYPE OF GOITER

In selecting patients for treatment, it is of first importance that a definite diagnosis of the type of

goiter be made, as on this depends the treatment to be adopted. Should the case not be one of thyrototoxicosis, harm may result from the irradiation. These cases should be studied by a competent clinician and metabolism tests made before treatment of any kind is instituted.

Nonmalignant goiters may be divided into simple or colloidal, cystic and toxic goiters. Toxic goiters may be further subdivided into exophthalmic goiter and adenoma. In the first two forms there is no evidence of hyperplasia of the gland and no toxic symptoms; therefore, radiation would only tend to destroy what remained of the normal gland and would hasten hypothyroidism, producing no effect whatever on the size of the tumor. If pressure symptoms are present, surgical treatment should be given in such a case. In the toxic type, whether exophthalmic or not, there is an

exophthalmic goiter is a self-limiting disease, and that in from 60 to 70 per cent. of the cases, spontaneous cures are recorded at the end of five or six years.

If these reports are accepted, the percentage of cures must be high or prompt relief of symptoms must be obtained, in order to show that any form of treatment is a source of definite benefit to the patient.

In most of the cases reported in this paper, decided improvement was noted twelve months after treatment was begun. In some of these, however, the symptoms had been present for a considerable time, and it is possible that the disease had nearly run its course before treatment was begun. Nevertheless, it is our opinion and that of the associate clinicians, that in cases taken early in the disease a more ready response to treatment was noted and more satisfactory results were secured.

RESULTS OF TREATMENT IN GROUP 4

Number	Sex*	Age	Duration of Treatment, Months	No. of Treatments	Metabolism		Pulse		Weight, Kg.		Tumor		Exophthalmos		Duration of Symptoms before Treatment	Final Note	
					Before	After	Before	After	Before	After	Before	After	Before	After			
823	♂	45	5	5	—	+6	—	79	—	60.0	—	—	—	—	2 yrs.	No clinical evidence of hyperthyroidism	
278	♂	34	20	14	-83	+63	117	113	59.5	53.5	+	+	—	—	4 mos.	Obese (75 kg.); myocardial weakness	
576	♂	45	10	6	—	-17	—	107	—	67.0	—	—	—	—	2 mos.	No evidence of thyrototoxicosis; simply nerotic	
591	♂	24	10	6	+78	-14	103	55	50.0	59.0	—	—	Slight	Less	2 mos.	No symptoms; apparently cured	
1011	♂	39	9	6	+34	+17	96	81	56.8	65.5	—	—	—	—	5 mos.	Clinically well	
892	♂	39	4	5	+12	—	—	94	—	46.0	—	—	—	—	?	No clinical evidence of hyperthyroidism	
940	♂	32	6	9	+29	—	—	89	—	55.4	—	—	—	—	—	Looks well	
957	♂	24	23	5	—	-18	—	86	—	49.7	—	—	—	—	—	Improved	
1002	♂	41	6	4	+47	+6	107	74	55.0	63.0	—	—	Slight	Less	3 yrs.	General health good	
670	♂	16	9	5	—	-30	—	100	—	55.5	—	—	—	—	—	Health good	
702	♂	14	16	10	+71	+49	104	94	40.0	—	—	—	—	—	—	Improved	
729	♂	20	4	7	+48	+49	100	92	64.7	63.0	—	—	—	—	—	5 wks. Looked toxic; said he felt well; went "overboard"	
766	♂	28	12	11	+36	+32	117	106	61.0	60.0	—	—	—	—	—	4 yrs. No evidence of hyperthyroidism; goiter heart	
708	♂	31	7	4	—	—	—	67	—	61.0	—	—	—	—	—	1 yr. No clinical evidence of thyrototoxicosis	
953	♂	33	3	4	+10	+8	131	88	55.2	59.0	—	—	—	—	—	2 mos. Improved; well	
884	♂	36	4	5	—	+36	—	82	—	77.5	—	—	Slight	—	12 yrs.	Looks like complete cure	
858	♂	17	11	11	+42	+6	118	80	48.2	49.0	—	—	—	—	2 yrs.	Apparently cured	
872	♂	30	21	8	+29	+4	—	104	—	63.5	—	—	—	—	—	3 yr. Well	
594	♂	35	15	10	—	+31	—	80	—	52.4	—	—	—	—	—	7 yrs. Improved	
1012	♂	55	19	12	+87	-26	121	100	39.0	48.5	—	—	—	—	—	2 mos. Much improved	
1051	♂	33	3	5	+50	+18	108	107	58.0	55.0	—	—	—	—	—	4 yrs. Improved (5-year dead)	
1067	♀	29	27	1	+12	-22	50	76	59.0	144 lbs.	—	—	—	—	—	3 mos. Improved after reoperation and treatment; still thriving	
2282	♀	36	8	3	+23	+52	97	107	60.0	59.5	—	—	—	—	—	3 mos. Clinically slight hyperthyroidism and mitral disease	
655	♀	31	9	3	—	-17	—	59	—	50.3	+	—	Slight	Slight	—	—	Clinically not hyperthyroidism
870	♀	22	3	5	—	+158	—	90	—	48.5	—	—	—	—	—	1 yr. Improved; well	
1039	♀	45	6	8	+67*	—	P.O. less	—	—	49.9	—	—	—	—	—	1 yr. Reported as myxedema six months later	
917	♀	23	17	19	+54	-17	—	—	—	—	—	—	—	—	—	Much better	
621	♀	14	3	4	—	-7	—	—	—	—	—	—	—	—	—	Much improved	
867	♀	44	21	12	—	-12	190	50	gdn	—	—	—	—	—	—	No symptoms	
2288	♀	17	12	10	—	+44	88	82	—	118 lbs.	—	—	—	—	—	Improved; gain in weight when treatment terminated	
552	♀	20	13	8	—	+1	129	154	89½	88½	+	—	—	—	—	Myocardial degeneration, very little hyperthyroidism	
515	♀	22	4	4	..	+5	100	89	113½	135	+	+	Improved	—	—	Much better; relapse after 8 months treatment	
1994	♀	35	16p-0.5	4	+46	+25	129	86	147½	135	—	—	—	—	—	Well except for gastric distress, relieved by reoperation in November 1915, eight months before operation (8 months after April, 1917)	

\* In this column ♂ indicates male, and ♀ female.  
† This was after lobectomy.  
‡ This was after three roentgen-ray treatments.

§ This was after operation; after four roentgen-ray treatments metabolism was 73.  
¶ After four roentgen-ray treatments, metabolism was 45.

increase in the structure of the gland and in its activity, both of which are affected by irradiation; hence it is in this type of case that roentgen-ray treatment is indicated.

To obtain a fair estimate of the value of any form of treatment it is necessary to know and consider the percentage of patients suffering from the disease who recovered without treatment. Hale and White followed eighty-seven cases of exophthalmic goiter treated at Guys Hospital, London. After a number of years it was found that sixty-one of these patients were cured, twenty-one decidedly improved, and only five of the eighty-seven cases unimproved. Staunton, after a rather extensive experience in the treatment of goiter and after a review of the literature concludes that

SELECTION OF PATIENTS FOR TREATMENT

We cannot emphasize too strongly the importance of careful diagnosis and the selection of patients to be treated. If the case is one of thyrototoxicosis, after the second or third treatment the patient usually expresses a feeling of relief from the disagreeable nervous symptoms, the pulse rate becomes lower, and there is a gain in weight. About a year after treatment is begun there should be considerable diminution in the size of the thyroid gland. Exophthalmos never entirely disappears. Except in the more severe cases, the patients have continued their usual habits of life, but we believe that it is of definite advantage to have the treatment supplemented by rest, as in this way the duration of treatment will be shortened. Usually, at the end of six

mouths the patients are sufficiently relieved to resume their ordinary occupation without difficulty or discomfort. To be sure, the relief from symptoms is not so quickly obtained as by surgery, but the dangers are less, and in the milder cases it obviates the necessity of interfering with the daily life of the patient. These are factors that should be considered when deciding as to the form of treatment.

If relief is not obtained by roentgen ray after nine treatments, or if, for any reason, it is desirable to hasten results, surgery may be recommended. The previous treatment by roentgen ray will be of benefit, as it reduces the operative risk by destroying the thymus gland. After roentgen-ray treatment some operators have complained of adhesions and increased bleeding at time of operation; but such has not been the experience of the surgeons in this clinic.

#### SUMMARY

1. It is possible to decrease the activity of the thyroid gland and probably to destroy its glandular structure by exposure to the roentgen ray.

2. Roentgen-ray treatment when applied in cases of thyrotoxicosis produces a relief of symptoms and shortens the course of the disease.

3. A study of the basal metabolism before, during and after treatment is of the greatest importance both as a means of diagnosis and as a check on the amount of treatment to be given.

4. The roentgen ray, accompanied by rest, should be tried in all cases of thyrotoxicosis and should be continued for a sufficient length of time to destroy at least the thymus before resorting to surgery.

## Clinical Notes, Suggestions, and New Instruments

### FRAGILITAS OSSIUM WITH BLUE SCLEROTICS

WALTER D. WISE, M.D., BALTIMORE

This case is reported, not because it is an exaggerated example of the type, but because the type is interesting and rather rare.

Charles W., aged 5, was seen at the South Baltimore General Hospital, Aug. 4, 1919. His mother stated that he had been playing on the floor when suddenly he complained of his leg and began to cry, refusing to put weight on the foot. He did not fall, and had not been engaged in any game or been doing anything that would have been likely to cause an injury. The leg was swollen and tender. There was a slight deformity just above the ankle. A roentgenogram revealed a fracture of the lower third of the tibia, and the upper part of the fibula. The child was well nourished, fairly well developed boy with no signs of scurvy, rickets or any constitutional disease. However, it was noted that his sclerotic were of an azure blue. It was then seen that his mother had sclerotics of the same color. She gave a history of having only in her life three fractures of the right humerus and two of the left, all from trivial causes. The mother's father was reported to have the same type of eyes and to have had fractures of the clavicle and humerus, but apparently from rather severe falls. The patient's two brothers had blue sclerotics, but had had no broken bones. One sister with the same colored sclera had sustained a broken forearm as the result of her mother's having fallen with her—practically a legitimate cause.

The leg united in the usual length of time without deformity or any unusual feature.

1800 North Charles Street.

### A CASE OF TRYPANOSOMIASIS

HAROLD B. ADAMS, U.S., NEW YORK

*History.*—A young seaman, aged 26, white, was admitted, August 13, to the wards of Roosevelt Hospital for observation, with the diagnosis of sleeping sickness made by a physician in West Africa. He weighed 140 pounds and was 5 feet 8 inches in height. He was born in Baltimore, but was raised in England. He had been a seaman all his life.

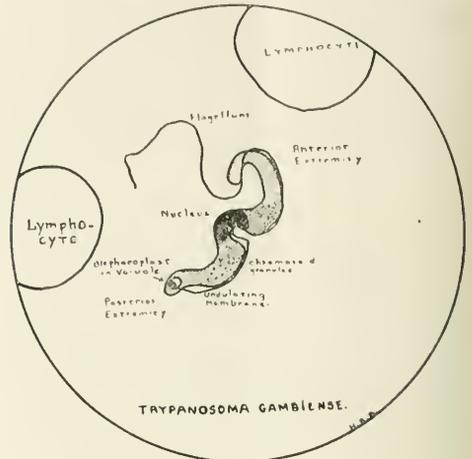


Fig. 1.—*Trypanosoma gambiense*: nomenclature, and size as compared with lymphocytes.

The patient complained of extreme weakness amounting to feebleness, constant dull headache, intense itching of the arms and legs, and swelling of both sides of the neck.

The family history was negative. The patient had always been healthy until his present illness. Sixteen months before he had gone to Sierra Leone, West Africa, where he worked on a development project for nine months. In January, 1919, after he had been in Africa eight months, he was taken to the company hospital with a high fever, intense headache and recurring chills. There was a general erythematous rash over the entire trunk and upper extremities, accompanied by intense itching. The rash and the itching were ascribed to poisoning by a mangrove dye.

The physician in charge, while looking for malaria, discovered trypanosomes in the blood. He immediately placed the patient on sodium arsinitate, 2 grains every other day. A diagnosis of double tertian malaria was also made, and quinin was administered. One month later, February, the patient left Africa and returned to England, where he received treatment at the Seaman's Hospital in London. At this time he had an eruption, described as round red spots 5 or 6 inches in diameter, shaped more or less like a horse-shoe, on his chest, back and face. They persisted until just before his entrance to this hospital when there was still a slight suggestion of an annular erythematous patch on the right cheek. He was discharged, relieved, from the London hospital, but was advised to continue treatment for at least two years. He was supplied, by a private physician, with several hypodermic syringes and sodium arsinitate, which he injected intramuscularly into himself in varying doses at even more variable intervals over a period of five months. During the past sixteen months he has lost about 50 pounds. When on shore, his habits are alcoholic.

Five years before, he had had gonorrhoea, and a chancre in May, 1919.

*Physical Examination.*—The results of examination of the eyes, ears, nose and mouth were negative. His speech was unaffected. On each side of the neck, posterior to the



tion. At no time has the patient manifested any symptoms attributable to iodism.

At the present time, three months after the wound finally closed, the patient appears to be in perfectly good health, and there is no evidence of a recurrence of the disease either at the previous site or elsewhere.

## Therapeutics

A DEPARTMENT DEVISED BY THE IMPROVEMENT OF THERAPY,  
AND A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS \*

(Continued from page 1613)

#### CASTOR OIL

The "soothing purgative"<sup>1</sup> is probably the best sobriquet by which to characterize the therapeutic qualities of this old reliable agent of notoriously nasty taste. Were it not for this unique combination of action it would probably have long ago been consigned to the limbo of the abandoned scourges of the ill. It is the fact that it is the least irritant of the powerful and reliable cathartics, the most potent of the evacuant oils, that renders it still indispensable.

To be a reliable purgative, a substance must produce a certain degree of irritation in the intestine, hence the term "soothing purge" may appear paradoxical. As is well known, this oil, bland and soothing in itself, yields an irritant—ricinoleic acid—on digestion in the intestine. Accumulation of this irritant, with possibility of excess of irritation, does not occur, partly because of the powerful peristalsis it provokes, which pushes it on and on, so that the small intestine empties itself into the colon in two hours instead of the normal eight, but chiefly on account of the fact that this unsaturated fatty acid is absorbed and assimilated, and capable of serving as food for man. Castor oil, be it remembered, is an article of diet in China, which goes to prove the saying, "De gustibus non est disputandum." Demulcent up to the moment of its digestion, the portion that is split up becomes momentarily irritant, to be reconverted into the soothing triglycerid of ricinoleic acid—or castor oil—on absorption through the intestinal mucosa.

From this it is easy to understand that the action of castor oil is, to a certain extent, independent of dose, and that the dose is not much influenced by age. An infant may safely be given a teaspoonful or two—a dose that will usually physic an adult. The reason is that castor oil becomes activated in proportion to the amount of digestive juices available; and, of course, the larger the intestine the more juice there is. The quantity of oil that exceeds the digestive capacity is passed through unchanged, acting merely like so much petroleum. Excessive action is therefore an impossibility. True, the usual dose for an adult is from 1 to 2 teaspoonfuls, and it must be admitted that such a dose is more reliable and thoroughly active

than that of a teaspoonful or two. When, however, there is difficulty in administration, on account of the taste, the knowledge that a teaspoonful may suffice for an adult is of importance.

Because of the thoroughness and reliability of its action, and the impossibility of excessive effect, it is the purgative of choice for delicate invalids, infants, in pregnancy, and in patients with hemorrhoids or anal fissure.

For the reasons given, castor oil produces little griping; indeed, it is a good remedy in the treatment of intestinal colic. "The castor oil cure"—a course of daily doses of castor oil—has relieved many an obscure case of abdominal pain, and incidentally made the diagnosis.

In cases of abdominal pain in which an intestinal obstruction is suspected, castor oil is probably the least objectionable of the reliable cathartics. Here, too, it has diagnostic importance: for, if a liberal dose fails to act, more drastic cathartics will probably also fail, and ought not to be employed.

This oil is notorious for its tendency to leave the bowel sluggish after it has produced an evacuation; hence it is one of the worst drugs to give in the treatment of chronic constipation. On the other hand, in view of its soothing qualities, it is a cathartic to use during the cleaning-out phase of the treatment of acute diarrhea. Regarding its use in chronic diarrhea, Brunton writes: "Sometimes a teaspoonful of castor oil, given every morning, will do more for a chronic diarrhea than anything else I know."

I. A. Abt found, however, that even castor oil is not absolutely harmless, at least in children, as he discovered evidences of irritation in the last stools when teaspoonful doses were given on three successive nights. Single dram doses produced no irritation; and, as compared with magnesium sulphate and calomel, it seemed to have the least irritant action.

A dose of castor oil usually acts in from four to six hours; hence it should be given so that it will produce its effect while the patient is awake. Like other oils, it has a tendency to delay gastric evacuation, and therefore it is best given on an empty stomach an hour before breakfast.

It is possible to so refine this oil, that, provided it is protected from the influence of the air, it is almost devoid of odor and taste. Such oil is obtainable under the trade name of Kellogg's "Tasteless." Squibb's, or Allen & Hanbury's, are very similar. It should be procured in small bottles and used while fresh, the bottle being kept carefully corked.

A good way to prescribe castor oil is in elastic capsules, the 2.5 c.c. size being none too large for the average adult. To make such capsules go down easily, it is well to advise that they be dipped in water for a minute before taking them, and to remind the patient to look down while swallowing, just as he does when he swallows food. Holding the head up while attempting to take pills or capsules is one of the chief causes of inability to swallow them. Two of these capsules often suffice for a satisfactory result. If a much larger amount is required, it is best given floating, in the form of the so-called "sandwich" dose. If the following directions are carried out, the dose can be swallowed without tasting the oil:

In a small tumbler or medicine glass is placed a layer of thick syrup of any flavor desired. The glass is inclined in such a way as to coat its inside almost up to the rim. Then

\* This is the seventh of a series of articles on the pharmacology, properties and practical application of the common laxatives and cathartics. The first article appeared October 15.

1. We must differentiate between a purgative and a laxative. A laxative is an agent that produces formed stools, and is incapable of causing acute irritation in any dose. The oils previously discussed are typical laxatives. A purgative is an agent capable of causing profuse evacuation of the bowels, but which does not act as an irritant poison in any dose. Castor oil belongs to this class of cathartics. A druggist is an active cathartic which in overdoses acts as an irritant poison.

the oil is poured into the center of the glass, care being taken that it does not run down the side. This is topped with a layer of pleasantly flavored alcoholic fluid, such as aromatic elixir. While the dose is being taken, the edge of the glass should be placed on the lower teeth, so as to avoid straining the oil through the teeth, to which some of it might adhere. When correctly taken, the oil follows the alcoholic fluid, gliding down the tongue on the surface of the syrup, without at any time touching the gustatory membrane. Of course, the patient must take the whole dose at one gulp.

The small infant needs no disguise for castor oil. Taste sensation is not sufficiently developed for it to object to so bland a thing as this oil. It will lick the oil from the spoon. As soon as taste sensation asserts itself, however, we should do something to disguise the dose for the child, unless we deliberately inflict it on the youngster as a punishment. As such, by the way, it is used as a remedy, prophylactic as well as curative, for the little fellow who habitually over-eats, or the school child malingering because of a dreaded examination. In both instances, a day of fasting is a good adjunct to the dose of castor oil. However, because of the prejudice against medicine in general which such practice is likely to engender, it is questionable whether some other method of punishment could not be easily found that would be less detrimental, just as threatening to call a physician when the child does not behave makes the youngster afraid of the doctor, when it would be to the child's interest to cultivate the feeling in the little one that the physician is the children's friend, the best friend a sick child can have.

Sweetening the castor oil and making it aromatic is a good way of disguising it for the child. By means of saccharin (0.05 per cent.) dissolved in alcohol (3 per cent.), castor oil can readily be sweetened. When this is flavored with aromatics (vanillin, 0.1 per cent, coumarin 0.01 per cent) and volatile oils (oil of cinnamon 0.3 per cent, oil of clove 0.1 per cent.), we have the aromatic castor oil of the National Formulary (*oleum ricini aromaticum*, N. F.), which is palatable excepting for the acidity left after it is swallowed. This can be eliminated by using a non-acrid oil, such as Kellogg's "tasteless." Children, however, take aromatic castor oil readily, even when made from ordinary oil, as they usually do not associate the after-sensation with the dose that has been swallowed. We may, therefore, consider the problem of the administration of castor oil to children solved by this means.

In view of the N. F. formula, which can be compounded by any pharmacist, it is hardly necessary to specify a proprietary preparation. Should such specifying seem expedient, *oleum ricini dulce*, marketed by the Pitman-Moore Company, Indianapolis, might be mentioned as an example of such a preparation on the market.

The following method is also of practical value, as it enables one to administer a "tasteless" castor oil without the patient's knowledge, and is useful, therefore, for those children who unreasonably object to medicine of any kind. By vigorously shaking "tasteless" oil, with a liberal excess—at least four times as much—of hot milk, in a bottle which they do not more than half fill, and then having the dose taken immediately, the mixture will be found scarcely distinguishable from rich milk. Such oil might also be given floating on hot soup. However, a protest should be

entered here against administering ordinary castor oil mixed with an important food. This might create in the child a disgust against this article of diet that may last for years.

Thorough emulsification lessens the activity of castor oil, probably because in this form it is too rapidly digested and assimilated. A 35 per cent. emulsion of castor oil can readily be prepared and made palatable. A formula for such a one is to be found in the National Formulary under the name of *emulsum olei ricini*, N. F. It is flavored with tincture of vanilla. The British Pharmacopoeia has a similar formula of different flavor (orange flower and cinnamon) under the title *mistura olei ricini*, B. P. However, as a babe might require a tablespoonful, and an adult a wine-glassful or more, of such emulsions, these preparations are not economical ones, to say the least.

Medicine is still one of the dreaded bighorns of childhood, and castor oil is a leader of these. Let us admit that it is poor technic to insult the palate—the sensitive guardian of our system against chemical injury—when medicine is to be given. It is no longer necessary, and certainly inexpedient. The patient may take the dose; but he does so with open or smothered revolt.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PECKNER, SECRETARY.

**Pituitary Solution-Hollister-Wilson.**—Liquor Hypophysii, U. S. P.—A sterilized solution of the water soluble extract of the posterior portion of the pituitary glands of cattle, preserved by the addition of chlorbutanol, each Cc. containing 0.095 Gm. It is standardized according to the method of Roth (Bulletin 100, Hygienic Laboratory, U. S. P. H. S.).  
*Actions and Uses.*—See New and Nonofficial Remedies, 1919, p. 204.

*Dosage.*—From 0.3 to 1 Cc. to be injected intramuscularly or subcutaneously. May be increased or diminished according to indications.

Manufactured by the Hollister-Wilson Laboratory, Chicago. No U. S. patent or trademark.

*Ampoules Pituitary Solution-Hollister-Wilson 1 Cc.* Each ampoule contains a pituitary solution—Hollister-Wilson 1 Cc.

Posterior lobes of the pituitary body of cattle are dried and fattened and then extracted with highly acidulated water, the solution boiled and filtered. The resulting extract is sterilized and then adjusted so as to correspond with the Pharmacopoeia standard.

Pituitary solution Hollister-Wilson is a transparent liquid, colorless and having a faint characteristic odor.

**Cancer.**—Posters to warn the public against the danger of delaying operation in cancer cases have been prepared and circulated recently to the number of 4,500 among the largest industrial plants in Massachusetts. Through the cooperation of the Associated Industries of Massachusetts and the Retail Trade Board of the Chambers of Commerce the cancer posters have been displayed on the bulletin board of 1,100 of the largest factories and fifty of the largest department stores in the state. The posters offer free information regarding cancer to all who write to the Massachusetts Health Committee, 525 Boylston Street. The inquirers promptly receive the latest cancer circulars of the State Department of Health and the American Society for the Control of Cancer—*The Commonwealth* 6:121 (May/June), 1919.

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SATURDAY, NOVEMBER 29, 1919

## THE FUNCTIONS OF THE THYMUS

To the scientific investigator there is something tantalizing in the existence of anatomic structures for which no clear-cut function is demonstrable. There are in the body numerous organs that are indisputably indispensable to life. Whenever they are extirpated experimentally or destroyed by disease, the loss of something that they contribute to bodily well-being manifests itself, and death ultimately ensues. Removal of the pancreas, the pituitary or the suprarenals affords an illustration of the fact that these structures are necessary to the organism. Other organs, such as the stomach and salivary glands, can be extirpated without untoward outcome. Their function is replaced to a certain sufficient extent by the action of other glands, although the contributory advantage of the removed tissues becomes evident in the modifications of physiologic performance that their loss entails. Without gastric secretion, alimentation may still proceed satisfactorily; but the danger of undue bacterial action in the absence of the antiseptic hydrochloric acid of the stomach is always imminent, and the need of careful selection of foods that can be managed by the enteric tract without preliminary gastric digestion is recognized. If not indispensable, this function is at least absolutely useful.

In contrast with these instances of physiologically necessary or desirable organs is the existence of other tissues that baffle the observer. No one can longer confidently maintain that the spleen is indispensable; nor, on the other hand, is the physiologist willing to admit that this large, conspicuous organ, which is so intimately connected with vital abdominal structures, is dispensable. Equally undetermined is the rôle of the thymus in the organism. It is known to undergo a normal involution in the earlier years of life; consequently the possibility of some interrelation between the thymus and growth (which likewise ceases in the course of a few years) has long been kept in mind by investigators. Thus it has been reported that in cases of arrested development or of general weakness in young persons, the thymus has been found to be persistent. However, so many factors are concerned in

the complex changes attending growth that chance parallelisms of the sort just indicated have little if any significance to the critical student of the subject. Extracts of glands, as in the case of the pituitary and suprarenals, sometimes display physiologic potencies indicative of a special function. So far as is known, extracts of the thymus do not differ in effect from those made from other common cellular organs.

The extensive literature on the physiology of the thymus gland is peculiar in that it seems to represent a series of more or less conflicting personal impressions. The eagerness to find something tangible in the activities of the thymus has led investigators to grasp at almost any deviation from the normal that an observer has chanced to note whenever the structure has been interfered with. This is particularly true of extirpation experiments. We agree with a recent reviewer who remarked that it is doubtful whether an unprejudiced person, reading for the first time the literature on experimental extirpation of the thymus, could obtain from it any clear conception as to what the effects of removal of the thymus actually are; probably he would be at a loss to know whether to regard the thymus as essential to life or as an organ devoid of function, or at least of function demonstrable by extirpation.

The choice of experimental animal has not always been fortunate. For instance, Park<sup>1</sup> concluded that in all probability the thymus cannot be extirpated completely from the guinea-pig and, consequently, that the guinea-pig is an absolutely unsuitable subject for thymus extirpation, if it is desired to remove the entire gland. His work makes it appear that the thymus extirpations performed on the guinea-pig by all other investigators were partial and should be so regarded, as none of them examined their animals to make sure that remnants were absent, and that their conflicting results must be considered and interpreted in that light. Again, the severity of an operation that involves the opening of the thorax and extensive dissection from the beating heart in animals at an early age is such that some retardation of growth after thymectomy may naturally be expected apart from any function of the removed tissues themselves. Such factors have rarely been adequately controlled.

In view of this uncertainty, we welcome an excellent contribution, both critical and experimental, that has been made to the subject of thymus function from the departments of pediatrics and surgery at the Johns Hopkins University by Park and McClure.<sup>2</sup> They have performed the important service of pointing out the incongruities in the literature of the subject and the inadequacies of many experiments so limited, often, that chance variation or dietetic or environmental influences cannot be excluded as the controlling factors.

<sup>1</sup> Park, E. A.: Extirpation of the Thymus in the Guinea-Pig. *J. Exper. Med.* 25:129 (Jan.) 1917.

<sup>2</sup> Park, E. A., and McClure, R. D.: The Results of Thymus Extirpation in the Dog. *Am. J. Dis. Child.* 18:317 (Nov.) 1919.

In addition, the Baltimore investigators have made a large number of carefully controlled experiments in thymectomy on young dogs. An illustration of the sort of conception heretofore held is found in the publications of Basch,<sup>3</sup> for example. He concluded that the thymus is not essential to life but exercises a transitory function corresponding to its own life history; that its function is concerned especially with the growth and development of bone, and intimately connected with the process of calcification. He suggested, at least, that growth bears some relation to the size of the thymus, supporting the theory by necropsy findings in a litter of three animals which, having exhibited in life great differences in size, showed at the post-mortem correspondingly great differences in the size of their thymus glands.

Park and McClure are convinced that thymus function is absolutely unessential to life. In contrast with such contentions as have just been mentioned, they defend the thesis that extirpation of the thymus produces no detectable alteration in the hair, teeth, contour of the body, muscular development, strength, activity or intelligence of the experimental animal. Extirpation of the thymus probably does not influence growth or development. However, the possibility that it may cause retardation in development and delayed closure of the epiphyses cannot be excluded absolutely. Extirpation of the thymus probably produces no alterations in the organs of internal secretion. However, with commendable scientific caution the authors say it is possible that extirpation of the thymus produces well marked changes in the organs of internal secretion in the period immediately following thymectomy which was not covered by their experiments.

There has of late been a popular impulse, so to speak, toward classifying the thymus as an organ producing an "internal secretion." As Hoskins<sup>4</sup> has recently contended, the proof of this has never been furnished. He himself considers that the thymus functions as a lymphoid organ in infancy and childhood when a large number of lymphoid cells and leukocytes are needed, and involutes, like an enlarged tonsil, when its presence no longer is necessary. Whatever the facts are, we may hereafter insist, thanks to the excellent American studies of Parks and McClure, that the preconceived ideas of investigators shall no longer dominate the teaching with respect to thymus function; and that positive conclusions hereafter shall be drawn "only from evidence that is overwhelming."

#### AN ENGLISH EXPERIMENT IN SOCIAL MEDICINE

In England, the medical profession and the public are apparently in a state of readjustment. Social insurance in the four years preceding the war, the needs and emergencies of war times, and the discussion of the last year culminating in the creation of a national health ministry, all have combined to arouse and concentrate interest and discussion on the improvement of medical services. An experiment now being carried on in Glasgow is, therefore, of special interest. Dr. David McKail, lecturer on public health at St. Mungo's College, and Mr. William Jones, clerk and treasurer of the Glasgow Insurance Committee, have worked out a plan for a public medical service as a substitute for the social insurance scheme now in operation. Beginning with a criticism of social insurance, which they condemn for failure to provide any form of institutional treatment and for furnishing medical services to only about one third of the total population, they propose to build up a complete medical service, furnishing unrestricted treatment to every citizen needing it, and involving the enrolment of the medical profession and the public control of all general hospitals and infirmaries.

The proposed plan is founded on the experience gained in efforts to meet war conditions, when for a time dispensaries were established in Glasgow for centralizing the patients of absent physicians. The city was divided into districts, and a consultation center established in each. The Bridgetown District, with approximately 100,000 inhabitants, is taken as a convenient unit for study. The volume of sickness as shown by the number of dispensary visits is found to be 3.11 per person per year, varying from a maximum of 7.5 visits for the first year of life to a minimum of 1.32 for ages from 15 to 25. House visits are found to amount to one fourth of dispensary visits. This amount of professional work would require twenty-seven physicians, working thirty-three hours a week. A 25 per cent. addition for seasonal increases would necessitate a staff of thirty-three physicians, each of whom would have an annual vacation in the summer or fall. Births would average nine or ten a day, requiring four obstetricians. Minor surgery and various specialties would require six, making a total staff of forty-three medical men, exclusive of institutional and consultant service. These men are to be graded in three classes, according to age, experience, etc. Each junior would be allowed time and be required to do graduate medical work and special study with a view to his advancement in the service. Salaries would range from \$1,500 to \$2,000 for juniors, \$2,500 to \$3,500 for middle grades, and \$4,000 to \$4,500 for seniors. Provision is also made for dentists and for dental treatment. It is estimated that the expenses of such a medical service could be defrayed by a tax of 1s. 10d.

3. Basch, K.: Bemerkungen zu Rudolf Fischl's Experimentelle Beiträge zur Frage der Bedeutung der Thymusextirpation bei jungen Tieren, *Zschr f exper Path. u Therap.* 2: 195, 1905; Ueber Ausschaltung der Thymusdrüse, *Verhandl. d. Gesellsch. d. natürl. Naturf. u. Ärzte*, 1902 Leipzig 2, Part 2, 1903, p. 3-2; Wien klin. Wchnschr. 104: 892, 1903; Ueber die Ausschaltung der Thymusdrüse, *Jahrb. f. Kinderh.* 44: 285, 1906; Beiträge zur Physiologie und Pathologie der Thymus, II, Ueber die Beziehung der Thymus zum Nerven system, *ibid.* 68: 668, 1908.

4. Hoskins, E. R.: The Growth of the Body and Organs of the Albino Rat Affected by Feeding Various Ductless Glands (Thyroid, Thymus, Hypophysis and Pineal), *J. Exper. Zool.* 2: 1, 295-346, 1916; Is There a Thymic Hormone, *Endocrinology* 2: 241-257 (July Sept.) 1918.

in the pound, imposed in the same manner as the public health assessment, and that the entire expenses of operation could be supplied at an individual cost below the seven shillings capitation basis on which social insurance is now being conducted.

An interesting side light is thrown on the provision for free choice of physicians, under the social insurance plan now in operation. A careful study of the district shows that since the introduction of social insurance and the panel system in Glasgow, those affected have not made an effort to exercise any choice in the selection of physicians, but have gone to the nearest and most conveniently located physician. The advantages for the physician of the proposed public medical service are the limitation of working hours, the guaranteed adequate income, the avoidance of waste of time and energy, the opportunity for increased income, the accumulation of experience, and the opportunity for graduate and special work for every practicing physician. The advantages claimed for the individual are better treatment at a much less expense and for the community, economy of administration, and the prevention of a large amount of disease. The *London Lancet*,<sup>1</sup> in commenting on the proposed plan, expresses the hope that the authors may have an opportunity of testing it, as success or failure would alike afford much needed experience.

#### MEASURING METABOLISM

The estimation of the basal metabolism of man as an index to the existence of certain pathologic manifestations of the bodily functions is becoming quite common as a result of the improvement of respiration apparatus which enables suitable experimental observations to be made with relative ease by a trained clinician at the bedside. The history of medicine affords many other interesting illustrations of the readiness with which the physician appropriates, to diagnostic use, instruments of precision and methods of analysis that are practical in form and execution. The clinical thermometer, the sphygmomanometer, the serologic tests for syphilis, the quantitative determination of gastric and duodenal secretory factors—these and numerous other illustrations of the prompt adaptability of the alert physician to the possibilities of better diagnosis testify to the tendency of exact science to replace empirical judgment whenever circumstances make it worth while.

An indispensable feature involved in the use of any method of precision in medicine is the establishment of normal values. What is the normal range of body temperature? What are the limitations of blood pressure estimations? How are they affected by physiological or environmental factors quite apart from disease processes? Such inquiries must be answered clearly

before aberrant values can lay claim to correct diagnostic significance. In the case of the basal metabolism, likewise, it has become essential to have standards by which the data obtained may be evaluated. Size, age and sex must be taken into account. To the establishment of the foundations of calorimetric research, American investigators, notably at the Carnegie Nutrition Laboratory in Boston and the Russell Sage Institute of Pathology in Bellevue Hospital, New York, have made fundamental contributions, many of which have been specifically reviewed from time to time in *THE JOURNAL*. We shall not discuss the still debated questions, such as the relative significance of body surface and weight, in the calculation of units of metabolic performance. More important for the clinician is the fact that body weight, stature and age of the subject must be considered in predicting basal metabolism.

With this conviction in mind, Harris and Benedict<sup>1</sup> have recently issued standard "multiple prediction tables for normal basal metabolism" in both man and woman. In accord with what has been asserted in the past, the use of the standards shows the existence of a well marked differentiation in the level of metabolism of men and women, and shows that the differences are persistent throughout adult life instead of disappearing in later years as maintained by Sonden and Tigerstedt. There is no evidence for such differentiation in newborn infants. The average woman shows a daily heat production about 300 calories less than the average man. If correction is made for body size by expressing heat production in calories per kilogram of body weight, she shows an average heat production of about 1.2 calories per unit of weight less than the man. If body surface is used as the basis for comparison, the woman shows daily heat production approximating 76 calories per day per square meter less than that of man.

Data recently secured by the Food (War) Committee of the Royal Society of London substantiate this general outcome. Thus Rosenheim<sup>2</sup> concludes, starting from the contention that the unit of surface area eliminates the same amount of heat in the normal adult, that the figure for women is about 7 per cent. lower than that for men. The energy expenditure of women in various activities has likewise been ascertained by the English committee in order that they might be assured of a fair assessment of their share in the available food supply during the period of food stringency. The outcome determined under conditions of factory work shows the following increments of heat production during work and walking: light work, 72 per cent.; medium hard work, 109 per cent.; hard work, 181 per cent.; walking, 274 per cent. It may come as a surprise to learn that the energy expenditure

<sup>1</sup> Harris, J. A., and Benedict, F. G.: A Biometric Study of Basal Metabolism in Man, Pub. 2-6, Carnegie Institution of Washington, 1919.

<sup>2</sup> Rosenheim, D.: A Preliminary Survey of the Energy Expenditure of 12,000 Requirements of Women Workers, Proc. Roy. Soc., Series B, 91:44 (Aug. 6), 1919.

<sup>1</sup> An Epitome of the Public Medical Service, *Lancet* 2:649 (Oct. 11) 1919.

during one hour's horizontal walking is in all cases higher than that of even the hardest work on the lathe. Women expend about the same amount of energy as do men in horizontal walking, the "maximal economic velocity" being about 3 miles an hour (or 80 meters a minute). As has been demonstrated in the case of athletes, training works for economy of energy expenditure. A waitress is likely to walk with greater physiologic economy than a person of sedentary habits. It is known that during adult life the basal heat production of the adult continuously decreases. This is one of the accompaniments of age. Perhaps the failure of rejuvenescence in the human individual is associated with his inability to speed up metabolic performance at a juvenile rate. Pulse rate, which is in some degree an index of metabolic rate, normally decreases with age. Statistics gathered by Harris and Benedict<sup>1</sup> express the relationship between age and metabolism in terms of an actual decrease in daily heat production per year amounting to about 7.15 calories in men and 2.29 calories in women. The decrease in heat production per kilogram of body weight is more nearly identical in the two sexes, namely, 0.112 calory in men and 0.124 in women. Such tests of the rate of change as have been made throughout the age range of adult life indicate that it is essentially uniform. Senescence and metabolism are thus interrelated.

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## Current Comment

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### HEALTH LEGISLATION IN CONGRESS

After a continuous session of exactly six months, the first session of the sixty-sixth congress has adjourned without enacting any beneficial public health legislation; nor was any legislation detrimental to public health enacted. The Senate made progress with some measures of interest to the medical profession, while practically no consideration was given to any of this legislation by the House. This is due primarily to the fact that the Senate has a committee charged with the consideration of medical legislation, known as the Senate Committee on Public Health and National Quarantine, while the House has no such committee, nor any committee that corresponds to it. The Senate committee considered and reported favorably a bill to provide \$1,000,000 for the study and treatment of influenza and kindred diseases, introduced by Senator Harding of Ohio; a bill to establish a division of tuberculosis in the United States Public Health Service, introduced by Senator Randsell of Louisiana; a bill making appropriations for the care and treatment of drug addicts, introduced by Senator France of Maryland, and a bill to admit government employees suffering with tuberculosis to army, navy and Public Health Service hospitals. All of these measures are now on the Senate calendar, having been reported favorably, and are in line to be called up at the beginning of the next session, Monday, December 1. The Senate

passed a bill providing for the retirement of female army nurses, introduced by Senator Wadsworth of New York, and this measure will be before the House at the coming session for final action. The House Committee on Pensions favorably reported a bill to pension members of the Female Nurse Corps of the war with Germany, introduced by Congressman Fordney of Michigan. The regular governmental appropriation bills, including the necessary appropriations for the Medical Corps of the army, navy and U. S. Public Health Service, were passed. A number of other medical measures were introduced in both the Senate and the House, but no action was taken on them. Some relate to the establishment of the Department of Health in the federal government, and have been referred to in *THE JOURNAL* from time to time, while others provide for the establishment of bureaus of rural sanitation and maternity, and infancy hygiene in cooperation with the state governments. It is quite evident to those who have watched, or who are interested, in medical and health legislation, that, so far as congressional legislation is concerned, one of the big needs of the time is the creation of a committee on public health in the House of Representatives of the United States Congress. —

### DRUG POTENCY IN WAR-STRICKEN POPULATIONS

Almost every physician has seen, at times, in individual cases, surprising and unexpected pharmacologic responses to the administration of certain drugs. He charges to obscure idiosyncrasy the unanticipated effects of substances that have a well known potency in standard dosage. Progress in the study of pharmacology and therapeutics tends to reduce the number of instances in which ignorance of the cause of either hypersensitiveness or resistance to a drug, as the case may be, must be veiled by the word "idiosyncrasy." The phenomena of tolerance to drugs are gradually becoming unraveled and explicable; the limitations of dosage are being rationalized because the scientific spirit of our times is no longer content to accept vague or meaningless phrases in place of lucid explanations. On several occasions *THE JOURNAL* has stated that the war-time diet with its attendant undernourishment had brought about pathologic conditions in indirect ways in some places. The incidence of certain diseases has evidently increased because of a lowered resistance on the part of a food-impooverished population. Other maladies, such as cancer and diabetes, have become less conspicuous. Several clinicians have recently recorded a greatly increased sensitiveness of persons in the undernourished districts to the effects of commonly administered drugs.<sup>1</sup> Treatment with mercurials and arsphenamin in usual doses in cases of syphilis has resulted in increased instances of mercury poisoning. Icterus is reported more frequently as an undesired manifestation of this therapy. A profound narcotic effect has followed the use of small doses of

<sup>1</sup> J. Zernik, F. Kreuzunterernehmung und Arzneimittelwirkung. Deutsch. med. Wochenschr., July 31, 1919, p. 858. Rumpel, Kreuzwirkung auf die Ernährungverhältnisse, Monatsh. u. J. Med. Ch. dtd., June 19, 1919, p. 204.

paralytic which were commonly employed with ordinary anesthetic outcome in prewar days. Patients who formerly tolerated much larger doses of morphin derivatives without untoward symptoms succumbed to the customary prescriptions with signs of profound narcosis. The objectionable cutaneous manifestations of certain drugs have become conspicuous in the war-stricken population. Such instances suffice to show the unanticipated, but by no means inexplicable interrelations of widespread undernourishment and practical therapeutics.

#### FINDING THE PROVERBIAL NEEDLE

Under General News last week was an item to the effect that an investigator of stammering desired to secure a stammerer whose skull had been trephined. He wished to determine whether or not there was any relation between stammering and cerebral congestion. While there are thousands of stammerers in the United States, and an unknown number of persons whose skulls have been trephined, it seemed extremely unlikely that the combination might exist in any considerable number of cases. The request was published with small hope of response. But the first mail on Monday morning brought the name and address of such a person. The legendary difficulty of finding a needle in the haystack is thus shown to be not such a difficult matter after all, providing the right method—or, as in this case, the right medium—is employed.

#### UNTOWARD REACTIONS AFTER ARSPHEN-AMIN ADMINISTRATION

The exact nature of the reaction due to individual idiosyncrasies that sometimes follows the administration of certain drugs is perhaps not always the same. In some ways these reactions resemble, at least superficially, the phenomena of anaphylaxis, or hypersusceptibility. Very few of the drugs concerned, however, are protein bodies, and anaphylaxis strictly speaking is hypersusceptibility to foreign protein. It has been suggested that these reactions be described as "anaphylactoid reactions." That such reactions occur after arsphenamin administration was first noted by Hoffman. The phenomena usually result after repeated intravenous injections of the drug. There is a sudden congestion and swelling of the face, or a cyanosis of the face with a feeling of congestion in the head. The patient complains of a feeling of oppression in the chest, with cough, dyspnea and pain in the back. Frequently mental anguish is present. These symptoms usually develop suddenly during the administration of the drug, and disappear when this is stopped. Hirano<sup>1</sup> has been working on this problem in Kitasato's laboratory for two or three years. He concludes that so far as anaphylactoid reactions to arsphenamin are concerned, the phenomena are connected with the action of the drug on the suprarenal glands. He points out that Brown and Pearce showed experimentally many years ago that arsenic has a selective action on the suprarenals. His experiments show that large doses of arsphenamin or of neo-arsphenamin lead to a

marked reduction in the chromaffin substance of the suprarenals, and that the epinephrin content both of the blood and of the gland itself undergoes a marked diminution after the injection of even therapeutic doses of arsphenamin. He thinks that the anaphylactoid symptoms are produced when this sudden reduction in the epinephrin content of the blood is so great that a fresh supply cannot be furnished promptly by the suprarenals. If these observations are correctly interpreted, they point directly to the treatment of anaphylactoid phenomena after arsphenamin administration by the intramuscular injection of epinephrin. Hirano's results and those of Pearce and Brown are also suggestive as throwing light on the possible cause of the pigmentation of chronic arsenic poisoning. May it not be that this pigmentation is not directly associated with the drug itself but is an indirect effect produced by its action on the suprarenal glands?

### Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

#### COLORADO

**Testimonial to Health Officer.**—Dr. George B. Gilmore, who served as health officer of Colorado Springs during the influenza epidemic last year, was presented by the city council with a framed copy of a resolution adopted by that body. Mayor C. E. Thomas made the presentation address.

**Personal.**—Dr. M. Ethel V. Fraser, Denver, who received a decoration from the French government for her work in the Chateau Thierri sector, has returned from France.—Dr. Frost C. Bichtel, Denver, who has been seriously ill, has gone to Hot Springs, Ark., for his convalescence.—Dr. Charles Fox Gardiner, Colorado Springs, has been reelected chairman of the Pikes Peak chapter of the American Red Cross.

#### ILLINOIS

**Hospital Notes.**—Christian County has voted in favor of levying a tax for the building and maintenance of a county tuberculosis sanatorium.

**Central Illinois Physicians Meet.**—At the annual meeting of the District Medical Society of Central Illinois, held in Pana, October 30, Dr. Henry E. Monroe, Shelbyville, was elected president; Dr. Robert L. Morris, Decatur, vice president; Dr. Franklin A. Martin, Pana, secretary, and Dr. Lotharo L. Morey, Vandalia, treasurer.

**Personal.**—Dr. Josephus J. Brown, for nearly forty-one years a practitioner of Troy, has disposed of his business and property interests and announces his retirement. He expects to reside in California.—Dr. Frederick D. Culbertson, Rushville, has let the contract for the erection of a new medical and surgical institute at Rushville, to be known as the Culbertson Hospital.

#### Chicago

**Deaths from Denatured Alcohol.**—The coroner's office states that fourteen deaths, from the use of denatured alcohol as a substitute for whisky, have been reported since September 15. Many cases of blindness have also been reported which are attributed to the use of denatured alcohol as a beverage.

**Low Death Rate.**—In spite of the estimated increase in population of a quarter million, since 1915, the death rate of Chicago is lower than far, this year, than it was four years ago. During the same period in 1916, 31,205 deaths were reported, in 1917, 33,281; in 1918, 37,679; and in 1919, up to November 15, only 29,983.

**Dr. Emerson in Chicago.**—At the November 19 meeting of the Chicago Medical Society, Dr. William R. P. Emerson, professor of pediatrics in Tufts Medical College, Boston, pre-

<sup>1</sup> Hirano, Kitasato Arch. Expt. Med. 3:1, 1919.

sented the results of some of his researches on nutrition.—Dr. Emerson also addressed the Chicago Pediatric Society, November 18, on the subject of "The Malnourished Child."

INDIANA

**Personal.**—Dr. Richard C. Mackey, Hobart, superintendent of schools, suffered a cerebral hemorrhage, November 2.

**Hospital Site Purchased.**—The county council of Vigo County has approved the plans of the county commissioners for the purchase of the farm of Dr. Joseph Frisz, 8 miles north of Terre Haute, as a site for the county tuberculosis hospital, and has appropriated \$22,275 as the purchase price.

**Mental Hygienists to Meet.**—The annual meeting of the Indiana Society for Mental Hygiene will be held at the Hotel Severin, Indianapolis, December 15, under the presidency of Dr. William L. Bryan of the University of Indiana. At this meeting the urgent needs of the state in the matter of care for its mental defectives will be presented.

**Hospital Items.**—It has been announced that the proposed \$100,000 sanatorium for the disabled and retired Presbyterian ministers of the United States will be located on a site 10 miles east of Evansville, adjoining the Thornton Home for retired ministers.—The Kosciusko county memorial committee reached the decision that a hospital would be a most practicable memorial to the county sailors and soldiers.—Construction work has been started on the new Methodist Hospital, Gary.—The new Bloomington Hospital, erected by the local council of women of the city at a cost of about \$75,000, was open for inspection November 7, 8 and 9, and patients, November 11. The present hospital building is to be used as a home for nurses.

IOWA

**Smallpox Increasing.**—Fourteen cases of smallpox have been reported in Davenport, since November 5. Four of these were in one house.

**Personal.**—Dr. Charles E. Block, Davenport, has been appointed physician of Scott County, succeeding Dr. Sidney G. Hlands, resigned.—Dr. John W. Watzek, Davenport, has been elected treasurer of the Crossett Timber Company.

KANSAS

**Personal.**—Dr. William V. Tucker, Elkhart, representative for Morton County in the legislature, has retired and moved to his farm in Oklahoma.

**Reception to Service Men.** The meeting of the Barton County Medical Society at Great Bend, October 16, was devoted to honoring the ten of the twenty-four practitioners of the county who entered the army and saw active service during the war. The welcome home address was delivered by Dr. Horace C. Embry, Hoisington, and Dr. Elmer E. Morrison, Great Bend, officiated as toastmaster.

LOUISIANA

**Physicians Injured.**—Drs. Adolph Jacobs and David Adiger, New Orleans, formerly house physicians of Charity Hospital, were injured, November 14, when an automobile in which they were riding was overturned on Gentilly Road. The injured physicians were taken to Toussaint Infirmary.

**Bubonic Plague.**—The outbreak of bubonic plague at New Orleans is said to be under control. Up to date, five cases have occurred with two deaths. The dock board has begun the ratproofing of the river front, and the railroads are undertaking the same work at their terminals. All ships are being fumigated and the fending-off and rat-guard ordinances are being strictly enforced. Since November 1, 3,497 rats have been trapped. Of these, twenty-eight were found to be infected with plague and sixty-four more are under suspicion.

MAINE

**Physicians' Licenses Revoked.**—An official report shows that at its meeting, held November 12 and 13, the Maine State Board of Registration in Medicine revoked the licenses of Drs. Dennis J. O'Brien of Portland and Lemuel F. Noble of Boston on the ground that they had been convicted in the federal court, under the Harrison Narcotic Law, of illegally dispensing drugs.

MARYLAND

**Personal.**—Dr. Elijah J. Russell, Baltimore, has been appointed surgeon to the Baltimore City Fire Department

**Tuberculosis Campaign.**—Tuberculosis caused an economic loss in Baltimore last year of approximately \$3,500,000, according to Mr. A. E. Sinks, executive secretary of the Maryland Tuberculosis Association, who is making a survey of health conditions in the city and state, preliminary to the health campaign by the National Tuberculosis Association.

**Herter Lectures End.**—The final lecture of a series under the Herter Foundation was given at the Johns Hopkins Hospital by Dr. Henry Hallett Dale, director of the department of biochemistry and pharmacology, Medical Research Committee, National Health Insurance, London, England. His first lecture was on "Capillary Poisons and Shock." In the second he discussed "Anaphylaxis," giving the theory of action of drugs in general and the results of personal research. The third lecture was devoted to "Chemical Structure and Physiological Action," in which the results of the most important research work being conducted in England were given.

MISSOURI

**Personal.**—Dr. David F. Morton, Perryville, is ill in a hospital in Rochester, Minn.—Dr. Oliver C. Gebhart, St. Joseph, was elected president of the Visiting Nurse Association of St. Joseph, at the annual meeting, October 27.

**Base Hospital Reunion.**—A reunion banquet of the officers and enlisted personnel of Base Hospital No. 28 was given at the University Club, Kansas City, November 6. About thirty-five were present, and Dr. John F. Binnie officiated as toastmaster.

**Red Cross Appropriation for Clinic.**—The executive committee of the American Red Cross has appropriated \$5,000 to the state board of health for venereal disease control work, with the understanding that a venereal clinic be established in St. Joseph.

**Unlicensed Practitioner Fined.**—Dr. Carl E. Schulte, St. Louis, is said to have pleaded guilty in the St. Clair County Court, October 31, to the charge of practicing medicine in Illinois without a license, and to have been assessed a fine of \$50 and costs.

**Endowment for Pharmacology.**—Authentic reports show that Washington University Medical School has received \$300,000 to endow its department of pharmacology. Half of this sum was given by the general education board and the other half was raised by the medical school.

**Conservation of Vision.**—The bill providing for the compulsory use of a prophylactic in the eyes of the newborn failed of passage at the last session of the legislature, and the Missouri State Association for the Blind has already opened its new campaign looking for the presentation of the bill at the next session.

**Obstetricians Resume Session.**—The first session of the Kansas City Obstetrical Society since the United States entered the war was held, November 4. Dr. Palmer Findley, Omaha, gave an address on "Venereal Control of Women in Detention Homes, in War and Peace," and Dr. Grandison D. Royston, St. Louis, presented a paper on "Complications of Pregnancy and Labor." An informal dinner was given to the speakers at the Kansas City Club.

**Kansas City Veterans of the World War.** Ex-officers of the Medical Corps of the U. S. Army and Navy organized the Kansas City Medical Veterans of the World War, November 3. The object of the association is for the promotion of fellowship, the preparation and recording of history, and the perpetuation of memory of the days of service for the benefit and improvement of the local medical profession. Dr. George E. Bellows was elected president, Dr. John F. Binnie, vice president, and Dr. Ernest G. Mark secretary-treasurer.

NEW YORK

**Personal.**—Dr. Francis F. Fromczak, health commissioner of Buffalo, was elected president of the All Polish Convention, November 10.—Dr. Frank H. Lutton, Alton, has been elected a member of the lower house of the New York legislature.—Dr. George W. Lane was reelected mayor of Corning, November 4.—Mr. H. Bartlett Cleveland, who has been connected with the sanitary engineering department of the New York State Department of Health for fourteen years, has resigned his position as principal assistant engineer to enter consulting and designing engineering practice in New York City.

**Joint Clinics for Mental Diseases and Defects.**—A program for a state wide system of joint clinics, under the

clinics of the State Hospital for Mental Diseases and the State Commission for Mental Defectives, is being worked out. The purpose of these clinics is to provide, in the various communities, facilities for the examination of patients with nervous and mental disorders, and to supply expert advice and suggestion as to treatment. The first of these clinics was opened recently at Watertown, through the cooperation of Dr. William C. Sandy and Dr. Paul G. Madden, superintendent of the St. Lawrence State Hospital, Ogdensburg, and plans are under way for the establishment of two additional clinics, one in cooperation with the Binghamton State Hospital, Binghamton, and the other with the Willard State Hospital, Willard.

**New York State Society Condemns Health Insurance.**—A special meeting of the House of Delegates of the Medical Society of the State of New York was held at Albany, November 22, to consider the report of the Committee on Compulsory Health Insurance. Dr. Harvey R. Gaylord of Iuffalo, chairman of the special committee, presented a report, stating that the essential components of all compulsory health insurance schemes are the payment of a cash indemnity during a relatively brief period of incapacity due to illness, and provision for medical, dental and nursing care and attendance, hospital accommodations, maternity care and medicines during illness. The advocates of social insurance make two main assertions, that a large amount of poverty is due to illness causing unemployment and loss of income, and that a large number of people receive inadequate and insufficient medical attendance. The remedy proposed is the establishment of a state administrative machinery to administer a system of compulsory state health insurance. The committee is of the opinion that the belief that a large amount of poverty is due to unemployment caused by illness is based on a *a priori* reasoning, and that the preponderance of evidence is against this assumption. The statistics of the Labor Bureau of New York City show that disability from all causes is responsible for only 5.7 per cent. of unemployment. The committee is unable to find any reliable evidence showing that medical attendance in the state is either deficient in quantity or defective in quality and is not convinced that the proposed plan of compulsory health insurance would benefit or improve the quality of medical services, while the inquisitorial powers proposed for the state industrial commission and the local boards of directors would tend to submerge and nullify the activities of the present state department of health. The committee is of the opinion that the relative morbidity, mortality, infant mortality and maternal mortality rates have been much more materially reduced in the United States in the last twenty years than they have been in those countries in which compulsory health insurance prevailed. The committee, therefore, finds: first, that there is no necessity for social insurance in New York; second, that in those countries where it has been introduced in many years, it has caused a deterioration in the standard of morale and medical service, and that it would have the same effect in New York; third, that in comparison with those countries where social insurance has been introduced, the United States has shown a more marked reduction in both mortality and morbidity; fourth, that there is no need for social insurance, if adopted, gradually undertaken, to preserve, enhance, or value the functions of the state department of health. In view of the paucity of accurate and reliable vital data, the committee recommends that the Legislature should be requested to appropriate enough money to make a study of the amount and character of illness in the United States and its economic relation to the community. It is recommended that if additional legislation is to be considered, it should provide for a greater development of the present county health departments and the wider utilization of the present hospital facilities for the diagnosis and treatment of diseases. The committee, therefore, recommends that the House of Delegates and the Medical Society of the State of New York should formally oppose the enactment of any law instituting a system of compulsory health insurance against illness. Dr. S. S. Galvater presented a minority report consisting of twenty-one resolutions which would be observed in any social insurance legislation. The majority report of the committee was unanimously adopted.

#### New York City

**Personal.** Dr. Russell Pemberton sailed for Washington, October 9, as ship's physician and observation officer of the magnetism ship *Carnegie* for a cruise in the South

Atlantic and Indian oceans.—Dr. Thomas F. Reilly has been appointed visiting physician to St. Vincent's Hospital.

**Hygiene and Preventive Medicine Department Organized.**—The organization of the new department of hygiene and preventive medicine at Cornell University has been completed, and the following appointments to the staff have been made: Dr. Haven Emerson, professor of hygiene and preventive medicine, and director of the department; Dr. James Stevenson Allen, Geneva, assistant professor of hygiene and preventive medicine and assistant director of the department, and Dr. Frank C. Balderrey, medical advisor.

**School for Crippled Children.**—The Free Industrial School for Crippled Children, 471 West Fifty-Seventh Street, has opened its fall term with a full attendance. This school embraces the Lulu Thorley Lyons Home for Crippled and Delicate Children, Claverack, N. Y., where the children spend the summer after the close of the school year. The children taken by this school are not eligible for public school life as they are not physically able to attend, but here are enabled to pursue the same course of studies. A special study is made of the case of each child who receives such medical and surgical attention as is required. The school provides hot lunches, autobus transportation, and clothing when necessary for the children. The joint societies celebrated their twentieth anniversary by beginning a drive for \$100,000 for their permanent fund.

#### OHIO

**Banquet to Service Men.**—The Medical Society of Logan County made the chief feature of its annual dinner at Bellefontaine, November 7, a welcome to the members of the society who had been in active service during the world war. Dr. Robert H. Butler, Bellefontaine, acted as toastmaster.

**Personal.**—Dr. John R. Pipes has been elected mayor of Avon.—Dr. Robert Longfellow, Toledo, has been elected dean of the staff of the Ohio Soldiers' and Sailors' Home, Xenia, succeeding Dr. Charles J. Shepard, Columbus.—Dr. John C. Larkin has been made a member of the volunteer visiting and consulting staff of the home.

**University of Cincinnati Notes.**—At the meeting of the board of directors of the University of Cincinnati, October 14, a donation of \$5,000 for a scholarship in the college of medicine, by Mrs. Isaac A. Wyler, was announced. This scholarship is given in memory of her son, Dr. Jesse S. Wyler, Cincinnati, who died from influenza during the epidemic last year.—Dr. John C. Oliver was appointed acting dean of the medical college during the illness of Dr. Christian R. Holmes, both of Cincinnati.—Dr. Clarence W. Betzner, Cincinnati, was appointed attending orthopedist to the Cincinnati General Hospital.

#### OKLAHOMA

**Laboratory for Medical Society.**—At the recent meeting of the Washington County Medical Society it was decided to purchase equipment at a cost of \$1,000, and to establish a bacteriologic laboratory for the use of the physicians of Bartlesville.

**Clinic Organized.**—The Oklahoma City Clinic has been organized by Drs. Abraham L. Blesh, William W. Rucks, John Z. Mraz, David D. Paulus, Marvin E. Stout, and others. The clinic has purchased Wesley Hospital which has a capacity of sixty-five beds.

**University Hospital Dedicated.**—Thursday, November 13, the regents and faculties of the University of Oklahoma held special exercises dedicating the new State University Hospital which has just been completed in Oklahoma City. The hospital contains 175 beds, including twenty-five in private rooms. The building cost approximately \$200,000, and the equipment, \$76,000. Approximately \$200,000 per year will be required for maintenance. The dedicatory address was given by Dr. Jabez N. Jackson of Kansas City, Mo.

**Tablet to Staff Members Unveiled.**—In memory of Major Robert Lord Hull and Frank Bruner Sorgatz, both of whom died in military service during the influenza epidemic, the sisters of St. Francis and St. Anthony's hospitals, Oklahoma City, erected a bronze tablet which was unveiled at a memorial service. Dr. Robert M. Howard presided. Dr. John W. Riley spoke of the life and work of Dr. Sorgatz, and Drs. Arthur B. Chase and George A. LaMotte, spoke on Dr. Hull. The tablet was unveiled by Dr. H. Coulter Todd.

## PENNSYLVANIA

**Personal.**—Dr. Theodore L. Hazlett, Pittsburgh, has been appointed medical director of the Mont Alto Sanatorium, succeeding Dr. Frederick C. Johnson, Mont Alto, who has been on leave on account of illness.

**Schools Teach Diet.**—Classes in "eating" will shortly be established in three schools and include a course of study for both parents and pupils in the causes of malnutrition. There will be nurses in charge of each school and a dietitian. Intensive health work along this plan is to be conducted at the Campbell School, Eighth and Fitzwater streets, the Hawthorne School, Twelfth and Fitzwater streets, and the Meredith School, Fifth Street above Fitzwater. Each of these schools will be equipped with scales and other special apparatus necessary for the work. The weight of the children will be recorded, and a health card filled out for them. Under the new plan of health education, which it is hoped eventually to extend to other schools, a pupil's health card will follow him through all his public school career. Malnutrition, the school medical inspectors state, is not due entirely to poverty. Causes which contribute are improperly prepared food, too much candy and eating between meals.

## Philadelphia

**Personal.**—Dr. Charles Lincoln Furbush, sanitation expert, was decorated with the order of Companion of St. Michael and St. George by the Prince of Wales, November 22.—Dr. Howard S. Anders sustained a fractured rib, when a trolley in which he was riding collided with another car.

**War Physicians Dinner Guests.**—Sixty physicians who served in the army or navy during the world war were the guests of honor at a reunion dinner given by the Homeopathic Medical Society at Philadelphia at the Adelpia Hotel, attended by 160 physicians. Dr. Gilbert J. Phalen was toastmaster.

**Graduate School of Medicine Opens.**—The Graduate School of Medicine of the University of Pennsylvania opened in October, and according to George H. Meeker, dean of the University of Pennsylvania, there are sixty-three physicians in actual attendance, about thirty have been turned away because of the present limited accommodations, and nearly fifty are already applicants for the courses of the next semester, which begins Feb. 9, 1920. The general plan for the University Graduate School of Medicine is as follows: A central university organization as now or to be constituted, having as its special business graduate medical education. The cooperation of other university groups, especially the Undergraduate School of Medicine. The cooperation of the hospitals of Philadelphia generally, not as integral parts of the university, but affiliated through their staffs and clinical and physical facilities, in this important movement for Philadelphia, under the educational control of the university. This general hospital cooperation is still in its beginnings. The cooperation of public and private philanthropies, in contributing toward the large funds without which the goal will be difficult or impossible to reach. In 1916, a merger between the University of Pennsylvania and the Medico-Chirurgical College of Philadelphia was effected. By the conditions of this merger the Medico-Chirurgical College became an integral part of the University of Pennsylvania as its Graduate School of Medicine and the heads of the clinical departments were constituted a nucleus for the faculty of the new school. By merger with the university in 1918 the Philadelphia Polyclinic and College for Graduates in Medicine, with its facilities for graduate medical instruction, was further added as the "Polyclinic Section" of the Graduate School of Medicine constituted as above. On this foundation, and with some valuable assistance from the Undergraduate School of Medicine and a few of the hospitals of Philadelphia, the work of the new school has been started.

## SOUTH CAROLINA

**Hospital Items.**—The Darling Hospital Association has been incorporated at Darlington, with a capital stock of \$100,000.—The Ferguson Private Sanatorium, Gaffney, was opened for the reception of surgical cases, October 1.

**Fire at Camp Hospital.**—The total loss caused by the fire which destroyed the officers' quarters at the United States Public Health Service Hospital, Camp Sevier, Greenville, is estimated at about \$10,000. There were about 750 patients at the hospital at the time of the fire, forty officers, more than 100 women, nurses, aides and stenographers, and about 150 civilian employees.

**Personal.**—The charge of manslaughter brought by William M. Graydon, a lawyer, against Dr. Julius H. Taylor, Columbia, on account of the death of Graydon's son, following an operation, was dismissed in court, October 30.—Dr. Carl A. West, Columbia, has been appointed health officer for Lexington County, succeeding Dr. Boldridge E. Kneecr.—Dr. William D. Simpson, Abbeville, has resigned as a member of the state board of charities and corrections.

**Public Health Work.**—Dr. G. E. Neal of the state health department, who established a clinic in Newberry, has gone to Anderson to establish a similar clinic there. In connection with this work a state advisory board will be established consisting of one member of the state board of health, one member of the federal board of health, one member to be recommended by the legislative delegation, and one by the city council, either mayor or chairman of the city board of health.—The United States Public Health Service is sending an investigator to look into the conditions in Newberry County with regard to trachoma. At St. Luke's School there are said to be five cases of trachoma, at Monticello School, five, and at Saluda, three cases.

## WASHINGTON

**Red Cross Clinic Opened.**—The junior Red Cross Clinic was opened in the Horace Mann School, Spokane, during the week of November 14. Drs. Oliver T. Batcheller, Ronald A. Greene, Elmer E. Langley, Carroll L. Smith and Fred G. Sprawl were in charge of the eye, ear, nose and throat clinics, and Drs. Earl H. Current and Peter D. McCornack in charge of the medical clinic.

**Personal.**—Dr. William L. Hall, Spokane, recently returned after years of service as a medical missionary at Szechwan, China.—Dr. Thomas C. Barnhart, Spokane, has succeeded Dr. Albert E. Stult as physician of Spokane County.—Dr. William O. Wisner has been appointed assistant to Dr. Thomas C. Barnhart.—Dr. Frank S. Miller, Spokane, has been elected medical director of the Edgecliff Sanatorium.

## WISCONSIN

**Increase in Smallpox.**—Up to November 12, 133 cases of smallpox have been reported in the state. The so-called normal for Wisconsin for November is 113, but if the high record is maintained, the high mark of 196 reported in 1914, will be exceeded. The state board of health gives its usual warning regarding vaccination.

**New Officers.**—At the annual meeting of the Wisconsin Anti-Tuberculosis Association, October 30, the following officers were elected: president, Dr. John W. Coon, Stevens Point; vice presidents, Dr. John R. Curries, Two River, and Mrs. Ben Hooper, Oshkosh; secretary, Dr. J. Gurney Taylor, Milwaukee and treasurer, John H. Kromer, Milwaukee.—At the annual meeting of the Milwaukee Physicians' Association, Dr. Arthur R. F. Galt, was elected president; Dr. Edward M. Rice, vice president, and Dr. H. P. Seckert, secretary-treasurer.—At the annual meeting of Wisconsin Women's Medical Society, held in Milwaukee, October 1, Dr. Belle P. Nair Wimbago, was elected president; Dr. Ada B. Chandler, Pardeeville, vice president, and Dr. Bertha A. Thomsen, Oshkosh, secretary-treasurer.—The Wisconsin Branch of the Medical Veterans of the World War was organized October 1, at Milwaukee.—Dr. H. M. Chester Brown, Milwaukee, was elected president, Dr. L. Reek Steverson, Wausau, secretary-treasurer, and Drs. John M. Dodd, Elkhart, Gilbert E. Swann, Milwaukee, and James R. Langley, Fond du Lac, a committee to complete the organization.

## CANADA

**University Buildings Burn.**—The main buildings of the University of Montreal, better known as Laval University, including the medical department, were destroyed by fire November 22. The loss is estimated at \$400,000, which is said to be covered by insurance.

**Saskatchewan University News.** Several weeks ago the University of Saskatchewan was closed, pending an investigation into the affairs of that institution. Four university professors were dismissed, and now an investigation is being held with the Chancellor, Sir Frederick H. Brown, in the chair. Dr. A. McKay, one of the dismissed professors, proposes that a controller be appointed, who would leave the president free to direct the more important policies of the institution.

**Personal.**—E. L. Brinkhwaite, M.B., Ph.D., late professor of the Western University, London, Ont., has been appointed

national organizer of the Inter-Church Forward Movement. — Dr. George R. Pirie, some time on the staff of the Hospital for Sick Children, Great Ormond Street, London, England, has returned to Toronto and commenced practice in diseases of infants and children. — Dr. Frank S. Park, Toronto, has gone to England to report on conditions regarding the emigration of children to Canada.

**Smallpox Situation in Toronto.**—Smallpox still continues to spread in Toronto, although the daily incidence of cases has not been so marked during the past week. The total has now risen to 518 cases and the number of persons quarantined something like 1,500. The antis held a mass meeting the other evening, but were only able to muster some 400 citizens. Altogether there have been more than 100,000 vaccinations. Col. J. W. S. McCullough, Toronto, provincial medical officer of health, has stated that of the 600,000 vaccinations in the Canadian army, there were recorded no untoward results. The Ontario law makes vaccination compulsory.

**Hospital News.**—During the war period there was a large falling off of promised subscriptions to the Toronto General Hospital, and now the trustees find themselves faced by a serious situation. There are three interests involved in that institution, namely, the city of Toronto, the University of Toronto, and private benefactors. In order to clear the hospital of an indebtedness of over \$600,000, the trustees are asking that the city and university each put up \$125,000, and then the trustees will engage to secure \$500,000 from among themselves and by private subscription. It has been said that the hospital, having secured business management, has recently been running without any deficit on maintenance account.

#### GENERAL

**Southern Gastro-Enterologists Elect Officers.**—At the annual meeting of the Southern Gastro-Enterological Association, held in Asheville, N. C., November 10, Dr. Sidney K. Simon, New Orleans, was elected president; Dr. George M. Niles, Atlanta, Ga., vice president, and Dr. Marvin H. Smith, Jacksonville, Fla., was reelected secretary-treasurer.

**New Officers for Railway Surgeons' Association.**—At the annual meeting of the Surgeons' Association of the Western Division of the Southern Railway, held in Louisville, Ky., October 23, Dr. John F. Weathers, New Albany, Ind., was elected president, and Dr. Fred R. Gobbel, English, Ind., secretary-treasurer. The meeting for 1920 will be held in West Baden, Ind.

**Meeting of Southern Medical Association.**—The thirteenth annual meeting of the Southern Medical Association was held in Asheville, N. C., November 10 to 13, under the presidency of Dr. Lewellys F. Barker, Baltimore, Louisville, Ky., was selected as the place of meeting for 1920, and the following officers were elected: president, Dr. Edward H. Cary, Dallas, Texas, and vice presidents, Drs. Henry H. Brizley, Asheville, N. C., and Alired L. Gray, Richmond, Va. The association approved the recommendation of the Southern States Association of Railway Surgeons that the general association take up with the government of the sixteen southern states, the matter of securing specific legislation to prevent grade-crossing accidents.

**Sale of Ambulances.**—The director of sales announces that the Surplus Property Division, Office of the Quartermaster-General of the Army, is offering for sale to specified welfare organizations and charitable institutions, 100 new G. M. C. ambulances, located at Jeffersonville, Ind. These ambulances are to be sold at government cost. This offer to charitable institutions will be effective until Dec. 20, 1919. The following organizations may take advantage of this offer: The Boy Scouts, the Girl Scouts, Camp Fire Scouts, Navy Scouts, and other societies doing war camp community service only, the Y. M. C. A., the Y. W. C. A., the Y. M. H. A., the Knights of Columbus, the Red Cross, Salvation Army, charitable institutions which shall have been vouched for by their local chambers of commerce, public hospitals which are not operated for private or corporate gain, R. O. T. C. schools, provided the schools use the equipment purchased for military purposes, the committee on special war activities of the National Catholic War Council, educational institutions which are not self-sustaining but are dependent on voluntary subscription or government assistance, municipalities and states of the United States, and the hospitals, insane asylums and other institutions having need for ambulances which are operated by the cities and states.

#### FOREIGN

**Typhus in Siberia.**—Newspaper advices from Omsk say, since January 1, of this year, there have been 120,000 cases of typhus fever in Siberian troops, and that new cases are being reported at the rate of 1,000 daily.

**Nobel Prizes to Germans.**—The Nobel Prize for Physics for 1918 has been awarded to Prof. Max Planck of Berlin, and that for 1919, to Professor Stark of Greifswald, Germany. — The Nobel Prize for Chemistry for 1918 has been awarded to Prof. Fritz Harber of Berlin.

**Death Losses of Armenian Physicians.**—Since the opening of the world war, 67 Armenian physicians are said to have been killed, and 52 died from typhus; of Armenian pharmacists, 54 were killed, and 18 died from typhus; of Armenian dentists, 10 were killed, and 4 died from typhus, and 15 medical students were also said to have been killed.

**Charges Against Turkish Physicians.**—In a pamphlet entitled "Persecution Directed Against Armenian Doctors in Turkey During the World War," published by the union of Armenian physicians at Constantinople, it is charged that Turkish physicians not only plotted against the lives of the Armenian population, but directed a special campaign against their Armenian colleagues. These charges are said to be substantiated by the testimony of prominent Turkish physicians. Some of the criminals have fled from the country and others are now awaiting trial.

**Red Cross Home Opened.**—The American Red Cross Maternity Home Hospital, at Coatbridge, Scotland, established through a gift of \$10,000 from the American Red Cross, was dedicated with impressive ceremonies under the auspices of the Town Councils of Coatbridge and Airdrie, recently. This is one of the five similar institutions founded in Great Britain. These institutions are devoted to helping the mothers and children of England and Scotland, where the infant death rate has been appalling, due largely to housing conditions which have made it impossible for mothers to give proper care to their children.

**American Red Cross Activities.**—During the first ten days of September, 269 men, sick and wounded soldiers, went through the American Red Cross at Irkutsk, Siberia, in order to be transported to local hospitals from the station. Besides this, three sanitary cars have been fully equipped by the American Red Cross, under the supervision of Dr. Charles S. Brady. From September 10 to October 1, 905 ambulatory and ninety stationary patients were treated at the dressing station. The total number of typhus patients was 804, and there were also 460 sick with different diseases, making a total of 1,264. Those in need were equipped by the American Red Cross with warm underwear, shoes and clothing.

#### LATIN AMERICA

**Plague in Paraguay.**—In connection with the appearance of bubonic plague in Paraguay, the department of public health has just announced that several new cases have developed, including one in the capital itself, Asunción. The department announces that all sanitary measures have been taken to prevent the spread of the disease.

**New Sanitary Code of São Paulo.**—The state of São Paulo, Brazil, has just adopted a new sanitary code which is considered the best, and in fact the first of its kind ever adopted in Latin America. The code is the compilation of all previous sanitary legislation with the modifications that seemed necessary to bring it up to date. The man in charge of its preparation was Dr. Arturo Neiva, one of the most prominent physicians of Brazil.

**Sanitary Commissions at El Salvador.**—The consul-general of El Salvador announces that the government of that country has decided to appoint a number of scientific commissions for the purpose of conducting campaigns against the various diseases that affect that country. The first commission appointed is for the prevention of yellow fever and sufficient funds will be provided to conduct an antimosquito campaign throughout the country. The government has also decided to establish several quarantine stations provided with the necessary facilities for the disinfection of ships and the consul-general is now making inquiries in this country in regard to the necessary apparatus.

#### CORRECTIONS

**Mercurochrome-220.**—In the article by Young, Swartz and White in THE JOURNAL of November 15, the foot note at the end of the article states that "Mercurochrome-220" is being used in 25 per cent. solution in the urethra. Dr. White

informs us this should read "25 per cent." which is the strongest solution used.

**Officers of American Public Health Association.**—The announcement of the new officers of the American Public Health Association, which was published in THE JOURNAL, November 8, contained certain inaccuracies. The corrected list of officers is as follows: president, Dr. Watson S. Rankin, Raleigh, N. C.; vice presidents, Dr. Alexander J. Douglas, Winnipeg, Man.; Samuel L. Jepson, Charleston, W. Va, and William H. Robin, New Orleans; secretary, A. W. Hedrick, C.P.H., Boston, and treasurer, Dr. Guilford H. Sumner, Des Moines, Iowa.

## Government Services

### Personnel of the Medical Corps

For the week ending November 21, the Medical Corps of the Army contained 2,318 officers from a maximum of 30,591 on duty Nov. 15, 1918. The medical reserve corps contained 3,858, an increase of sixty-nine from the previous week.

### Contract Surgeons Entitled to Discharge Button

The general staff of the army has decided that all contract surgeons serving during the recent war are entitled to the discharge button, and also to the Victory Medal. They may be obtained from any recruiting station or from the Depot Quartermaster, Washington, D. C.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

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|-----------------------------|------------------------|
| <b>CONNECTICUT</b>          | <b>TEXAS</b>           |
| New London—Allyn, G. S.     | Dallas—Miller, L. T.   |
| <b>MICHIGAN</b>             | <b>WASHINGTON</b>      |
| Crystal Falls—Larson, B. T. | Pullman—Reistel, M. J. |

### HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel, and Col., colonel.

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| <b>ALABAMA</b>                       | San Francisco—Girard, F. R. (M.) |
| Athens—Hughes, J. F. (L.)            | Gougnet, L. J. (M.)              |
| Bayou Labatré—Kilpatrick, G. C. (C.) | McCoy, H. H. (L.)                |
| Birmingham—Dedman, J. E. (M.)        | Stucky, H. W. (L. C.)            |
| Michlin, L. C. (L.)                  | San Jose—Scully, I. C. (L.)      |
| Sorrell, L. E. (L.)                  | Santa Monica—Reed, E. N. (L.)    |
| Catonja Moore, E. A. (C.)            | Southern Home—Karas, R. W. (L.)  |
| Fayette—Long, W. W. (C.)             | Mullikan, S. A. (L.)             |
| Furman—Spir, R. C. (M.)              | Stockton—Smythe, H. (C.)         |
| Goshwater—Ledbetter, L. H. (C.)      | Talmage—Smith, D. R. (L.)        |
| Huntsville—Vinn, J. H. (L.)          |                                  |
| Mobile—Farrist, L. B. (L.)           |                                  |
| Montgomery—Thompson, W. G. (C.)      |                                  |
| 1st Ind. Beach—Goldthwaite, H. (L.)  |                                  |
| Tu calonsa—Burks, B. A. (C.)         |                                  |

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| <b>ARIZONA</b>                  | <b>CONNECTICUT</b>               |
| Safford—McWhirt, W. E. (L.)     | Ansonia—Armstrong, F. F. (L.)    |
| <b>ARKANSAS</b>                 | Bridport—Roller, R. D., Jr. (M.) |
| Little Rock—Jenkins, W. D. (C.) | Fayetteville—Dunham, B. F. (C.)  |
| Moore, R. B. (L.)               | New Haven—Maurer, F. L. (C.)     |

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|------------------------------------|---------------------------|
| <b>CALIFORNIA</b>                  | Sel. H. R. F. (L.)        |
| Alameda—Stowe, O. P. (L.)          | Thompson—Fane, R. C. (L.) |
| Hakensfeld—Rogers, H. (M.)         |                           |
| Herkank—Cline, H. N. (M.)          |                           |
| El Centro—Brooks, C. S. (L.)       |                           |
| Eureka—Petch, T. R. (C.)           |                           |
| Pine, J. W. (L.)                   |                           |
| Los Angeles—Cartmell, T. M. (C.)   |                           |
| Flagg, D. P. (C.)                  |                           |
| Hall, J. S. (L.)                   |                           |
| Koonce, H. H. (C.)                 |                           |
| Sleeper, K. R. (C.)                |                           |
| Terry, M. C., Jr. (C.)             |                           |
| N. walk—Sisson, C. E. (M.)         |                           |
| Oakdale—McClave, T. C. (M.)        |                           |
| Weaver, D. D. (L.)                 |                           |
| Ranchoburg—Denton, W. L. (L.)      |                           |
| Sacramento—Dippenbrock, A. B. (C.) |                           |
| San Francisco—Clay, H. F. (M.)     |                           |
| Cockinham, F. H. (L.)              |                           |
| Dolan, P. (M.)                     |                           |
| E. Fowler, L. (C.)                 |                           |
| E. Hetherly, M. H. (C.)            |                           |

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| <b>FLORIDA</b>                      | <b>GEORGIA</b>                |
| De Land—Ma Darnold, J. C.           | Atlanta—Blackburn, J. D. (L.) |
| Jack-sonville—MacFeters, R. B. (C.) | Byrd, L. (L.)                 |
| Orlando—Beardall, H. M. (M.)        | DeLoach, A. G. (L.)           |
|                                     | Fanning, O. O. (C.)           |
|                                     | M. Donald, J. C. (C.)         |
|                                     | O'Connell, C. W. (L.)         |
|                                     | Wilder, C. D. (L.)            |

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| <b>ILLINOIS</b>                     | <b>INDIANA</b>                    |
| Alton—Pratt, E. C. (L.)             | Benton—Matts, F. A. (L.)          |
| Arthur—Monroe, C. W. (L.)           | Bourbon—Merrill, G. L. (C.)       |
| Carmargo—Zohrist, B. E. (L.)        | Evansville—Brett, R. B. (C.)      |
| Christon—Mikkelsen, G. S. (L.)      | Lynch, P. V. (L.)                 |
| Chicago—Brackett, L. G. (C.)        | Frankfort—Chittick, A. G. (M.)    |
| Campbell, D. D. (L.)                | Gary—Mullif, J. B. (L.)           |
| Carrington, E. L. (L.)              | Hayville—Ehler, F. F. (L.)        |
| Christoffersen, A. A. (C.)          | Indianapolis—Arnold, H. W. (C.)   |
| Claypool, B. W. (L.)                | Reeler, S. G. (L.)                |
| Daggett, L. H. (C.)                 | Marion—Rosen, J. C. (L.)          |
| De Beck, C. M. (L.)                 | Michigan—Cass—Gilmory, R. A. (L.) |
| Doktor, M. O. (L.)                  | Loomis, A. L. (L.)                |
| Forrester, C. R. G. (M.)            | Merritt, C. H. (B. C.)            |
| Fowler, E. B. (M.)                  | Richmond—Petro, R. J. (C.)        |
| Fox, J. S. (C.)                     | Terre Haute—Lutz, F. A. (C.)      |
| Gieratowski, C. P. (L.)             | L. H. Stuart, F. T. (C.)          |
| Gugin, J. G. (L.)                   | W. C. B. Robinson, H. H. (C.)     |
| Haselting, B. D. (C.)               | W. Valle—Ferkert, F. J. (M.)      |
| Henry, W. J. (L.)                   |                                   |
| Hoglund, E. J. (C.)                 |                                   |
| Hoyt, W. W. (C.)                    |                                   |
| Hughes, J. W. (L.)                  |                                   |
| Hyslop, O. G. (L.)                  |                                   |
| Jacobson, G. H. (L.)                |                                   |
| Jerdee, I. (L.)                     |                                   |
| Johnson, R. P. (L.)                 |                                   |
| Mackern, D. B. (M.)                 |                                   |
| Mize, H. E. (C.)                    |                                   |
| O'Hearn, T. J. (M.)                 |                                   |
| O'Malley, T. J. (M.)                |                                   |
| Schoenfeld, C. E. (L.)              |                                   |
| Scholtes, W. J. (L.)                |                                   |
| Stackable, J. B. (C.)               |                                   |
| Stephenson, R. B. (C.)              |                                   |
| Stutes, R. O. (C.)                  |                                   |
| Summers, A. W. (L.)                 |                                   |
| Test, F. C. (M.)                    |                                   |
| Thomas, H. B. (C.)                  |                                   |
| Wysat, B. J. (C.)                   |                                   |
| Clayton—Brown, E. O. (C.)           |                                   |
| Creal Springs—Cupland, P. R. (L.)   |                                   |
| Hempler, H. G. (L.)                 |                                   |
| Decatur—Cannon, V. E. (C.)          |                                   |
| East St. Louis—Sullivan, J. A. (L.) |                                   |
| Eldorado—Williams, S. W. (C.)       |                                   |
| Elgin—Duermier, H. W. (C.)          |                                   |
| Pullock, J. R. (C.)                 |                                   |
| Ritely, M. (M.)                     |                                   |
| Gragsville—Herman, G. F. (C.)       |                                   |
| Hobinson—Allen, J. L. (L.)          |                                   |
| Junction—White, W. G. (C.)          |                                   |
| Kansas—Roberts, J. C. (L.)          |                                   |
| Mount Carmel—Craig, C. C. (C.)      |                                   |
| Mount Vernon—Ward, T. P. (M.)       |                                   |
| Naperville—Conn, W. S. (C.)         |                                   |
| New Holland—Kennell, W. E. (M.)     |                                   |
| Oak Park—Cole, L. J. (L.)           |                                   |
| Cooke, A. G. (C.)                   |                                   |
| McGuire, W. A. (L.)                 |                                   |
| Old Ripley—Bowell, C. H. (M.)       |                                   |
| Paris—Alberson, A. J. (M.)          |                                   |
| Bana—Vayg, D. W. (M.)               |                                   |
| Peru—Ruppel, A. V. (C.)             |                                   |
| Springfield—James, H. L. (C.)       |                                   |
| St. Louis Valley—Hess, A. H. (C.)   |                                   |
| Lambert, W. H. (M.)                 |                                   |
| Woodhull—Dreanin, G. D. (L.)        |                                   |

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| Byron—Peavy, H. J. (L.)      | Carrollton—Garst, J. C. H. (L.)    |
| Dundas—Burns, G. (C.)        | Fairbairn—Harvey, C. H. (C.)       |
| Jackson—Gunter, R. A. (L.)   | Lawrenceville—Williams, A. D. (C.) |
| Nichols—Pafford, J. W. (L.)  | Pavo—Mansfield, E. E. (M.)         |
| Waycross—Johnson, K. L. (L.) |                                    |

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| <b>IDAHO</b>                | <b>ILLINOIS</b>                     |
| Emmett—Clark, B. O. (L. C.) | Alton—Pratt, E. C. (L.)             |
|                             | Arthur—Monroe, C. W. (L.)           |
|                             | Carmargo—Zohrist, B. E. (L.)        |
|                             | Christon—Mikkelsen, G. S. (L.)      |
|                             | Chicago—Brackett, L. G. (C.)        |
|                             | Campbell, D. D. (L.)                |
|                             | Carrington, E. L. (L.)              |
|                             | Christoffersen, A. A. (C.)          |
|                             | Claypool, B. W. (L.)                |
|                             | Daggett, L. H. (C.)                 |
|                             | De Beck, C. M. (L.)                 |
|                             | Doktor, M. O. (L.)                  |
|                             | Forrester, C. R. G. (M.)            |
|                             | Fowler, E. B. (M.)                  |
|                             | Fox, J. S. (C.)                     |
|                             | Gieratowski, C. P. (L.)             |
|                             | Gugin, J. G. (L.)                   |
|                             | Haselting, B. D. (C.)               |
|                             | Henry, W. J. (L.)                   |
|                             | Hoglund, E. J. (C.)                 |
|                             | Hoyt, W. W. (C.)                    |
|                             | Hughes, J. W. (L.)                  |
|                             | Hyslop, O. G. (L.)                  |
|                             | Jacobson, G. H. (L.)                |
|                             | Jerdee, I. (L.)                     |
|                             | Johnson, R. P. (L.)                 |
|                             | Mackern, D. B. (M.)                 |
|                             | Mize, H. E. (C.)                    |
|                             | O'Hearn, T. J. (M.)                 |
|                             | O'Malley, T. J. (M.)                |
|                             | Schoenfeld, C. E. (L.)              |
|                             | Scholtes, W. J. (L.)                |
|                             | Stackable, J. B. (C.)               |
|                             | Stephenson, R. B. (C.)              |
|                             | Stutes, R. O. (C.)                  |
|                             | Summers, A. W. (L.)                 |
|                             | Test, F. C. (M.)                    |
|                             | Thomas, H. B. (C.)                  |
|                             | Wysat, B. J. (C.)                   |
|                             | Clayton—Brown, E. O. (C.)           |
|                             | Creal Springs—Cupland, P. R. (L.)   |
|                             | Hempler, H. G. (L.)                 |
|                             | Decatur—Cannon, V. E. (C.)          |
|                             | East St. Louis—Sullivan, J. A. (L.) |
|                             | Eldorado—Williams, S. W. (C.)       |
|                             | Elgin—Duermier, H. W. (C.)          |
|                             | Pullock, J. R. (C.)                 |
|                             | Ritely, M. (M.)                     |
|                             | Gragsville—Herman, G. F. (C.)       |
|                             | Hobinson—Allen, J. L. (L.)          |
|                             | Junction—White, W. G. (C.)          |
|                             | Kansas—Roberts, J. C. (L.)          |
|                             | Mount Carmel—Craig, C. C. (C.)      |
|                             | Mount Vernon—Ward, T. P. (M.)       |
|                             | Naperville—Conn, W. S. (C.)         |
|                             | New Holland—Kennell, W. E. (M.)     |
|                             | Oak Park—Cole, L. J. (L.)           |
|                             | Cooke, A. G. (C.)                   |
|                             | McGuire, W. A. (L.)                 |
|                             | Old Ripley—Bowell, C. H. (M.)       |
|                             | Paris—Alberson, A. J. (M.)          |
|                             | Bana—Vayg, D. W. (M.)               |
|                             | Peru—Ruppel, A. V. (C.)             |
|                             | Springfield—James, H. L. (C.)       |
|                             | St. Louis Valley—Hess, A. H. (C.)   |
|                             | Lambert, W. H. (M.)                 |
|                             | Woodhull—Dreanin, G. D. (L.)        |

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| <b>INDIANA</b>                    | <b>IDAHO</b>                |
| Benton—Matts, F. A. (L.)          | Emmett—Clark, B. O. (L. C.) |
| Bourbon—Merrill, G. L. (C.)       |                             |
| Evansville—Brett, R. B. (C.)      |                             |
| Lynch, P. V. (L.)                 |                             |
| Frankfort—Chittick, A. G. (M.)    |                             |
| Gary—Mullif, J. B. (L.)           |                             |
| Hayville—Ehler, F. F. (L.)        |                             |
| Indianapolis—Arnold, H. W. (C.)   |                             |
| Reeler, S. G. (L.)                |                             |
| Marion—Rosen, J. C. (L.)          |                             |
| Michigan—Cass—Gilmory, R. A. (L.) |                             |
| Loomis, A. L. (L.)                |                             |
| Merritt, C. H. (B. C.)            |                             |
| Richmond—Petro, R. J. (C.)        |                             |
| Terre Haute—Lutz, F. A. (C.)      |                             |
| L. H. Stuart, F. T. (C.)          |                             |
| W. C. B. Robinson, H. H. (C.)     |                             |
| W. Valle—Ferkert, F. J. (M.)      |                             |

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| <b>ILLINOIS</b>                     | <b>INDIANA</b>                    |
| Alton—Pratt, E. C. (L.)             | Benton—Matts, F. A. (L.)          |
| Arthur—Monroe, C. W. (L.)           | Bourbon—Merrill, G. L. (C.)       |
| Carmargo—Zohrist, B. E. (L.)        | Evansville—Brett, R. B. (C.)      |
| Christon—Mikkelsen, G. S. (L.)      | Lynch, P. V. (L.)                 |
| Chicago—Brackett, L. G. (C.)        | Frankfort—Chittick, A. G. (M.)    |
| Campbell, D. D. (L.)                | Gary—Mullif, J. B. (L.)           |
| Carrington, E. L. (L.)              | Hayville—Ehler, F. F. (L.)        |
| Christoffersen, A. A. (C.)          | Indianapolis—Arnold, H. W. (C.)   |
| Claypool, B. W. (L.)                | Reeler, S. G. (L.)                |
| Daggett, L. H. (C.)                 | Marion—Rosen, J. C. (L.)          |
| De Beck, C. M. (L.)                 | Michigan—Cass—Gilmory, R. A. (L.) |
| Doktor, M. O. (L.)                  | Loomis, A. L. (L.)                |
| Forrester, C. R. G. (M.)            | Merritt, C. H. (B. C.)            |
| Fowler, E. B. (M.)                  | Richmond—Petro, R. J. (C.)        |
| Fox, J. S. (C.)                     | Terre Haute—Lutz, F. A. (C.)      |
| Gieratowski, C. P. (L.)             | L. H. Stuart, F. T. (C.)          |
| Gugin, J. G. (L.)                   | W. C. B. Robinson, H. H. (C.)     |
| Haselting, B. D. (C.)               | W. Valle—Ferkert, F. J. (M.)      |
| Henry, W. J. (L.)                   |                                   |
| Hoglund, E. J. (C.)                 |                                   |
| Hoyt, W. W. (C.)                    |                                   |
| Hughes, J. W. (L.)                  |                                   |
| Hyslop, O. G. (L.)                  |                                   |
| Jacobson, G. H. (L.)                |                                   |
| Jerdee, I. (L.)                     |                                   |
| Johnson, R. P. (L.)                 |                                   |
| Mackern, D. B. (M.)                 |                                   |
| Mize, H. E. (C.)                    |                                   |
| O'Hearn, T. J. (M.)                 |                                   |
| O'Malley, T. J. (M.)                |                                   |
| Schoenfeld, C. E. (L.)              |                                   |
| Scholtes, W. J. (L.)                |                                   |
| Stackable, J. B. (C.)               |                                   |
| Stephenson, R. B. (C.)              |                                   |
| Stutes, R. O. (C.)                  |                                   |
| Summers, A. W. (L.)                 |                                   |
| Test, F. C. (M.)                    |                                   |
| Thomas, H. B. (C.)                  |                                   |
| Wysat, B. J. (C.)                   |                                   |
| Clayton—Brown, E. O. (C.)           |                                   |
| Creal Springs—Cupland, P. R. (L.)   |                                   |
| Hempler, H. G. (L.)                 |                                   |
| Decatur—Cannon, V. E. (C.)          |                                   |
| East St. Louis—Sullivan, J. A. (L.) |                                   |
| Eldorado—Williams, S. W. (C.)       |                                   |
| Elgin—Duermier, H. W. (C.)          |                                   |
| Pullock, J. R. (C.)                 |                                   |
| Ritely, M. (M.)                     |                                   |
| Gragsville—Herman, G. F. (C.)       |                                   |
| Hobinson—Allen, J. L. (L.)          |                                   |
| Junction—White, W. G. (C.)          |                                   |
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| Mount Vernon—Ward, T. P. (M.)       |                                   |
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| New Holland—Kennell, W. E. (M.)     |                                   |
| Oak Park—Cole, L. J. (L.)           |                                   |
| Cooke, A. G. (C.)                   |                                   |
| McGuire, W. A. (L.)                 |                                   |
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| Paris—Alberson, A. J. (M.)          |                                   |
| Bana—Vayg, D. W. (M.)               |                                   |
| Peru—Ruppel, A. V. (C.)             |                                   |
| Springfield—James, H. L. (C.)       |                                   |
| St. Louis Valley—Hess, A. H. (C.)   |                                   |
| Lambert, W. H. (M.)                 |                                   |
| Woodhull—Dreanin, G. D. (L.)        |                                   |

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| <b>INDIANA</b>                    | <b>ILLINOIS</b>                |
| Benton—Matts, F. A. (L.)          | Alton—Pratt, E. C. (L.)        |
| Bourbon—Merrill, G. L. (C.)       | Arthur—Monroe, C. W. (L.)      |
| Evansville—Brett, R. B. (C.)      | Carmargo—Zohrist, B. E. (L.)   |
| Lynch, P. V. (L.)                 | Christon—Mikkelsen, G. S. (L.) |
| Frankfort—Chittick, A. G. (M.)    | Chicago—Brackett, L. G. (C.)   |
| Gary—Mullif, J. B. (L.)           | Campbell, D. D. (L.)           |
| Hayville—Ehler, F. F. (L.)        | Carrington, E. L. (L.)         |
| Indianapolis—Arnold, H. W. (C.)   | Christoffersen, A. A. (C.)     |
| Reeler, S. G. (L.)                | Claypool, B. W. (L.)           |
| Marion—Rosen, J. C. (L.)          | Daggett, L. H. (C.)            |
| Michigan—Cass—Gilmory, R. A. (L.) | De Beck, C. M. (L.)            |
| Loomis, A. L. (L.)                | Doktor, M. O. (L.)             |
| Merritt, C. H. (B. C.)            | Forrester, C. R. G. (M.)       |
| Richmond—Petro, R. J. (C.)        | Fowler, E. B. (M.)             |
| Terre Haute—Lutz, F. A. (C.)      | Fox, J. S. (C.)                |
| L. H. Stuart, F. T. (C.)          | Gieratowski, C. P. (L.)        |
| W. C. B. Robinson, H. H. (C.)     | Gugin, J. G. (L.)              |
| W. Valle—Ferkert, F. J. (M.)      | Haselting, B. D. (C.)          |

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| <b>ILLINOIS</b>              | <b>INDIANA</b>              |
| Alton—Pratt, E. C. (L.)      | Benton—Matts, F. A. (L.)    |
| Arthur—Monroe, C. W. (L.)    | Bourbon—Merrill, G. L. (C.) |
| Carmargo—Zohrist, B. E. (L.) | Evansville—                 |



Dallas—Shannon, H. (L.)  
Stephenson, W. O. (C.)  
Denison—Lee, W. A. (C.)  
El Paso—Jamieson, W. R. (M.)  
Fort Worth—Potts, J. (M.)  
Gause—Gray, D. F. (C.)  
Hico—Currie, J. D. (C.)  
Honey Grove—Nesbitt, J. H. (C.)  
Houston—McKee, J. W., Jr. (L.)  
Macinal, C. (C.)  
Moth, M. V. (C.)  
Jonesboro—Hamilton, J. H. (L.)  
Lamesa—Brice, J. H. (C.)  
Mari—Russell, W. R. (C.)  
May—Robson, P. D. (C.)  
Newton—Swinney, B. A., Jr. (L.)  
Paris—Nicholson, J. (C.)  
Pottsville—Rea, M. O. (L.)  
Rosebud—White, B. O. (C.)  
San Antonio—Applewhite, S. C. (L.)  
Dixon, C. D. (C.)  
Kahn, I. S. (M.)  
Seabrook—Aves, D. R. (C.)  
Temple—Parker, W. L. (L.)  
Waco—Toomim, E. (L.)  
Weatherford—Jones, A. L. (C.)  
Wichita Falls—Underwood, G. M. (L.)

UTAH

Magna—McBride, G. E. (C.)  
Salt Lake City—Baldwin, S. C. (L.)  
Christopherson, W. (M.)  
Swanberg, H. (C.)  
Whiterocks—MacNeil, B. C. (L.)

VERMONT

Burlington—Avery, R. E. (L.)  
Fainlayson, A. D. (C.)  
North Bennington—Tobin, E. A. (L.)  
Rutland—Delchanty, N. J. (C.)

VIRGINIA

Chincoteague Island—Easter, C. M. (L.)  
Edgehill—Baker, R. M. (L.)  
Fairfax—Quirk, T. C. (L. C.)  
Fishersville—White, H. F. (M.)  
Glen Allen—McLeod, A. C. (C.)  
Newport News—Whitchard, R. (L.)

Norfolk—Hancock, F. H. (C.)  
Smyler, H. D. Jr. (C.)  
Richmond—Edwards, C. M. (C.)  
McGowan, W. A. (L.)  
Mercer, C. W. (C.)  
Smyth—Reid, S. A. (M.)  
The Plains—Shackelford, R. B. (L. C.)  
Vienna—Grayson, S. M. (C.)

WASHINGTON

Seattle—Bieckford, E. L. (C.)  
Burson, H. C. (C.)  
Spokane—Prencel, J. E. (C.)  
Nuss—Lake, E. T. (L. C.)  
Walla Walla—Pratt, W. A. (C.)

WEST VIRGINIA

Buckhannon—Trippett, K. H. (L.)  
Charleston—Barksdale, G. H. (M.)  
Gassaway—Yass, F. K. (L.)  
Hundred—Kearns, F. M. (C.)  
Nuss—Lake, E. T. (L. C.)  
Richwood—Leach, W. F. (M.)  
Welch—Dillard, M. D. (C.)

WISCONSIN

Avery—Perry, G. (M.)  
Beaver Dam—Voorus, L. O. (L.)  
Burlington—Meyst, C. H. (C.)  
Cudahy—Fitzgerald, R. A. (L.)  
Green Bay—Eaton, L. (C.)  
La Crosse—Gray, R. H. (M.)  
Lake Geneva—Willhite, O. C. (M.)  
Madison—Kay, H. M. (C.)  
Milwaukee—Fitz, E. O. L. (L.)  
Howard, T. J. (L.)  
Reyer, R. H. (L. C.)  
McDill, J. R. (M.)  
Owens, W. H. (L.)  
Sheehan, J. R. (L.)  
Weinart, W. F. (L.)  
Wheatley, C. L. (L.)

Monroe—Moore, L. A. (M.)  
Ogdensburg—Johnson, J. C. (C.)  
Pescadore—Birnes, R. A. (C.)  
Plymouth—Kaysen, R. (M.)  
Portage—Bentley, J. E. (L.)  
Sheboygan Falls—Pfeifer, E. C. (L.)  
Stevens Point—Cowan, W. F. (M.)

long as possible in order to furnish the necessary leverage. In the arm a stump 15 cm. in length below the acromion is necessary. At the time of amputation such matters should be carefully considered, and, if need be, it is better to leave less of covering than to cut the bone too short. If the amputation must absolutely be done higher up, the question is in order whether disarticulation would not be more suitable. In the lower third of the arm the supracondylar amputation is excellent, as it furnishes good bearing for the appliance and frequently does away with the necessity of suspension from the shoulder. Disarticulation of the elbow-joint is bad, as the stump is too long and it is more difficult to provide the proper covering. Furthermore the stump does not furnish a good bearing for prosthetic apparatus.

The separate movements of the forearm—flexion, pronation and supination—must be considered. In order that the appliance may have proper flexion, a stump 9 cm. in length from the joint-line is required, or, if the elbow is considered as being flexed at an angle of 90 degrees, 4 cm. below the insertion of the tendon of the biceps will suffice. A stump shorter than this does not give proper flexion, but it may nevertheless be useful as the support of prosthetic apparatus. Pronation is an important matter for consideration, as it is the source of the prehensile movements to be performed with the artificial appliance. Theoretically, if amputation below the insertion of the pronator teres has been made, pronation is preserved, but from a practical standpoint amputation must be performed below the junction of the middle and lower third in order to assure effective pronation. Amputation in the lower third of the forearm is much to be preferred to disarticulation at the wrist-joint, for this is often associated with radio-ulnar arthritis, which inhibits the movements of pronation, and then again, it leaves too long a stump.

In case of the lower limbs, the main consideration is to amputate at a site that will give good support. The bearing may be directly on the end of the stump, or it may be indirect. The American prosthetic apparatus, which can be readily adapted to any stump, gives good results with indirect support. However, direct support has some advantages; namely, no waste of strength and the feeling of ground support, which is more easily obtained if the leverage is secured nearer the ground. The Germans attach great importance to this feeling of ground support.

Amputations in the middle third of the thigh give excellent results; in fact, this is the most favorable site. It gives a leverage quite sufficient for the operation of an artificial limb. If the stump is too long, a pendulum-like movement is set up, which causes ulceration through clauing; the thigh socket is also unduly large, and it is more difficult to adjust the artificial knee-joint. With the exception of a few rare cases, all used the indirect support. In the upper third of the thigh, from 6 to 8 cm. below the trochanter should be preserved, for as long a fragment of bone as possible is left in order to be able to attach properly the prosthetic apparatus. In the lower third of the thigh it is rarely possible to secure direct support, as the stump would thus become too long.

In the lower leg we must relinquish the amputation that has heretofore been regarded as the amputation of choice, which was adopted because the end of the stump was expected to bear all the weight of the artificial leg, for it is no longer expected to do so. Amputation at the middle third of the leg is the most favorable site. In order to furnish leverage to swing the artificial leg, a stump 10 cm. in length from the joint-line is required, or, if the knee, flexed at a right angle, is taken as a basis of measurement, 6 cm. below the insertion of the tendons of the semitendinosus and the semimembranosus will suffice.

In the case of the foot, the total amputation by Sayre's procedure is unanimously regarded as excellent, for it gives a firm stump with good covering and causes no after-pain if the malleoli have been properly removed. The articular end of the tibia is preserved as this permits the use of an appliance without a socket.

In the discussion of the partial amputations of the foot there was a divergence of opinion. In regard to the amputation of anterior portions of the foot there is common agreement: removal of all the toes en masse, the lateral operation, with or without the chevron line, is preferred. Surgery if the flap is large enough to allow bringing the scar on the back of the foot. In the posterior portions of the foot the results are less satisfactory. The technique to be prevalent that offers the necessary advantages would not be agreed to. Broca remarked that the value of amputation

Foreign Correspondence

PARIS

Nov. 6, 1919.

Meeting of Orthopedists

Owing to the important place that orthopedics has come to occupy during recent years, orthopedic surgeons were beginning to feel themselves somewhat restricted at the meetings of the Société française de chirurgie, at which only one session devoted to orthopedic surgery was accorded them. Following the example, therefore, of the urologists, they conceived the plan of founding a separate society, to hold its annual meeting concurrently with the congress of surgeons. The subject was first brought up in 1904, and, owing to the stimulus that the war has given to orthopedic surgery and to prosthesis, the plan has at last been realized. In 1918 the Société française d'orthopédie was founded, and it already counts among its membership a large number of French orthopedists and a considerable representation of foreign associates. October 10, this new society held its first meeting, under the chairmanship of Dr. Kirnisson, surgeon of the Hôpital de Paris and professor of clinical pediatric surgery on the Faculty of Medicine.

Amputations in Relation to Prosthesis

In his communication on the subject of amputations in relation to prosthesis, Dr. Nové-Josseland, surgeon of the Hôpital de Lyon and agrégé professor of the Faculty of Medicine of Lyons, emphasized the fact, for which the experience of the war furnished abundant evidence, that it is not sufficient, when we perform an amputation, to concern ourselves solely with the shape of the stump, but that the character of the service to be rendered and the kind of work to be done by the subject must also be considered. As for the upper limbs, the prosthetic appliances render little service in the liberal professions, for very few persons wear their appliances. In the case of workmen, however, especially agricultural workers, the movements that they perform and the tools that they use being simple, appliances are found to give good results if the stumps are left long and motile. It is desirable that the stumps should be as

tions could not be judged by the results secured during the war. The exigencies of the case governed our actions, frequently. It was often necessary for physicians to impersonate surgeons. The relative skill of the operator must be considered, as well as the character of the operation. Krimsson remarked that we should not be too ready to form conclusions from the results of the war, for here operations were often performed on feet that had been supporting for a long time, with neuritis and deep scars sometimes present. It would be inconsistent to compare, from the standpoint of prosthetic appliances, the results in such cases with those secured under normal conditions.

#### Surgical Congress

At the twenty-eighth congress of French surgeons, a partial report of which was given last week, two of the subjects discussed were: the surgical treatment of cancer of the tongue, and paranephric tumors.

##### SURGICAL TREATMENT OF CANCER OF THE TONGUE

In his communication, Dr. Pierre Sebileau, professor of clinical otorhinolaryngology at the Faculty of Medicine of Paris, emphasized particularly the necessity of the extirpation of cancer as soon as it appeared. Unfortunately, it rarely happens that surgeons have an opportunity of seeing a cancer of the tongue in its initial stage. This is partly owing to the patient's indifference, since the cancer develops from an old leukoplakia that has been for a long period benign, and is partly ascribable to the fact that the physician frequently fails to recognize the syphilitic origin of the leukoplakia. Sebileau holds that the only proper treatment consists in surgical extirpation. Electrocoagulation and the use of physical remedial agents in general have failed utterly. Radium of itself is incapable of causing a cancer to disappear, and can only be regarded as exerting a supplementary action. As regards the limitations of operability, Sebileau regards the following conditions as contraindications: (1) extension of the cancerous growth to the glosso-epiglottic sulcus and to the epiglottis; (2) invasion of the faucial pillars and of the tonsils; (3) profound infiltration of the mandible; (4) involvement of the two lateral halves of the tongue at the base, and (5) glandular hyperemia of the diffuse, inflammatory type. Before answering the question whether cancer of the tongue is curable or not, we would call attention to the fact that in speaking of cancer it is always hazardous to talk of a cure. It is estimated that 40 per cent. of cancer patients operated on early survive beyond the three-year period. In old cancers and in those operated on by parietal or mandibular route, the percentage of recoveries is much smaller. However, even under these conditions some do recover, and though the number be small it is the duty of the surgeon to persevere in this line of surgery, notwithstanding the fact that it is, as Sebileau admits, full of disappointments.

Dr. Vallas, agrégé professor at the Faculty of Medicine of Lyons, considers the surgical as the only method that has accomplished definite cures. In the opinion of Vallas, it is impossible to say as yet whether radiotherapy should be classed among the palliative or among the curative methods.

Dr. Abouker of Algiers expressed his opinion to the effect that general anesthesia is the most serious factor in connection with operations for lingual cancer. According to his view, local anesthesia can and must suffice in all cases. In a series of eighteen pharyngectomies for cancer performed under chloroform, the mortality was deplorably high, namely, 55 per cent., whereas in another series of ten pharyngectomies under local anesthesia, no deaths resulted. Another uses the Reclus solution, which consists of propanolol 1.20, with a drop of ephedrin added to each cubic centimeter. From 30 to 40 c.c. are sufficient for the longest operations. It is well to color this solution with methylene blue in order to indicate to the eye the extent of the anesthetized area. If properly used, this method of local anesthesia permits operations in the cases of numerous cachectic, varicose, and diabetic patients who would not be able to withstand chloroform narcosis.

Dr. E. F. Lecic, professor of clinical surgery at the Faculty of Medicine of Montpellier, called the attention of the congress to a recent method, recommended by Delmas of Montpellier, which may prove to have merit: the method of general rachianesthesia, in which it is necessary, to use highly purified cocaine, which is injected brusquely in small doses into the spinal column, being first mixed with cerebrospinal fluid (a considerable quantity of which, from 30 to 50 c.c., has previously been withdrawn), not stopping until the patient complains of a severe headache.

#### PARANEPHRIC TUMORS

Paranephric tumors are retroperitoneal tumors that present intimate anatomic relations with the kidney, which remains otherwise intact, and that appear to have developed either at the expense of the capsule or of the perirenal fat. The communication of Dr. Paul Lecicé, surgeon of the Hôpital de Paris and agrégé professor at the Faculty of Medicine, is based on 113 authentic observations, ninety-six of which were operative cases and seventeen were necropsy reports. These tumors are found indiscriminately on the right and on the left side, and at every age, but predominantly in the fifth decade. They are also relatively frequent in young subjects, and they appear to affect more particularly the feminine sex (70 per cent. is the proportion). Their functional symptomatology is almost negative. Their evolution is slow, insidious and almost always entirely painless. There are few or no signs of compression, except in the advanced stages, during which there is a decline in general health, and at times short febrile attacks appear. Only the physical examination reveals the true state of affairs. The tumor is most frequently paramesial and appears as a multilobar mass—flabby, fibrous or pseudofluctuant, but never seeming to slip out from under the palpating finger, as is the case with cysts. Although generally only slightly movable, it always presents lumbar contact and even *ballotement* if its volume is not too great. On percussion the tumor sounds flat, with or without a resonant note in the anterior portion.

From a diagnostic standpoint it is important to determine the anatomic seat of the tumor and the functional activity of the kidneys. As regards the anatomic seat, careful percussion, dermatographic tracings, and, especially, the location of the tympanic note of the overlying colon (for which it will be well to have recourse to insufflation) will permit one to locate, at first approximately and finally more precisely, the retroperitoneal seat of the neoplasm. As for the testing of the functional activity of both kidneys, this is very important, not only from a diagnostic standpoint, but also as regards surgical interference, for it goes without saying that one will frequently be compelled to sacrifice the kidney. In the absence of operative intervention the evolution of the tumor proves fatal sooner or later. The tumor grows steadily larger, and death supervenes from cachexia or from concomitant complications (uremia, pneumonia, phlebitis, etc.).

From the standpoint of operative technic, transperitoneal laparotomy is preferable to the ilioabdominal or the extraperitoneal route, the latter being too obscure or too narrow to permit the enucleation of large tumors. Once the tumor has been enucleated, preferably by progressive delobulation, it is well to establish lumbar drainage. This procedure is much to be preferred to marsupialization, which necessitates delayed closure of the wound and causes a weakening of the walls.

The operation is a serious one (the mortality running about 40 per cent.), especially if the tumor is large and the patient is much weakened. As for the end-results, they are difficult to evaluate, as only one patient has survived long enough to permit a definite judgment (six years without recurrence).

#### BUENOS AIRES

Oct. 11, 1919.

##### Bubonic Plague

The appearance of several foci of plague in some places of the provinces of Santa Fé, Santiago del Estero, and Tucumán y Córdoba, compelled the national department of hygiene to carry out a campaign of prevention and treatment. As the authorities realize the existence of sporadic foci in different places of the country, the chief source of which are the rodents of the port of Buenos Aires, they have decided to solve definitely this matter by ordering the compulsory eradication of rats throughout the country and the careful deratization of all ships coming from abroad.

##### Appointment of Professors

The unexpected and troublesome interference that some groups of students are trying to exert in the appointment of professors reached its climax lately. A committee appointed by the students' association called on the president of the republic to ask him to appoint the candidate favored by them. The president stated that while the law permitted him to select any of the three persons whose names appeared on the list submitted by the faculty, he nevertheless wished to respect the autonomy of the universities, and therefore would select the first candidate on the list.

### University Discipline

The present university ordinance which provides that the board of directors of the faculties be elected by an assembly, composed in equal numbers of professors, assistant professors and students, has worked very poorly. These elections are now practically controlled by the students, who vote only one ticket, while the professors scatter their votes. On the other hand, there are always some professors who ask the students to vote for them or to have their names placed in the students' tickets. In order to obtain this they are compelled to make such concessions that the school discipline and the examinations suffer from it. In addition, this system creates antagonism between students and professors; and when the former do not win an election, as happens quite often, they incite disturbances, as those that took place last year in the school of medicine and in the law school lately. What makes matters worse is that the students do not know the history and qualifications of the candidates, and therefore they allow themselves to be manipulated and show very little discrimination, guiding themselves largely by the leniency shown by the professors in the examinations. Unless this system is changed, university discipline in this country is going to be seriously affected. Probably the only immediate solution is to permit the students to elect a candidate every year and have the others appointed by the professors.

### LONDON

Nov. 5, 1919.

#### Prevention of Tuberculosis

After an interval of several years, due to the war, the National Association for the Prevention of Tuberculosis has resumed its annual conference. A number of distinguished foreign physicians, including Dr. Linsly Williams, Prof. William C. White, Dr. David Lyman and Dr. C. J. Hatfield, of the United States, were present. Dr. Addison, minister of health, delivered an address. He said that the war had added, from the ranks of those who had served with the forces, to the number of tuberculosis patients. In consequence of the necessary suspension of many of our activities, the absence of many skilled men from the tuberculosis service in the ranks of the army medical corps, and the entrance of a large number of women into industrial service, there had been an increase in tuberculosis in some directions, notably among women. It was one of the functions of the ministry of health to try to secure that its efforts to deal with these great problems were not disjointed and fragmentary. As he had so often said, we had suffered in this country a great deal from failing to have a considered body of policy, and this applied with singular aptness to tuberculosis. We were likely to deal with these matters piecemeal—sometimes necessarily so. Unless a big program of rehousing and the clearance of slums should be carried out, combative efforts would be largely in vain. That was why the first action of the ministry of health was to promote the housing act. The millions of money now being spent in our manifold health services were largely wasted, because we had never had the foresight and the courage to tackle the capital expenditure necessary to remove the causes of disease. Education and enlightenment he placed only second in importance to housing. As long as we had millions of people who never opened their bedroom windows, the efforts of health workers would be largely stultified. The information for the public which he had in mind need not be of a highly professional kind, couched in technical phraseology. It needed to be sound knowledge and good common sense. Housing and the spread of information naturally went hand-in-hand with research. The war had shown that a good deal of the expenditure of sanatoriums might be fruitless unless the arrangements were supplemented by others. In many cases it was of no use to send a man to a sanatorium if, on emerging, he returned to an insanitary home. Again, the monotony and dreariness of long life in a sanatorium was a human factor of great importance. Many men who had been in sanatoriums ought never to return to their former occupations. Arrangements for industrial training, linked to the sanatorium system, were necessary. The ministry of health, in conjunction with the ministry of pensions, was arranging for the provision of 1,000 training places in connection with sanatoriums. They will have to be linked up with village settlement centers. Any attempt to have a sort of tuberculosis colony was doomed to failure, for sufferers from tuberculosis wanted to live among their fellow citizens and not to be marked out. He would not be a party to branding the tuberculous person as a leper. Facilities for

early diagnosis and consultation for early cases was one of the most important works laid before them.

#### The Annual Meeting of the British Medical Association

The next annual meeting of the British Medical Association will be held in the University of Cambridge at the end of June under the presidency of Sir Clifford Allbutt. It was intended to hold the 1915 meeting at Cambridge under his presidency, but the war intervened and he has remained president of the association ever since. During the war no scientific meeting took place until that of last year, which was held in London much earlier than usual, in order to enable the medical officers of the dominions and the United States who were still in Europe to take part. The coming meeting will be held a month earlier than usual, in order to coincide with the time when the university buildings will be vacant. The number of sectional meetings will be considerably reduced. There will be four principal sections, namely, medicine, surgery, physiology and pharmacology, and neurology and psychiatry, each of which will meet on three days. But the other sections, namely, pathology and bacteriology, obstetrics and gynecology, tropical medicine, naval and military medicine, radiology and electrotherapeutics, venereal disease, medical sociology, and medical education, will meet only on one day. This reduction of the sectional meetings seems to have been due to the success of the last meeting when, owing to the influence of the war, most of the special sections were omitted and greater prominence given to demonstrations. It is intended to make the Cambridge meeting as objective as possible by numerous afternoon demonstrations for which the splendid laboratories of the university are well suited.

#### Industrial Hygiene

The new ministry of health is about to devote great attention to industrial hygiene, which the experience of the war has shown to be an important part of preventive medicine. In this country there are 130,000 workshops and 150,000 factories, in which 12,000,000 people spend a third of their lives. Sir George Newman, chief medical officer of the ministry, proposes to deal with the following points: (1) the careful selection of workers on engagement, and periodic supervision (including observation as to output, lost time, sickness, physiologic requirements, etc.); (2) the hours of employment—shifts, breaks, spells, pauses, holidays, Sunday work, night work and overtime; (3) the factory or workshop environment—design, structure, sanitation, cleanliness, heating, temperature, ventilation, lighting, sanitary accommodation, washing facilities, cloakrooms, seats, restroom and surgeries; (4) the personal well-being of the worker—the industrial employment of women, incentive, food supply, drinking water, canteens, protective clothing, lifting weights, welfare conditions, rest and recreation, and (5) the effect of occupation on health—fatigue (due to excess in duration of labor, specialization, repetition, strain or speed), sickness, injuries, accidents and industrial disease (poisoning by lead, phosphorus, arsenic, mercury, anthrax, dust and fumes).

#### The Treatment of Crippled Children

Sir Robert Jones has made an important proposal for the treatment of crippled children. He finds that rickets and surgical tuberculosis account for 40 per cent of crippled children. These diseases are preventable, but the remaining 60 per cent of the causes of crippling, too little is known to expect prevention. Under present conditions some of the children die, and others become cripples, yet many are fully curable; but the country has made no effort to face the problem. He proposes to graft the work of caring for these children on the orthopedic hospitals now conducted by the ministry of pensions for disabled soldiers. The machinery exists; it is only necessary to enlarge its scope. The country would be divided into districts similar to those established by the ministry of pensions. In each district there would be an open air country orthopedic hospital and a system of outpatient clinics. Specially trained nurses and physicians will be necessary; but these are already in existence owing to the work for soldiers. It is proposed that the ministry of health should take action in the matter and make its plans in advance so that the staff of the hospitals may not be dispersed as the pension work diminishes. Sir Robert Jones is confident that if in an organization is set up, many thousands of children otherwise doomed to the life of a cripple will be released to lead a normal life, though not fully cured, enabled to be self-supporting citizens and given far greater possibilities of activity and happiness.

## Marriages

GOUVERNEUR VINCENT EMERSON, Major, M. C., U. S. Army, to Miss Marie V. McLaughlin of Jersey City, N. J., at the country home of the bride, Milford, Pa., November 2.

LOCKRAT DAVIS ARBUCKLE, Lieut., M. C., U. S. Navy, to Miss Gladys Whitehead, at Olangapo, Sambales, P. I., August 25.

HARRIET MARION JERYAIS, Roxbury, Boston, to Lieut.-Col. William Higgins, R. N., at Belgrade, Serbia, October 4.

HARRY ROLAND KENNER, Washington, to Miss Margaret Clare Warfield, at Woodbine, Md., November 3.

JOHN ALBERT BERCHARD LOWRY, Crewe, Va., to Miss Mabel Johnson of Harrisburg, Pa., September 3.

THOMAS M. McMILLAN, Mobile, Ala., to Miss Julia T. Talcott of New York City, November 12.

## Deaths

Charles E. Cantrell \* Greenville, Texas; well known surgeon of the Southwest; a member of the House of Delegates of the American Medical Association from 1906 to 1909, and a member of the Board of Trustees from 1909 to 1913, inclusive; died, November 20. Dr. Cantrell was born in Lead Hill, Ark., March 15, 1859; he was a practitioner of Arkansas from 1885 to 1893, and was graduated from the medical department of the University of Arkansas, Little Rock in 1893. He located in Wolfe City, Texas, in 1893, and six years later moved to Greenville, where he and his brother founded Cantrell's Hospital. Dr. Cantrell was at one time president of the State Medical Association of Texas, and was for several years local surgeon of the St. Louis and Southwestern Railroad. On the entry of the United States into the world war, Dr. Cantrell was commissioned major, M. C., U. S. Army, and was on duty at the General Hospital, Corpus Christi, Texas, and was honorably discharged, Dec. 3, 1918. On July 31, 1919, he was appointed inspector-instructor, United States Public Health Service, and placed in charge of the Fourteenth District, comprising the states of Texas, Oklahoma, Arkansas and Louisiana, with station at Corpus Christi. While engaged in this duty, he was exposed to the tropical storm, which devastated Corpus Christi in September last, and his fatal illness followed this exposure.

Allan McLane Hamilton, Great Barrington, Mass.; College of Physicians and Surgeons in the City of New York, 1870; aged 71; a widely known alienist and specialist on nervous and mental diseases; died suddenly, November 23. Dr. Hamilton, a grandson of Alexander Hamilton, was born in Brooklyn. After his graduation in medicine, he settled in New York City, where he resided until his retirement, about two years ago. At his graduation he received the first faculty prize on his theses on "Galvanopuncture," and was also awarded the Harsen prize medal. He was professor of mental diseases in Cornell University Medical College from 1909 to 1903; statistical secretary of the New York Academy of Medicine in 1874; secretary of the New York Society of Neurology in 1875; and at one time editor of the *Journal of Psychological Journal*. He was lecturer on nervous diseases at the Long Island College Hospital, Brooklyn; chief surgeon to the Epileptic and Paralytic Hospital on Rockwell's Island, and later physician in charge of the New York State Hospital for Diseases of the Nervous System. Dr. Hamilton wrote many books on mental diseases, the most recent of which was his "Recollections of an Alienist," which appeared in 1916. He was also the author of "Intimate Life of Alexander Hamilton," which was published in 1911.

Floyd Milford Crandall \* New York City; University of the City of New York, 1884; aged 61; for many years a member of the House of Delegates of the American Medical Association, and since 1913 secretary of the Medical Society of the State of New York; a member of the American Pediatric Society; president of the New York County Medical Society in 1906; and of the Society of Alumni of Bellevue Hospital; lecturer on diseases of children from 1889 to 1893, and adjunct professor of diseases of children since that time in the New York Polyclinic; secretary of

the section of diseases of children of the Pan-American Medical Congress in 1893; surgeon of the New York Skin and Cancer Hospital from 1890 to 1898; consulting physician to the Infant's and Children's hospitals; state medical examiner since 1907; assistant editor of the *New York State Journal of Medicine*; died, November 19.

Preston Heath Bailhache \* Surg., U. S. P. H. S., Orange, N. J.; Pennsylvania Medical College, Philadelphia, 1857; aged 85; surgeon, Fourteenth Illinois Volunteer Cavalry, during the Civil War; and later associate editor of the *Quincy (Ill.) Whig*; who was appointed an assistant surgeon in the United States Marine Hospital Service, Aug. 20, 1873, and was retired, Nov. 1, 1909; died, October 28. During his forty-six years of connection with the United States Public Health Service, Dr. Bailhache assisted in revising the regulations of the service; was a member of the National Board of Health from 1879 to 1885; was on the board for selecting national quarantine stations in 1880.

William Grosvenor Bissell \* Buffalo; Buffalo University, 1892; aged 49; in charge of the bureau of bacteriology in the department of health of Buffalo since 1894; president of the State Board of Medical Examiners; president of the New York State Sanitary Officers' Association; for twenty years major and surgeon of the 74th Infantry, N. G., N. Y.; a member of the American Public Health Association and Association of Military Surgeons of the United States; who had conferred on him the honorary degree of Doctor of Public Health by the University of the City of New York in 1919; died, November 14.

John Hey Williams \* Asheville, N. C.; College of Physicians and Surgeons, Keokuk, Iowa, 1863; aged 77; once vice president of the Medical Society of the State of North Carolina, and president of the Buncombe County Medical Society; formerly surgeon-general of the National Guard of North Carolina; a member of the staff of the Clarence Barker Memorial Hospital; one of the most prominent surgeons of North Carolina; died, November 14, from cerebral hemorrhage.

Nathaniel Gildersleeve \* Philadelphia; University of Pennsylvania, Philadelphia, 1900; aged 48; a member of the American Association of Pathology and Bacteriology; professor of microbiology and bacteriopathology in the school of dentistry of his alma mater; Thomas A. Scott Fellow in hygiene; pathologist of the Bar Harbor (Me.) Hospital, where he conducted a laboratory in the summer; died in the University Hospital, Philadelphia, November 11.

Richard Coe Newton \* Montclair, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 68; a specialist in tuberculosis; surgeon in the United States Army from 1880 to 1889; formerly a member of the New Jersey State Board of Health; editor of the *Journal of the Medical Society of New Jersey*; a member of the staff of Mountainside Hospital, Montclair; died in that institution, November 13, from cerebral hemorrhage.

David Hayes Strickland \* Erie, Pa.; University of Pennsylvania, Philadelphia, 1863; aged 80; a life member and once vice president of the Medical Society of the State of Pennsylvania; local surgeon of the Pittsburgh and Lake Erie system; consulting surgeon to St. Vincent's Hospital; a veteran of the Civil War; during which he served as surgeon of the 11th Pennsylvania Volunteer Infantry; died, November 10, from pneumonia.

Enoch Hunt Jones, Murfreesboro, Tenn.; University of Louisville, Ky., 1892; aged 67; a member and for two terms president of the Tennessee State Medical Association; secretary of the Rutherford County Medical Society in 1916 and 1918; for many years health officer of Murfreesboro; died in St. Thomas' Hospital, Nashville, Tenn., November 3.

George Duffield \* Detroit; Detroit Medical College, 1882; aged 60; professor emeritus of clinical medicine in the Detroit College of Medicine and Surgery; attending physician to Harper Hospital; consulting physician to the Woman's Hospital and Infant's Home, Detroit; died in his office, November 12, from heart disease.

Lena Grace Spring, Hollywood, Los Angeles; Herring Medical College, Chicago, 1904; aged 49; once professor of physiology in the College of Medicine and Surgery, Chicago; at one time physician for the Mexican Central Railroad; died in an ambulance while being taken from her home to a hospital, November 2.

Adolph Hoerr \* Mamaroneck, N. Y.; University of the City of New York, 1896; aged 50; at one time county physician of Westchester County, justice of the peace, and

\* Indicates "Fellow" of the American Medical Association.

a member of the staff of the United Hospital, Port Chester; died, November 12, from arteriosclerosis.

**Arthur Winter**, Cleveland; Cleveland College of Physicians and Surgeons, 1896; aged 52; died in Mt. Sinai Hospital, Cleveland, November 8, from the effects of wounds of the lung inflicted with an ice pick by the enraged husband of a patient a week before.

**James Robert Lancaster**, Granbury, Texas; University of Louisville, Ky., 1876; aged 71; a member of the State Medical Association of Texas; a practitioner since 1869; assistant surgeon in the Confederate service during the Civil War; died, November 3.

**Matthias Higgins**, Newport, Ky.; American Eclectic Medical College, Cincinnati, 1889; Cincinnati College of Medicine and Surgery, 1892; aged 58; coroner of Campbell County for three terms; died in his office, November 4, from heart disease.

**Lemuel Stephen Coplan** \* Wellington, Kan.; University of Illinois, Chicago, 1897; aged 51; captain, M. R. C., U. S. Army, and honorably discharged, Dec. 12, 1918; died in Chicago, November 17, from atrophic cirrhosis of the liver.

**George Edwards Richards**, Boston; Harvard University Medical School, 1883; aged 73; a member of the Massachusetts Medical Society; at one time a member of the staff of the Boston Dispensary; died, September 8, from myocarditis.

**James B. Williams**, Chicago; University of Pennsylvania, Philadelphia, 1880; Hahnemann Medical College, Chicago, 1890; aged 62; a member of the Illinois State Medical Society; died, November 18, from arteriosclerosis.

**Paul White Abell**, Charlton, Mass.; College of Physicians and Surgeons in the City of New York, 1893; aged 52; died in the Memorial Hospital, Charlton, October 28, four days after an operation for the removal of gallstones.

**Dennis Church**, Churchville, N. Y.; College of Physicians and Surgeons in the City of New York, 1872; aged 69; from 1890 to 1892 in the chemical manufacturing business; died, November 16, from heart disease.

**Paul Faver**, Atlanta, Ga.; Medical College of Virginia, Richmond, 1868; Bellevue Hospital Medical College, 1872; a Confederate veteran; once a member of the Georgia state senate; died, November 12.

**Alonzo L. Hurd** \* Somers, Conn.; University of Vermont, Burlington, 1891; aged 61; once president of the Tolland County Medical Association; died, November 9, from pernicious anemia.

**Edward S. Zieber**, Philadelphia; Jefferson Medical College, 1890; aged 60; teacher of mathematics in the high schools of Philadelphia for thirty-five years; died, October 30, from bronchiectasis.

**Edwin I. Thorne**, Salt Lake City; Medical College of Ohio, Cincinnati, 1869; aged 72; a member of the Utah State Medical Association; died, November 3, from chronic rheumatism.

**Edmund Bailey Frye**, Boston; Dartmouth Medical School, Hanover, N. H., 1880; aged 63; a member of the Massachusetts Medical Society; died, October 23, from angina pectoris.

**William T. Herndon**, Ashboro, N. C.; Louisville (Ky.) Medical College, 1874; aged 78; died at the home of his daughter in Winston-Salem, N. C., November 1.

**Aaron M. Sherman**, Pasadena, Calif.; Western Reserve University, Cleveland, 1851; aged 93; for many years a practitioner of Kent, Ohio; died, about November 2.

**William H. Landis**, Buchanan, Mich.; Starling Medical College, Columbus, Ohio, 1885; aged 61; died in his office, October 7, from cerebral hemorrhage.

**John Jefferson Kackley**, Chetopa, Kan.; Washington University, St. Louis, 1871; aged 92; died at the home of his daughter in Chetopa, November 4.

**Samuel DeLancy Hicks**, Richmond, Va.; University of Berlin, Germany, 1884; aged 50; died at Bethel, Conn., September 18, from heart disease.

**Thomas DeHaven Blodgett** \* Tulare, Calif.; Cooper Medical College, San Francisco, 1894; aged 51; died, November 10, from septicaemia.

**Joseph Rollin Sook**, Newark, Ohio; Cleveland University of Medicine and Surgery, 1887; aged 53; died, November 4, from nephritis.

**William Bradley Towler**, Los Angeles; Victoria University, Toronto, Ont., 1869, aged 76; died, August 12, from heart disease.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPRINTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### MICAJAH'S WAFERS AND MICAJAH'S SUPPOSITORIES

#### Report of the Council on Pharmacy and Chemistry

"Micajah's Medicated Wafers" and "Micajah's Suppositories," sold by Micajah & Co., Warren, Pa., are declared inadmissible to "New and Nonofficial Remedies" because (1) their composition is essentially secret (Rule 1); (2) the name of neither of these mixtures is indicative of its composition (Rule 8); (3) of exaggerated and unwarranted therapeutic claims (Rule 6), and (4) the therapeutic advice which accompanies the trade packages constitutes an indirect advertisement to the public (Rule 4).

W. A. PUCKNER, Secretary.

Micajah's Medicated Wafers (formerly called "Micajah's Medicated Uterine Wafers") were analyzed in the A. M. A. Chemical Laboratory in 1910. They were found to consist essentially of dried ("burnt") alum, boric acid and borax, in approximately the following proportions:

Alum, dried .....	59.86 per cent.
Borax, dried .....	15.62 per cent.
Boric acid .....	3.67 per cent.
Water of hydration .....	18.85 per cent.

There are a number of drugs that are more or less effective in the treatment of local lesions of mucous membranes and the skin. They are classed as astringents. Among these are included alum, borax and boric acid. Every physician has used them. To say that a wafer consists of alum, borax and boric acid inspires but little awe. But there is something much more mysterious and impressive in declaring that a wafer "consists of an astringent and antiseptic base, in which are incorporated certain medicaments which both locally and after absorption, contribute to the astringent, antiphlogistic, depletive, soothing and healing action of the product." This gives the impression that some powerful and almost incomprehensible factors are at work. Yet, after all is said and done, the substances contained in Micajah's Medicated Wafers are just the homely old alum, boric acid and borax.

In addition to "Micajah's Medicated Wafers," Micajah & Co. also put out "Micajah's Suppositories for Hemorrhoids." These have been examined in the A. M. A. Chemical Laboratory and, like the "Medicated Wafers" have been found to contain alum, boric acid and borax—and these substances practically alone incorporated in cocoa butter. The company claims that "to these have been added Ammonium Icthyosulphonate, Balsam of Peru, Ext. Belladonna." The A. M. A. chemists report, however, that if extract of belladonna is present at all it is in amounts too small to be detected by the method commonly employed in the chemical examination of alkaloidal drugs. The chemists report further that while ammonium ichthyosulphonate and balsam of Peru both have a decided odor and are dark in color, the suppositories have but little color and the odor of the cocoa butter that forms their base is not covered by these drugs; obviously, therefore, if ammonium ichthyosulphonate and balsam of Peru are present at all it is in amounts utterly insufficient to exert any therapeutic effect.

It would be hard to find better examples of mischievous proprietary medicines than these two products of the Micajah Company. "Twins of Efficiency," they are called in an advertising pamphlet. The composition is not stated. A physician using the "twins" does so absolutely in the dark. To him they are secret preparations. He is encouraged to use them in a great variety of conditions in which other drugs are much more useful. Inevitably, physicians using

them will be likely to overlook, or pass over, new growths, specific infections and diseases that require radical remedial measures.

In addition to misleading and exaggerated claims, there is a reference to a report from the usual "well-known and reliable bacteriological laboratory." The excerpts published from this report at an unnamed laboratory are sufficiently vague to incriminate no one.

From time to time it is worth while to emphasize facts regarding proprietary medicines that while obvious are sometimes forgotten. For this reason attention is directed to Micajah's Uterine Waters and Micajah's Suppositories.

## Correspondence

### LIPOVACCINES AS A PROPHYLACTIC IN INFLUENZA

To the Editor.—In THE JOURNAL, Oct. 25, 1919, appeared a letter from Surgeon-General Blue, U. S. Public Health Service, relative to statements in the above subject made by me. To this letter I reply because Dr. Blue makes certain incorrect statements.

In a letter dated October 17, Dr. Blue sends me his letter to THE JOURNAL accompanied by a letter in which he states that my article contains "a number of misstatements," whereas, in the article for publication which he headed "Correction of Erroneous Statements in the Chicago Daily Tribune," he describes my article "as so misleading." He brands two of my statements as misstatements. A third statement made by me he pronounces correct in his letter to me.

The several other statements are not touched on. Even though he had made his point, the headlines and his several characterizations would not have been justified, and he himself might be accused of attempting to mislead, especially in view of his own statement that the principal object of his letter was to justify the action of the Public Health Service in its action on lipovaccines.

First, let me briefly discuss the statement relative to the use of lipovaccines by the army. Frankly, I did not know of the War Department March circular on lipovaccines until I received Dr. Blue's letter. However, I now have a copy of the circular before me, and I find that the facts are not in all accord with Dr. Blue's statements. I refer to "S. G. O. 442, Surgeon-General's Office, Mar. 12, 1919," signed S. C. R. Correll. Dr. Blue says: "The fact is that the army discontinued distributing lipovaccine some months ago, and withdrew that which was outstanding." The circular reads: "Lipovaccines were adopted as a war measure on account of their obvious advantages and have served their purpose. The present method of manufacture, however, needs further improvement,

and the duration of their protective power as compared with that of saline vaccines needs further investigation. Saline vaccines, therefore, will be used as a routine, and lipovaccines will be reserved for emergencies."

The second charge of error is flimsy. My article related to measures of control of influenza. Among other methods I referred to the use of vaccines. Six paragraphs were given to discussion of vaccination. A part of the discussion of vaccines was devoted to lipovaccines. In giving the evidence for vaccination I cited the two army experiments, inadvertently referring to the work at both Upton and Wheeler as having been done with lipovaccines. As is well known, the vaccination at Wheeler was with lipovaccines; that at Upton with saline vaccines.

Dr. Blue writes:

The chief objection raised is the coupling of the refusal of the U. S. Public Health Service to license lipovaccines with the statements which imply that for this reason people are being deprived of a valuable prophylactic agent.

He justifies the action of the service by the statement:

The lack at present of satisfactory potency and sterility tests for lipovaccines has led the bureau to decline to license such vaccines for interstate sale, and the evidence at our disposal indicates that a saline vaccine containing pneumococci is at least as effective as an oil suspension of the organisms.

I say the Public Health Service has made it impossible for most of the people to get influenza-pneumonia vaccines and (human nature being as it is) practically speaking, to prevent influenza-pneumonia vaccination. Dr. Blue says that at least the first part of the statement is correct, the Public Health Service having gone to the limit of its powers to make lipovaccines unavailable. I said that people who can get lipovaccines are lucky. Dr. Blue denies this and justifies the action of the service on two grounds—lack of confidence in the sterility of influenza-pneumonia vaccines and lack of faith in their efficacy. Here, as Dr. Blue says, is the real point of controversy, the chief reason, for his open letter.

First, as to sterility: I assume that what Dr. Blue meant to say is that it is difficult to sterilize lipovaccines. Lipovaccines made according to the older method were in fairly wide use in the army last winter. I have not seen any reports of any great harm due to lack of sterility. However, a simpler method of manufacture has been in use for more than six months. It was described by Rosenow in June last, and the description appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION shortly thereafter. Using this method, it is just as easy to make sterile lipovaccine as to make sterile saline vaccine, and far easier than to make sterile smallpox vaccine—a product licensed by the U. S. Public Health Service.

Second, as to potency: I am not certain what potency tests Dr. Blue refers to. He may refer to lack of laboratory demonstration by the McCoy test or to lack of clinical proof of potency. This objection to influenza-pneumonia vaccines was raised frequently in October, 1918. Without going deeply into it, it seems to me that so far as the pneumococcus is concerned the evidence is very good that it can be used, in the laboratory, to produce specific antibodies and, clinically, to produce immunity as to streptococcus. The evidence is fairly good that it produces specific antibodies in laboratory animals. There is lack of agreement as to the degree of effectiveness in antibody formation with lipovaccines as compared with saline vaccines.

As I understand it, the position taken by Dr. Blue is that if the service were to permit the manufacture of lipovaccines, it would be in the position of guaranteeing their efficacy to an extent. This he declines to do. May I ask him: Does the Public Health Service guarantee the efficacy of saline vaccines against influenza?

I have before me catalogues of biologic products used for children and a variety of disorders put out under license of the U. S. Public Health Service. Does the service guarantee the efficacy of each case? Or does it stand behind them in the sense in which it declines to stand behind lipovaccines? The latter half of the sentence quoted is: "The evidence at our disposal indicates that a saline vaccine containing pneumococci is at least as effective as an oil suspension of the

product or products may have in mind the statements of Dr. Evans which are quoted by Dr. Blue, we again quote them:

"There is a considerable variety of opinion as to whether vaccines should be made from local strains of bacteria. Since very few local strains of bacteria are available from local strains, they will have to be made from strains far away."

"The fact is that the army discontinued distributing lipovaccine some months ago, and withdrew that which was outstanding."

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organisms." Suppose we ask, on the basis of this statement, Why license the one and refuse to license the other?

The point made in favor of lipovaccines in my article was that, using lipovaccines, vaccination can be done at one sitting, whereas three sittings extending over three weeks is required for vaccination when done with saline vaccines. Vaccination at three sittings is possible in military life. In civil life it does not work. In ordinary times for the civilian life, for the uses of municipal and state health departments, the only vaccination worth talking about is one-sitting vaccination.

Now, Dr. Blue may be right as to a laboratory proposition that a saline vaccine containing pneumococci is at least as effective as an oil suspension of the organism; but when it comes to fighting pneumonia and influenza among civilians, he is just about as wrong as a man could be. His action is equivalent to saying that influenza-pneumonia vaccination shall not be done generally. I do not think this a wise decision.

W. A. EVANS, M.D., Chicago.

COMMENT.—Dr. Evans' letter was referred to Surgeon-General Blue, who replies: "As Dr. Evans acknowledges the accuracy of my criticisms concerning his citations of the Army use of lipovaccines, and as nothing in that portion of his letter concerning the refusal of the U. S. Public Health Service to license lipovaccines requires any comment in addition to that found in my original letter, no further reply seems to be necessary."—Ed.

### THE EIGHT HOUR DAY

To the Editor:—I have translated the following statement from the issue of *La Presse médicale* just received. I believe it might well be published in THE JOURNAL.

#### THE EIGHT HOUR DAY—A FRENCH MEDICAL INTERPRETATION

"No sound comes from the press. In parliament an individual rises and says, 'The Labor Party desires an eight hour day.'

"Immediately deputies, senators, they of the left, of the center, of the north, they who follow the red flag and they of the tricolor, all cry with one voice, 'Demos has spoken! What he wishes shall be done.' 'Amen,' says Clemenceau. And the law is voted.

"The vote is characteristic of the psychology of modern parliamentarism. Political science, difficult and understood only by economists and by the wise, demands reflection, calculation of the moral and economic consequences which a law will effect and provision in it against counter-strokes and reaction. But politics is no longer the key which opens enlarged vision nor has politics become more democratic. Parliament is democratic and it is charged with the making of laws, but it merely churns them up. Modern parliaments cast laws into the clouds, just as a child might sow seeds, without knowing whether the plants which would arise would be weeds or wheat, a poison or a cure.

"It is impossible to think of a law more inopportune, or one more capable of increasing expenses, diminishing production, paralyzing commerce and industry, and delaying the reconstructions so necessary for our country.

"The ministries and the administrative officers of the state continue to recruit new employees by thousands upon thousands. Evidently this is a clever policy of dealing with the demobilized soldiers without dismissing those who have held office during the war. Evidently the process prevents the advancement of the old employees. The whole is a powerful machine which drains away the labor necessary for the farm and for productive industry.

"One has not yet observed the consequences of this interperate law. Who would dare to say that before this law was passed there existed any group of overworked laborers in France? On the contrary, rail transportation has become less reliable and more expensive, the ports of the country are tied up, the construction of houses is absolutely at a standstill and indispensable undertakings are postponed until the Greek Kalends.

"For example, the directors of our hospitals are anxiously demanding how they can recruit, pay, lodge and provide food for the additional hundreds of supplementary employees whom the law makes necessary. Are the patients better

cared for? No. The chiefs of service must wait for their necessary laboratories; the tuberculous must wait for their sanatoria.

"Unless the popular good sense does not immediately remedy the error of our legislators, we will soon be at the red dawn of a day without bread. For why should a farmer work longer than a hospital attendant? Why should the little guardian of turkeys in the pasture worry over them for longer hours than her sister who is in the beautiful bureau of Monsieur the Minister?

"Oh Parliament, he logical and apply the eight hour day to the workers in the field. Then the citizen will search the market in vain for an ounce of butter or a slice of bacon, even as a young man now will search Paris in vain to find a dwelling place in which to shelter his head and his illusions.

"The demagogue smiles at these miseries. What does he care for the cost of living? If bread fails he will eat cake, famine may overtake the vulgar, but in *centres d'ores* there are always truffles."

GRAHAM LUSK, New York.

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

#### HARTMAN STILL WORKING THE PROFESSION

To the Editor:—The matter I am enclosing looks so much like a "work-the-doctor" game that I thought you might be interested to find out about it. Is it genuine or a collection agency follow-up scheme and is it being worked generally?

H. Z. FRISBIE, M.D., Elkland, Pa.

ANSWER.—The material sent in by Dr. Frisbie is a typewritten letter addressed to "Minister of the Gospel or Town Physician, Elkland, Pa." The letter was signed "Myrtle Moore" and accompanying it was a stamped envelope addressed "Myrtle Moore, 3925 Wentworth Ave., Chicago." The body of the letter was to the effect that Myrtle had recently written to a man (name given) in Elkland, Pa., but her letter had been returned undelivered. This fact led Myrtle to believe that the family had moved without letting her know. Then Myrtle continues:

"If it is not asking too much of you, I assure you it would be a great favor if you could advise or find out for me without putting yourself to too much trouble where a letter can reach this party. It is a matter of considerable importance."

The facts are, there is no Myrtle Moore, 3925 Wentworth Ave.—for the very good reason that 3925 Wentworth Avenue is a vacant lot. In the adjoining lot, however, 3923, is the "Administration Building" of the Hartman Furniture and Carpet Company, a concern that sells furniture and house furnishings on the instalment plan. This scheme on the part of the gospel as nupaid collection agents was exposed editorially in THE JOURNAL, August 23, last. At that time we showed that doctors in various parts of the country were receiving letters from "Myrtle Moore," "Helen Taylor" and other more or less hypothetical individuals asking similar questions about the present whereabouts of some individual and enclosing stamped envelopes that were addressed to a location in Chicago that did not exist. There is nothing fraudulent about the scheme, as the postal authorities notified us when we took up the matter previously. Nevertheless, it is a cheap and petty piece of unworthy misrepresentation and deceit. It reflects credit neither on the furniture concern that perpetrates it nor the postoffice authorities by whose assistance it becomes effective.

#### ACRIFLAVINE IN THE TREATMENT OF GONORRHEA

To the Editor:—In THE JOURNAL, Nov. 8, 1919, under the heading New and Nonofficial Remedies, I notice a description of acriflavine. I have been told that this was used extensively in France in the treatment of gonorrhoea with very good results during the time that argentol is employed, that is an injection in the strength of 1:1,000. Please give me more information on this subject, and advise me through whom the drug may be obtained.

C. W. SHARPELORD, M.D., Fair Hill, Ala.

ANSWER.—A review of the literature on the therapeutic use of acriflavine and proflavine has been prepared by the Council on Pharmacy and Chemistry. The report of the



## Book Notices

**A MANUAL OF EXERCISES FOR THE CORRECTION OF SPEECH DISORDERS.** By May Kirk Scripture, B.A., Instructor in Speech, Columbia University (Extension and Summer Session), and Eugene Jackson, B.A., in Charge of Speech Correction at the University and Bellevue Hospital Medical College Clinic, New York City. Cloth. Price, \$2 net. Philadelphia: F. A. Davis Company, 1919.

This book is intended to embody the vocal materials and methods which the authors make use of in their work of speech correction. The material is presented in the form of fifty lessons, each lesson being intended to develop some especial phase of the work. The lessons are augmented by forty-six illustrations and considerable explanatory matter. The book seems to be intended for use in classes of the public schools, for example, and its aim to present underlying methods and materials that may be employed in the pedagogic treatment of speech disorders in general, and for the improvement of carelessness in speech. It is the first book of its kind to appear in America. The danger in the speech situation at this time is superficiality and mechanicalness of procedure. What is needed in speech work is a book of this general character that makes every proposed procedure rest solidly on physiologic foundations. Viewed from this standpoint, the book, while it contains much useful material, seems vague as to both physiology and methods. But if the teacher has been well grounded in principles, she would be able to adapt much of this material to her own independent needs.

**A TEXTBOOK OF PHYSIOLOGY.** By Martin Flack, C.B.E., M.B., B.Ch., Research Staff, Department of Applied Physiology, Medical Research Committee, and Leonard Hill, M.B., F.R.S., Director of Applied Physiology Department Medical Research Committee, London Hospital Medical College. Cloth. Price, \$8.50 net. Pp. 800, with 485 illustrations. New York: Longmans, Green & Co., 1919.

This book has been written "with the primary object of giving to the student, in an easily understandable form, the fundamental facts and theories of physiology, bearing in mind the limitations necessary in the student's textbook." It compares favorably with a number of standard textbooks of physiology published in the United States and Great Britain, for the use of medical students. The illustrations are excellent, the paper and print good; but in a number of the chapters the subject matter is not brought up to date. There is no reference to literature, an omission that detracts from the value of the book in the hands of the medical student. In some of the chapters, notably those on general dietetics, diet under various conditions, etc., some of the nutrition experiences of the recent war are brought in.

**THE NERVOUS HEART: ITS NATURE, CAUSATION, PROGNOSIS AND TREATMENT.** By R. M. Wilson, Captain, R. A. M. C., and John H. Caffery, Major, M. C., U. S. Army. Cloth. Price \$2.50. Pp. 136. New York: Oxford University Press, 1919.

In this volume the authors view the problem of heart disease from a new angle—that of the nervous system. Especially in their explanation of functional heart disease is emphasis laid on the influence of the vagus depressor and the sympathetic nervous system. Etiologically infectious-toxic agents are believed to play an important part. There is a good outline of the well-known symptomatology, prognosis and treatment of the so-called irritable heart. The theories underlying the views expressed in this work, which are an outgrowth of the views expressed by Wilson in his "Hearts of Man," are interesting and stimulating, but need further study before being generally accepted.

**INDUSTRIAL NURSING FOR INDUSTRIAL, PUBLIC HEALTH, AND PEOPLES' NURSES, AND FOR EMPLOYERS OF LABOR.** By Florence South Wright, R.N., Bureau of Child Hygiene, New Jersey State Department of Health. Cloth. Price, \$1.25. Pp. 179. New York: The Macmillan Company, 1919.

With the aid of many industrial nurses, the author has prepared a brief outline of what is relatively a new field. She states that the trained nurse was probably first employed in industry in 1895, but that it is only within the last decade that the real development in this field has taken place. She

points out that in addition to a good preliminary education and hospital training, the industrial nurse requires a working knowledge of psychology, and of civic, industrial, social and relief problems. The book discusses the work, presenting typical forms and blanks for practical use. There is a good analysis of the relations of the nurse to her fellow employees. In an appendix are a brief outline of first aid methods and a list of sources of information relative to national social organizations, and, finally, a brief bibliography for special reading.

**ATLAS OF OPERATIVE GYNECOLOGY.** By Barton Cooke Hirst, M.D., Professor of Obstetrics, University of Pennsylvania. Cloth. Price, \$7 Pp. 292, with 210 illustrations. Philadelphia: J. B. Lippincott Company, 1919.

The author describes the technic of gynecologic operations, on the basis of a large experience, selecting in each case the operation which he believes best suited to the woman's subsequent life history. The text is brief, being wholly subordinated to the full-page illustrations of operative technic. The illustrations are so numerous and so excellent that they are almost an equivalent to standing at the side of the operator and witnessing the operation.

## Social Medicine, Medical Economics and Miscellany

### FIFTY-ONE DAYS FOR KILLING

Mrs. Emma D. Simpson, who shot her husband in court last April, was adjudged insane by a jury, September 26, and was thereafter sent to the Elgin State Hospital for the Insane. On Friday she was adjudged sane by a jury of experts and released. "The Elgin city court was packed with a sympathetic crowd," says the report.

She was fifty-one days at the institution. Her remark on regaining her liberty is significant. "I did not do the right thing—absolutely not," she said. "I could not have done such a thing had I been in my right mind. But until the last hour of my life I'll believe my husband wanted to kill me and marry a bad woman."

After the shooting she buoyantly said to the *Tribune* staff photographer, "When I go to court for this, I will defend myself. I will need no attorney; the new unwritten law, which does not permit a married man to love another woman, will be my defense. I will tell my whole story to the jury and they will free me."

The *Tribune*, in comment on this breezy announcement, said, "They probably will. What is law, what is a human life to the sloppy sentimentality of the juries which sit in these cases?"

Mrs. Simpson's optimism and our prediction have been essentially justified. She did not try her own case. The unwritten law she relied on was not formally pleaded. But the conventional plea of temporary insanity was, and there were learned experts to support it. The jury did not set her free. It compromised by setting her on the road to freedom. She was solemnly adjudged insane and sent for treatment.

Forecasting the outcome, the *Tribune* at the time of the trial said:

"Pity is at work for Mrs. Simpson, but we hear of little for the husband she slew in a public courtroom. She is said to be nervous. Nervous women should not carry firearms. Mrs. Simpson may be demented; if so, she should be placed in an asylum for life; not only until she makes a surprising recovery."

The recovery is made, but it is not surprising. This tragic comedy, beginning with the slaying of a human being by an infuriated woman, proceeding through the elaborate drama of the American criminal trial, and ending with the solemn farce at Elgin, develops as inevitably as an Hsien play.

Sentimentality is lawless. The disease in America is endemic. We need some drastic moral therapy—Chicago *Tribune*.

## Medicolegal

### Refusing to Submit to Roentgen-Ray Examination

*Re: Desmond Charcoal & Chemical Co. et al. (Mich.) 172  
N. W. R. 175*

The Supreme Court of Michigan, in setting aside an order of the industrial accident board denying a petition by an employer and an insurance company for permission to cease payments to an employee who tripped while wheeling ashes and tore ligaments on the kneecap, holds that it could not be said that the evidence was conclusive establishing the fact that the employee had recovered from his injury. It must be said that there was some, if slight, evidence supporting a contrary conclusion. It tended strongly to prove that he was recovered. But the doubt which is left in the mind was a small one, and his refusals to submit his person to expert roentgen-ray examination demanded suspension of his right to compensation, under the provisions of the workmen's compensation law. This was the order which the board sought to have made in the premises. The court does not intimate that it was its opinion that the employee had not had expert roentgen-ray examination, which was some time in the year 1915. But it was a fair consensus of the opinions expressed by the medical witnesses that any doubts now existing about his condition might be resolved by an expert roentgen-ray examination made presently. He had only to give his time in order that such examination might be made, the petitioners having offered to pay therefor.

### Medical Practice Act Constitutional—Chiropractor

*People, for Use of State Board of Health v. Kane (Ill.),  
125 N. E. R. 265*

The Supreme Court of Illinois, in reversing a judgment rendered for the plaintiff and remanding the cause, says that the defendant was charged with practicing medicine without a license from the state board of health, the action being brought under the act of 1899, as amended in 1917, which authorized a recovery of \$100 for the first offense and \$200 for each subsequent offense. The offense defined by the act consisted in practicing medicine or surgery or treating human ailments with out a certificate issued by the state board of health. The offense did not consist of treating some individual, but for practicing medicine generally by treating the public, so that a first offense meant a first conviction. There could not be a judgment for five first offenses, and the judgment must be reversed for that reason.

The statute was enacted in the exercise of police power, for the protection of the lives and health of the people. The state has a right to regulate any and all kinds of occupations for that purpose, and all measures and regulations for the protection of the public health, not intruding on constitutional rights, are within the scope of the police power. The right of a citizen to follow any legitimate occupation is subject to the paramount power of the state to impose such regulations as may be required to secure the people against deception, misadventure, deception or fraud in the practice of medicine, so long as they are limited to such restraints as are imposed by the legislature.

Section 7 of the act provided that any person should be regarded as practicing medicine, within the meaning of the act, who should treat or profess to treat, operate on or prescribe for any physical ailment or any physical injury to the members of another. The defendant was a chiropractor, his practice consisted in adjusting the vertebrae of the spinal column. That method of treating physical ailments, known as chiropractic, is not within the common meaning of the term "practicing medicine," but the general assembly had a right to define the practice of medicine for the purposes of the act so as to include that method. Within constitutional limits, the general assembly is the sole judge of what laws shall be enacted for the protection of the public health. In every citizen has a right to be governed by fixed rules, and cannot be subjected to the will or caprice of an administrative board.

The act provided for examinations of persons applying for licenses to practice medicine, and, as to those desiring to practice medicine and surgery in all its branches, prescribed general rules for an examination. As to those who desired to practice any other system or science of treating human ailments, who did not use medicines internally or externally, or practice operative surgery, it required that examinations should be of a character sufficiently strict to test their qualifications as practitioners. That provision, standing alone, conferred on the state board of health arbitrary power to grant or refuse licenses in its own discretion and on its own judgment as to what examination would be sufficient to test the qualification of each applicant for a license. It furnished no standard and no guide and no security to an applicant by which the courts could determine whether the requirements of the board were reasonable or not. The act, however, provided that all examinations should be conducted under rules and regulations prescribed by the board, which should provide for a fair and wholly impartial method of examination. Such rules and regulations, if made, would be subject to review by the courts to determine whether reasonable or not. Considering the provision of the statute for the adoption of rules and regulations subject to judicial review, under which examinations should be made and licenses issued, the statute did not violate any constitutional right.

## Society Proceedings

### COMING MEETINGS

Medical Society of Hawaii, Honolulu, Nov. 29-30, Dec. 1.  
Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
Southern Minnesota Medical Assn., Marquette, Dec. 1-2.  
Southern Surgical Association, New Orleans, Dec. 16-18.  
Western Roentgen Society, Chicago, Dec. 10-12.  
Western Surgical Association, Kansas City, Mo., Dec. 5-6.

### CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

*Ninth Annual Meeting, held in New York, Oct. 20-24, 1919*

*(Continued from page 1653)*

### Stiff and Flail Joints

SIR ROBERT JONES, Liverpool, England: One of the common products of the results of war injuries was the flail joint. The greater number of these disabilities were the direct results of excisions deliberately performed at casualty clearing stations or base hospitals in order to save the limb from amputation or the patient from death by minimizing local sepsis and preventing general sepsis. Cases in which so-called limited section was performed have resulted in better function than was obtained in those cases in which the excision was very extensive. Moreover, cases in which sepsis has been overcome and bones allowed to remain in position have sometimes resulted in a very good firm ankylosis with excellent function, if the position of election has been maintained. The treatment of a flail joint consists in the removal of necrotic bone and scar tissue, correct position, operative attempts at improved pseudarthrosis, production of ankylosis, and retention in mechanical apparatus. Ankylosis should be aimed at rather than mobility. In limiting the extent of excision, muscular attachments should be preserved. The rule should be that as soon as the surgeon can do so he should place the bones as nearly together as he can and in the best position for future functioning, whether a pseudarthrosis or an ankylosis occurs. Bone grafting, as generally understood, is of very limited application in injuries of the upper part of the shaft of the femur. Ankylosis in the case of limited excision of the hip is of no advantage and certainly does not justify the severe operation which it necessarily entails. The only practical treatment of a flail knee is ankylosis, and if the ends are in good position nothing is needed but to saw the ends and fix them with screw or nail. When there is a wide

separation associated with sinuses, it is necessary, after sawing the ends of the bone, to bring a bulky sliding graft from the tibia or femur and wedge it in at right angles to the line of the joint. A flail ankle is so rare that I do not recall an instance of it as a result of a war wound. Many operations for fixation of the shoulder have failed because the surgeon has been content to bare the glenoid and freshen the humerus. This is quite insufficient. It is important, before the arm is ankylized, to ascertain whether the scapula is mobile and whether it retains its normal position with regard to the humerus. If the scapula is fixed and the arm abducted, the patient will have a fixed abducted shoulder with an arm that he will not be able to lower.

DISCUSSION

DR. JOSEPH A. BLAKE, New York: If the treatment of the articulations is properly carried out, a stiff joint rarely occurs, unless there is disease. If one wishes to conserve the motion of a joint, he should never allow it to be lost. This means motion from the time of the injury, not several times a day, but some arrangement whereby unconscious movements may be made at any time. It is desirable that the patient should make the motions himself, since active motion not only maintains the functions of the muscles but also makes new bone conform to the architecture of the joint. Not only does active motion prevent deformity, but it favors healing by improving the nourishment of the parts. In a joint already stiffened, one is confronted with two problems: permanent ankylosis or a return to motion by proper treatment. The practice of breaking up a stiff joint under anesthesia is utterly and absolutely reprehensible and should never be done.

DR. JOHN L. PORTER, Chicago: In some cases of flail shoulder and flail elbow which I saw, the articular ends of the bones had been shot away, the wounds had become infected, and scar tissue had formed in the gaps. We devised a special wire splint for these cases which held the bones at the shoulder and elbow together and secured sufficient fixation, though not ankylosis, to make the joints useful. When healing was complete, active and passive motion were instituted. In the treatment of stiff joints it seems as though we are in danger of losing sight of the fact that stability must be preserved if the joint is to be useful. The results of arthroplastic operations on the knee joint are, as a rule, disappointing, as they leave the patient with neither a flail nor a stable joint, and often with 35 degrees of motion instead of 90 degrees. With such a knee a man cannot go up or down stairs, and is much more disabled than with a stiff knee fixed at an angle of 10 degrees. A stiff shoulder is very disabling if it is fixed close to the body; but if the arm is in the position of election—a slight abduction—one can get along quite comfortably.

DR. JOEL GOLDBERGER, Boston: A flail joint is rarely seen in civil life, but stiff joints are quite common. It is a simple matter to mobilize a stiff joint, but the procedure must be designed with a view to the ultimate usefulness of the limb. The shoulder in the proper position is much better stiff than flail. A flail elbow is better than a stiff joint. The knee joint should never be mobilized when once it is completely ankylized. The hip joint is fairly easy to mobilize, and many times the patient is better off if this joint is mobile. Fingers are very easy to mobilize.

The Physician and Surgeon in the Industrial Era

DR. OTTO P. GELBER, Cincinnati: Is it right that the physician who has a close view of the living and thinking of the people should play so small a part in their lives? Are we doing all we can to bring about health and sanity which are basic at all times to the national welfare? Workmen's compensation laws and group insurance schemes are being promoted without seeking the guidance of those best fitted to inspire and direct such undertakings. As a consequence of neglect to take cognizance of these things on the part of the leader of the medical profession, we have the general practitioner tinkering with industrial injuries with the result that disability is prolonged and there is a greater loss of time and wages to the

workman, and a loss of time and money to the employer, with consequent decreased production, and to society a greater burden. In President Wilson's industrial conference the medical and surgical profession had no representatives. If the profession does not awaken from its social, or rather unsocial, torpor, legislation will be passed to suit labor or capital, but it will have no consideration for the interests of the profession. Do these facts suggest why we have been unsuccessful in our demand for a federal department of health? The properly trained physician and surgeon should be taken out of his office where his services reach mainly only the rich or, through dispensaries, hospitals and clinics, the poor, and placed in group diagnostic clinics where his services will be at the disposal of the laborer. Our usefulness in the discussion of social problems has not thus far been noteworthy. During the last decade there has developed, in response to the demand of industry, the industrial physician, who is desperately trying to cope with industrial problems, which are quite different from the problems the physician meets ordinarily. He must be familiar with all the factors affecting the health of employees, with the sanitation of factory and home, with the workman's food and his habits, with the occupational diseases, and with the effects of fatigue and long working hours. Provision should be made for the special training of physicians and surgeons through the establishment of university departments, graduate courses, and endowed research institutes. The industrial physician must be attentive to the rising standards of medicine, for he is the molder of opinion in behalf of preventive medicine.

DISCUSSION

DR. JOHN MOORHEAD, New York: The problem is largely one of education, of direction given primarily in the medical college, transmitted by the visiting staff to the hospital intern, and made the subject of clinical demonstration at surgical meetings. Several of the colleges have already inaugurated special courses in these branches. Let us realize that this is a problem on the road to becoming a specialty, one demanding a training and experience that makes of its possessor a teacher, a leader. One concrete suggestion is offered, namely, that this congress establish a counterpart of the interrelated surgical conference.

DR. WILLIAM O'NEILL SHERMAN, Pittsburgh: The psychologic time has arrived for scientific medicine and surgery to take its place in industry. There are at least 500,000 industrial accidents in the United States annually, and 90 per cent. of all employees need medical or surgical care in the course of a year. The vast majority of industrial injuries are minor wounds that may easily be converted into serious wounds if not cared for intelligently. Industrial injuries are responsible for the loss of many millions of dollars annually. This loss can be diminished greatly by applying military surgery to industry. The problems of military and industrial surgery are similar, except for the presence of war and foreign bodies. Men trained for this work may be secured through the establishment of courses of military and industrial surgery, medicine, surgery and hygiene, with provision for graduate work in these branches.

DR. JONATHAN M. WAINWRIGHT, Scranton, Pa.: It does not matter just how large or small the casualty list in industry is, it is large enough to demand the most careful attention. In this field much may be done in the way of reconstruction. This we have learned and all the methods of physiotherapy are being employed. The dispensary is economically and industrially more important than the hospital, and should be provided with the best trained talent.

MR. K. M. LITTLE, Safety Institute of America, New York: There are 2,000,000 industrial accidents in the United States annually, the larger percentage of them minor injuries. More than 700,000 industrial workers lose more than four weeks' time annually as the result of industrial accidents. There are at least 22,500 industrial deaths annually in this country, and our industries turn out each year 15,000 workmen suffering from permanent disability. The loss of nine days annually (the estimate of the United States Bureau of Labor) by each of 50,000,000 workers on account of sickness means a tremendous industrial and economic loss. It is imperative that

the knowledge of the surgeon be brought to bear practically on the problem of the tremendous national loss due to sickness and disability among those engaged in industry. Every medical school must soon have a chair of industrial medicine and surgery so that medical students may be trained for this industrial service. If the physician and surgeon are to succeed they must have the industrial point of view.

(To be continued)

## MEDICAL SOCIETY OF VIRGINIA

Regular Annual Meeting, held at Richmond, Oct. 28-31, 1919

The President, DR. ENNIX G. WILLIAMS, Richmond,  
in the Chair

### SYMPOSIUM ON GASTRIC AND DUODENAL ULCER

#### Etiology and Symptomatology

DR. CHARLES R. GRANBY, Norfolk: There has been a radical change in our views in the last few years. Abrasions occur in the mucosa without causing ulcer. Hyperacidity is now considered an effect rather than a cause. Septicemia is not entirely proved to be the cause, but is largely so considered. We were formerly not diagnosing the great majority of these cases. The diagnosis is best made by careful attention to the history.

#### Diagnosis and Medical Treatment

DR. EDWARD McGUIRE, Richmond: Too much appreciation cannot be given to the roentgen ray, but at the same time roentgenologists are prone to furnish a diagnosis without always furnishing roentgenographic proof. Formerly we attached much importance to gastric neuroses; now we look for more definite lesions.

#### Surgical Treatment

DR. STEPHEN WATTS, Charlottesville: It is of importance to continue medical treatment after surgical treatment. The best surgical procedure is destruction of the ulcer by cautery, excision and cautery, plus a gastro-enterostomy. Excision and destruction should be practiced if not too dangerous to the patient. A specimen may be examined for malignancy before using the cautery. Shock is not a contraindication to operation in cases of acute perforation. My experience in operating for hemorrhage is an unhappy one.

#### DISCUSSION

DR. SHELTON HORSLEY, Richmond: The chief thing we expect by any treatment is the relief of pain. The patient may not have pain for years and yet the roentgen ray shows ulcer still existing. When the ulcer reaches the muscular layer there is pain. Pain is due to pressure, and this is due to hyperperistalsis. Gastro-enterostomy relieves the excessive peristalsis. Hyperacidity causes hyperperistalsis. Gastro-enterostomy, if carefully followed up, will not give the fine results claimed for it. Symptoms of all sorts are not entirely relieved.

DR. D. C. VAN DERHOF, Richmond: In determining on the method of treatment there are three principal factors to consider, first, the location of the ulcer by roentgen-ray methods, and the age of the patient; second, complications such as ulcer perforation, located within the abdomen, and third, the temperament of the patient. Medical treatment must be carried out with persistence, over a period of sixteen months or two years. When the patient gets free of pain he is likely to neglect the treatment. The best argument for medical treatment is the result of surgical treatment relieving the hyperacidity.

DR. J. K. HILL, Richmond: I do not believe that there is anything as a medical cure of ulcer. There may be a mitigation of the symptoms for fifteen or twenty years, and the ulcer still be in existence.

DR. A. M. WILLIS, Richmond: Ulcer in the stomach is always the beginning of carcinoma of the stomach. If there be any virtue in medical treatment, of how much more value it is if the ulcer has been excised.

#### Hemoptysis

DR. E. E. WATSON, Salem: The treatment is prophylactic, immediate and posthemorrhagic. Codein, in one-quarter grain dose, quiets the patient and controls the pulse. I advise against the use of morphia. It predisposes to bronchial pneumonia. The nitrites cause general vascular dilation. The effect of nitroglycerin, one one hundredth grain, under the tongue, lasts for forty-five minutes; then sodium nitrite should be used. The patient should be propped up at 30 degrees or lie on the side. I cannot see that atropin and emetin have been of any value. Horse serum or diphtheria antitoxin has been beneficial, as has also been strapping the chest. We use artificial pneumothorax. No walking should be allowed for two or three weeks, and the patient should be cautioned against lying with the arms above the head. Furthermore, overtreatment should be avoided.

#### Home Treatment of Pulmonary Tuberculosis

DR. W. E. BROWN, Catawba Sanatorium: A large number of these patients are benefited by home treatment, and many cases are arrested. It is a case of home treatment or no treatment for the great majority of persons. Sputum cups and gauze handkerchiefs that can be burned should be used. Nothing should be placed in the mouth except toothbrush, food and drink. Cough can be controlled largely by will power. Cough is sometimes a reflex from wax in the ears, or from enlargement of the lingual tonsil. Vasomotor depressants, such as nitroglycerin or sodium nitrite, should be given for hemoptysis. Three substantial meals, with a glass of milk at each meal, and one between meals, should be given. The patient can do as well in his own climate as in any other, if he is properly cared for. The patient should study constantly how to relax completely. Recovery may be expected in 75 per cent. of incipient cases by strict attention.

#### DISCUSSION

DR. CHARLES R. GRANBY, Norfolk: For control of cough I have been using inhalations of chloroform. I have it mixed with creosote and alcohol so that it can be left with the patient.

DR. B. B. BAGBY, West Point: Personal experience convinces me that patients sleeping outdoors should have on more underclothing. I use two good suits of heavy underwear and two pairs of yarn socks. Also, the bed should be warm when the patient gets into it. The old fashioned bed warmer made of a slab of soapstone well heated and placed in the bed is excellent. Another thing is the matter of cleansing the teeth; stress should be laid on this.

#### Group Medicine and Its Feasibility and Value to Patients and Physicians

DR. J. ALLISON HODGES, Richmond: Physicians should learn from the industrial world as to the value of organization, not for gain but for service. The very rich and the very poor get the advantages of specialists, but the great rank of the people do not. The general practitioner needs the specialist and vice versa. It is feasible in any community of 3,000 or more to use team work. When this is established and in working order, medicine will have an impetus it has never had before.

#### Bladder Diverticulum

DR. R. L. PAYNE, Norfolk: Bladder diverticulum should be suspected in all cases of persistent cystitis with foul urine. The diagnosis is suggested by the clinical features, but is made definitely by the cystoscope, lead catheters and cystograms. As a last resort we may fall back on an exploratory incision. In cases of small multiple diverticula, especially in women, weak silver irrigation should be employed. Most men use it too strong. I use from eight to fifteen drops of a 25 per cent. solution in a pint of water.

#### DISCUSSION

DR. S. N. MICHAUX, Richmond: The cystoscope is a very unreliable means of diagnosis. We frequently find the orifice very small, almost occluded. Unless we are equipped with multiple cystoscopes we shall not be able to explore

the entire globe of the bladder. Cystograms may not divulge the diverticulum. All means of diagnosis should be used. Cystograms are often unreliable. The bladder is often not sufficiently distended. If the patient is narcotized with morphin, more distention will be permitted. One of the most significant symptoms is finding a profuse discharge of blood or pus after the bladder has been emptied with the catheter. The reason the operation mortality is high is that few patients have adequate preliminary treatment; they are septic when the operation is begun.

DR. T. J. HUGHES, Roanoke: It is essential to use pre-operative antiseptic treatment. I should like to have Dr. Payne tell us how to proceed if the diverticulum is at or very near the ureter. Some competent urologists advocate the removal of the kidney, but I do not agree.

DR. W. H. RIBBLE, Wytheville: I should like Dr. Payne to compare argyrol with silver nitrate, as an irrigation.

DR. R. L. PAYNE, Norfolk: I have never seen any irritating effect from sodium bromid. I have used thorium and potassium iodid. I have seen irritation from the potassium iodid. The most dependable thing for last resort is a lead catheter. If the catheter should enter the diverticulum a lead catheter should be inserted and the roentgen ray used. The bladder should be washed out with a 1:250 hydrochloric acid solution. I do not use argyrol any more. I think silver nitrate is better if used weak enough.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Diseases of Children, Chicago

November, 1919, 18, No. 5

\*Results of Thymus Extirpation in the Dog. Review of Experimental Literature on Thymus Extirpation. E. A. Park and R. D. McClure, Baltimore.—p. 317.

**Thymus Studies.**—Park and McClure report in detail a critical review of the literature on thymus extirpation and the results of their own observations made on dogs. They believe they have shown that thymus function is absolutely unessential to life; that there are other explanations than deprivation of thymus function for the symptoms and pathologic changes which have been reported in thymectomized animals, and that those explanations must be considered seriously in the interpretation of all positive experimental findings, and, further, that for the interpretation of the positive experimental findings reported by some investigators these explanations become absolutely essential. In putting valuations on the results which have been obtained by means of thymus extirpation, the greatest importance must be given to the fact that the symptoms and pathologic changes which have been ascribed to deprivations of thymus function are almost without exception the symptoms and pathologic changes which occur in laboratory animals as the result of confinement, improper food, unhygienic conditions, bacterial and parasitic infections and are identical with or closely related to those which have been reported after the removal of at least two organs of internal secretion in addition to the thymus, after excision of the carotid bodies and after a number of different abdominal operations. The authors were unable to affirm the claims of other workers that extirpation of the thymus produces any detectable alteration in the hair, teeth, contour of the body, muscular development, strength, activity or intelligence of the experimental animal. Extirpation of the thymus probably does not influence growth or development. The possibility that it may cause retardation in development and delayed closure of the epiphyses, however, cannot be excluded absolutely. Extirpation of the thymus probably produces no alterations in the organs of internal secretion. It is possible that it produces well marked changes in the organs of internal secretion in the period immediately following thymectomy which was not covered in these experiments.

#### American Review of Tuberculosis, Baltimore

October, 1919, 3, No. 8

- Study of Tuberculous Infection. IV. Vascular Supply of Lymphoid Tissue in Rabbit's Lung. W. S. Miller, Baltimore.—p. 449.
- II. V. Origin and Relationships of Bronchial Artery in Guinea Pig. H. S. Willis, Baltimore.—p. 473.
- Cultivation of Recently Isolated and Laboratory Strains of Human Tubercle Bacilli on Artificial Media. H. H. Corper, New Haven.—p. 461.
- \*An Investigation of Acid Fastness of Tubercle Bacilli. G. Suyenaga, Chicago.—p. 473.
- \*Comparison of Certain Antigens Used in Complement Fixation Tests in Pulmonary Tuberculosis. H. C. Young and J. P. Givler, New Haven.—p. 476.
- \*Employment of Rest and Exercise After Tuberculous Patients have Returned to Work. H. M. Kinch, Saratoga Lake, N. Y.—p. 487.
- Food Results of Employment of Ex-patients to Tuberculosis Sanatorium. H. L. Barnes, Wadum Lake, R. I.—p. 491.
- \*Condition of Patients Twenty Years After Discharge from Trudeau Sanatorium. F. H. House, Trudeau, N. Y.—p. 497.
- Ancient Hindoo Knowledge of Tuberculosis. W. F. Petersen, Chicago.—p. 500.

**Acid Fastness of Tubercle Bacilli.**—Suyenaga reports experiments to influence the acid fastness of tubercle bacilli by cultivation. He grew a comparatively avirulent strain on several mediums; and finds that rapid transfer and rapid growth of the younger border of colonies did not noticeably affect acid fastness, the younger cultures were not much less acid fast than older ones. On a nonnutrient medium of agar in water, acid fastness was greatly reduced but not absolutely destroyed. Within wide limits the reaction of the medium had no marked effect on acid fastness.

**Comparison of Various Antigens Used in Complement Fixation.**—Young and Givler made tests on a large number of serums with three antigens, namely Cooper's antolysate, Petroff's methyl alcohol soluble antigen and Wilson's. The three antigens did not differ greatly in the percentage of positive findings in known cases of pulmonary tuberculosis (Petroff's 66 per cent.; Cooper's 63 per cent., and Wilson's 57 per cent.). The positive findings in the various classes of cases for the three antigens was 11 per cent. for clinically normal individuals, 58 per cent., questionably tuberculous; 56 per cent., incipient; 64 per cent. (66 per cent., sputum positive), moderately advanced, and 71 per cent. far advanced. Moribund cases, 44 per cent., gave lower percentage than the definite cases. Fifty to 60 per cent. of positive syphilitic serums gave cross fixation with the three antigens. The serum of only one out of seven guinea-pigs (of a total of seventy-five) proved unsuitable for complement fixation tests.

**Rest and Exercise for Tuberculous Patients Who Have Returned to Work.**—Kinch pleads for the importance of a more or less systematic regimen for tuberculous patients who have ceased active treatment and have returned to work. He outlines measures that should be employed for several years after an arrest or "cure" has been established. Among other measures which he is convinced would make for better ultimate results in tuberculous therapy he mentions a much longer period of sanatorium treatment, more thorough employment of rest at the house or heavy manual work, and greater care of patients after discharge. Patients should never be allowed to return to hard manual work, but should be placed in a suitable locality and at occupations that do not call for muscular work.

**Condition of Patients Twenty Years After Discharge from Trudeau Sanatorium.**—The Trudeau sanatorium has succeeded in tracing 814 patients, who have been discharged from the institution twenty years or more. Of these 666 or 81.8 per cent. are dead, while 148, or 18.2 per cent. are alive. Heise further notes that of those discharged with the one case active, 4 per cent. are now known to be alive and 15 per cent. are alive of those who were classified as "inactive" on discharge.

#### Annals of Surgery, Philadelphia

November, 1919, 70, No. 5

- \*Impairment of Splenic Resistance to Infection. D. H. Merritt and D. H. Clark, New York.—p. 81.
- \*Late Ectopy of the Pancreatic Body or Operative Treatment of Duodenal Ulcer. D. C. Bunker, Rochester, Minn.—p. 82.
- \*Operative Treatment of the Ulcer. Removal of Ulcers with Entero-Intestomy, or Gastro-Intestostomy. Albert F. B. D. von Fraunholz, Berlin.—p. 86.

- Cholelithic Enterostomy and Postoperative Dilatation of Bile Ducts. W. H. Barber, New York—p. 530.
- Condition of Appendix in Five Hundred Laparotomies on Patients with Perforations of Appendicitis. J. T. Williams and R. Slater, Boston—p. 535.
- Chronic Abscess. N. W. Green, New York—p. 537.
- Treatment of Chronic Empyema. M. B. Tinker, Ithaca, N. Y., and J. E. Waesche, Kansas City—pp. 545 and 552.
- Pathogenesis and Treatment of Lymphosarcoma and Hodgkin's Granuloma. I. Levin, New York—p. 561.
- Proctocolitis of Submandibular and Cervical Glands in the Elderly. M. B. Hutchins, Atlanta, Ga—p. 570.
- Benign Xanthic Extraperiosteal Tumor of Extremities Containing Foreign Body Giant Cells. A. C. Broders, Rochester, Minn., p. 574.
- Glioma of Buttock. A. R. Kimpton, Boston—p. 582.
- Experimental Resection of Dog's Knee Joint. I. W. Ely, San Francisco—p. 586.
- Fractures of Neck of Femur. W. C. Campbell, Memphis—p. 600.
- Fracture of Femur: Application of War Lessons to Civil Practice. C. R. Metcalf, Concord, N. H.—p. 603.
- Genito-Urinary Surgery in an Army General Hospital. W. A. Sherwood and W. P. Herrick, New York—p. 623.
- Salvage of Hand by Timely Reparatative Surgery. J. B. Roberts, Philadelphia—p. 627.

**Spleen in Resistance to Infection.**—In order to arrive at some definite conclusion as to the importance of the spleen in opposing infection, rats were splenectomized by Morris and Bullock. From a similar number of control rats one testicle was removed. Both sets of animals were then exposed to chance laboratory contagion with the bacillus of rat plague. The results showed in a very definite manner that while these animals may get along fairly well without the spleen in the absence of any infection, the reverse is the case when the organism is put to the strain of resisting acute bacterial invasion. Under the circumstances, the authors feel compelled to infer that the spleen normally aids tremendously in resisting infectious processes in rats, and that its removal temporarily robs the body of its resistance until such a time, at least, as compensatory processes will have had a chance to reestablish this. Bearing this in mind, some of the fatalities following splenectomy, especially where death was attributed to infection, may find a ready explanation and tend to increase caution in the removal of this organ.

**Life Expectancy After Gastric Ulcer Operations.**—Of a series of 2,431 patients operated on for gastric and duodenal ulcer in the Mayo clinic between 1906 and 1915, all but 108 were traced. The figures quoted by Balfour show that the operative mortality from all causes in 545 cases of gastric ulcer in which operation was done during this period was 4.5 per cent., while in 1,684 cases of duodenal ulcer the operative mortality from all causes was 2 per cent. Gastric ulcer carries, therefore, twice the operative risk of duodenal ulcer. Five hundred and twenty-one gastric ulcer patients were under observation on the average of 3.6 years, and in that time 88 (17 per cent.) died from all causes. One thousand six hundred and fifty-one duodenal ulcer patients were under observation on the average of 3.4 years, and in that time 85 (approximately 5 per cent.) died from all causes. Ninety-one gastric and duodenal ulcer patients were under observation on the average of 3.8 years, and in that time 9 (10 per cent.) died.

**Operative Treatment of Peptic Ulcer.**—Deaver has done fifty-six operations for peptic ulcer with two deaths. In all but two of the entire series, closure of the perforation followed by gastro-enterostomy was the method used.

**Condition of Appendix in Laparotomies.**—One hundred and sixty-seven, or almost exactly one third of the patients operated on in the gynecologic service at the Boston City Hospital and whose histories were analyzed by Williams and Slater showed changes in the appendix. In sixty-four instances the condition demanding operation was inflammatory disease of the uterine appendages. In the majority of these cases the involvement of the appendix was secondary to the pelvic process. This leaves, however, 103 abnormal appendices not associated with any inflammatory process in the pelvis and producing no symptoms or signs which could be brought out by a careful history or a thorough abdominal and vaginal examination. Perhaps, two or three of these were cases in which the appendix was found adherent to a fibroid of the uterus or a cyst of the ovary. In the remainder, approximately 100 cases, the appendix condition cannot

be ascribed in any way to pelvic disease, and, therefore, a coincidence so far as any gynecologic cause is concerned. With few exceptions the lesions of the appendix were chronic in nature.

**Lymphosarcoma and Hodgkin's Granuloma.**—Levin's experience has shown that the results of the radium and roentgen-ray treatment of Hodgkin's disease are extremely encouraging, and therefore he feels that these agents should be employed in every case as soon as the diagnosis is made. However, the treatment must be conducted with great energy; half measures are less than useless.

**Benign Xanthic Extraperiosteal Tumor.**—Seventeen cases of benign xanthic extraperiosteal tumors of the extremities containing body giant cells examined in the Mayo Clinic are analyzed by Broders. The upper extremities were involved in ten cases; the lower extremities in seven cases. A history of injury was given in six cases, a local excision of the tumor was done in twelve cases; amputation in three cases. Fifteen patients were traced. Fourteen are living. There have been no recurrences. The patient reported dead died from general decline at the age of 73. There had been no recurrence of the tumor more than seven years after local excision.

**Glioma of Buttock.**—Kimpton reports two cases of glioma of the buttock. Both patients were 14 weeks old. In one case the cyst extended upward in front of the vertebra to the first lumbar vertebra. It had had apparently some connection with the spinal canal from the side of the coccyx and the anterior surface of the sacrum. On the inner side of the sac was a large, red, soft, cellular, infiltrating mass. In the other case the tumor was adherent to the rectum for about two and one-half inches. When the pedicle was freed, except for final attachment, it was found to come from the inner surface of the coccyx, the lower end of which was removed with the tumor.

**Results of Experimental Resection of Knee-Joint.**—Ely claims that after a fracture or a resection the whole tendency of the resulting process between the bones themselves, unless they are held firmly together without motion, is the separation of the bone ends by fibrous tissue and fibrocartilage, with a new joint, before the bones can unite. In order for bony union to occur, the bone ends must be held in contact, absolutely immobile. In the ordinary fracture, nature provides the immobility by a bony callus outside the cortex, in the periosteum. In those situations where the bony callus is not laid down, a false joint usually results unless complete immobilization is maintained until actual union of the bone ends occurs. In resections the external bone callus does not form. Hence, unless the mechanical requirements of complete rest can be answered, resections of joints are not followed by bony ankylosis.

### Boston Medical and Surgical Journal

Nov. 13, 1919., 181, No. 20

- \*Silent Renal Calculi. E. L. Young, Jr., Boston—p. 573.
- Series of Hundred Consecutive Cases of Acute Empyema. W. Whittemore, Boston—p. 575.
- Lethargic Encephalitis. A. W. Fairbanks, Boston—p. 578.
- \*Types of Syphilitic Disease Treated at a Public Clinic. J. F. Martin, Boston—p. 582.
- Surgical Risk and Preoperative Treatment. F. H. Washburn, Holden, Mass.—p. 585.

**Silent Renal Calculi.**—In nearly 4,000 necropsies at the Massachusetts General Hospital disclosing stone in the kidney or ureter, there was only one case with a completely negative history and urinary findings and a normal kidney macroscopically and microscopically; but there were four cases without symptoms and with a negative urine; six cases without any damage to be demonstrated at necropsy; and fifteen cases where the damage was too slight to compromise the integrity of the kidney. Two patients with stones in the calices known to have been present for at least six or seven years, who had had repeated attacks of renal colic, showed one a normal and the other an essentially normal kidney. Young says that stones in the ureter more surely do kidney damage than do stones in the pelvis or calix, and a small stone, if arrested in the ureter, may do as much



Ward, Sirce—His Relation to Reconstruction. R. B. Dillehunt, U. S. Army.—p. 446.

Number 1619, 15, No. 5

Relation of Civil Practitioner to Medical Corps of Army. H. P. Birmingham, U. S. Army.—p. 495.

Factors of Medical Department of Navy for Distant Operations of Fleet. F. H. McCullough, U. S. Navy.—p. 502.

Military Aspect of Base Hospitals. G. M. Bloch, U. S. Army.—p. 508.

Etiology of Infection. J. L. Reavis, U. S. Army.—p. 514.

Diphtheria in A. E. F. M. P. Neal and A. C. Sutton, U. S. Army.—p. 521.

Method of Lyster Bag Treatment of Water for Field Use. I. T. Fairhall, U. S. Army.—p. 533.

Observations on Pleurisy in Demobilization Work. K. V. Kibble, U. S. Army.—p. 545.

Management of Myxeria in War. T. A. Williams, Washington, D. C.—p. 549.

Diagnostic Serum for B. Diphtheriae. F. H. Mason, U. S. Army.—p. 60.

Causes of Susceptibility to Myxeria and Its Relation to Quarantine Procedures. A. W. Sellards, U. S. Army.—p. 652.

**Diagnostic Serum for B. Diphtheriae.**—The diagnostic serum used by Mason was developed in a rabbit, its titer being positive in 1:320. This was developed with strain No. 1. All cultures were isolated in pure culture by plating onto the original throat culture on Loeffler's blood serum coagulated in Petri dishes. Agglutination reactions were run with fresh saline suspensions treated at 62 C. for fifteen minutes, it being found that a lower temperature for that time would not kill the majority of the strains. After setting up, the reactions were run in a water bath at 56 C. for four hours, then kept in an icebox over night, being read in the morning. Controls were run with normal rabbit's serum, dilution 1:20 and with saline. Virulence for a guinea-pig was determined with a limited number of the strains, it being impossible to determine it in all cases due to a shortage of animals. These tests were performed by the subcutaneous method. Ten strains of organisms, morphologically diphtheroid, isolated from various sources, in no case gave any agglutination with the diagnostic serum prepared with strain No. 1 (*B. diphtheriae*). The controls in these cases were also negative. In only one case out of the sixty-five strains examined did the organism fail to agglutinate and none of the strains showed any agglutination in normal rabbit's serum in dilution of 1:20 or in saline.

### Ohio State Medical Journal, Columbus

Nov. 1, 1919, 15, No. 11

Genital Surgery: Analysis of End Results. L. G. Bowers, Dayton, 696.

Surgical Ideal. G. E. McCullough, Troy.—p. 701.

Plan for Earlier Diagnosis of Pulmonary Tuberculosis. J. D. Thomas, Mt. Vernon.—p. 703.

Basal Metabolism in Exophthalmic Goiter. C. D. Christie, Cleveland.—p. 708.

Five Hundred Cases of Shell Shock. C. E. Kely, Cincinnati.—p. 711.

Diagnosis from Standpoint of General Practitioner. J. M. Denison, Akron.—p. 718.

Treatment of Septic Arthritis by Autogenous Vaccines Prepared from Certain King Diplococci. C. H. Hay, Cleveland.—p. 722.

Skin Reaction. A. W. Nelson, Cincinnati.—p. 726.

What Can Be Accomplished with Cataplasms in Skin Diseases? A. Ravera, Cincinnati.—p. 729.

**Basal Metabolism in Exophthalmic Goiter.**—About sixty determinations of basal metabolism have been made by Christie on patients with various forms of goiter. The majority of these determinations have been on patients who have shown ample clinical evidence for a diagnosis of exophthalmic goiter. Christie has established definitely in his own mind that an increase in metabolism is a most constant symptom of exophthalmic goiter, and that the degree of this increase is a very constant quantitative measure of the severity of the disease, and that other forms of goiter do not give values which are above normal and that there are at times many border line cases which, without a quantitative measurement of the metabolism, could be looked on with perfect justice as cases of exophthalmic goiter without increase in metabolism. Furthermore, Christie says, the simple portable apparatus described by Benedict is entirely feasible for the average clinic, because it is simple to manipulate, cheap and gives very accurate results.

**Obstetrics.**—Denison points out that the conscientious general practitioner must realize the necessity of prenatal care; must be able to diagnose and handle the usual and even

more complicated presentations; must be judicious enough to determine the indications for forceps or cesarean section. He must know how to handle placenta praevia and postpartum hemorrhage; as well as how to repair lacerations and obviate or treat infection. Those who will not give obstetrics the attention it deserves should leave it alone, while those who have a liking and facility for it should not hesitate to specialize, as there is a big field for their efforts.

### West Virginia Medical Journal, Huntington

November, 1919, 11, No. 5

Differential Diagnosis of Pleurisy with Effusion. D. A. MacGregor, Wheeling.—p. 101.

Physician's Responsibilities. J. C. Irons, Dartmouth.—p. 167.

Long Resection of Intestine. J. E. Cannaday, Charleston.—p. 170.

Inflammation of Prostate. H. G. Tonkins, Martinsburg.—p. 172.

Public Health Nursing. J. T. Dillon, Charleston.—p. 175.

### FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

Oct. 25, 1919, 2, No. 3669

Atrocities of War. J. Bland Sutton.—p. 517.

Spread of Influenza in an Industrial Area. A. Garvie.—p. 519.

Scope of Certain Gaseous Disinfectants in Prophylaxis of Influenza. A. Gregor.—p. 523.

Intussusception Due to Polypus of Small Intestine. E. C. Bevers.—p. 527.

Case of Strangulated Hernia with Volvulus. B. Hughes.—p. 527.

Moving Water Bath. A. D. Webster.—p. 527.

Nov. 1, 1919, 2, No. 3070

Forerunners of Harvey in Antiquity. R. Crawford.—p. 551.

\*Advantages and Disadvantages of Gauze Packing in Abdominal Operations. A. E. Maylard.—p. 556.

Removal of Tonsils and Adenoids. C. J. Symonds.—p. 558.

\*Cutaneous Anthrax. E. F. Neve.—p. 559.

Rupture of Large Intestine: Operation; Death. E. Huntley.—p. 559.

**Advantages and Disadvantages of Gauze Packing.**—In Maylard's opinion the disadvantages of gauze packing would seem to so greatly outweigh the advantages that but one conclusion appears warranted—that gauze packing should be avoided, except under definite and clear limitations. These limitations may be thus expressed; the use of as small a piece of gauze as possible and for as short a time as possible, which equally comotes the avoidance of large packs retained for several days.

**Cutaneous Anthrax.**—The treatment adopted by Neve in these cases is very thorough cauterization with a red hot button cautery. Excision and incisions he regards as almost equally dangerous, tending as they do to open up fresh planes of communication, and thereby promote systemic infection. The natural local reaction to the pathogenic irritant is very strong. There is most vigorous leukocytosis. As a rule, the blood is not infected. The cautery, while destroying the virus, also increases the local reaction. Clinically, Neve's records point to this as the most satisfactory method of local treatment. Sclavo's serum has been recommended. But most of these patients, when they come under treatment, must have already produced their own anti-toxins; those who have not and are almost or quite moribund are hopeless. Seven of a series of seventy-five cases terminated fatally, giving a mortality of 9.3 per cent.

### Bulletin of Naval Medical Association of Japan, Tokyo

June, 1919, No. 24

\*Tannin Alcohol as Disinfectant of Skin. T. Orimo.—p. 1.

Influence of Reduction of Oxygen in Air and of Atmospheric Pressure on Blood Pressure, Respiration, Pulse and Grasp. H. Hara.—p. 2.

\*Case of Arsenophanin Injection Followed by Jaundice and Pigmentation of Skin. U. Nagai.—p. 3.

**Tannin Alcohol as a Disinfectant of Skin.**—Tannin alcohol (10 parts of a 20 per cent. watery solution of methylene blue added to 100 parts of 20 per cent. tannin alcohol) recently recommended by Wederhake as a useful skin disinfectant is said to be as effective as iodine tincture, without any irritating effect on the skin. Orimo established the following facts: (1) that staphylococci, streptococci, *B. coli* and *B. pyocyaneus* were killed within thirty seconds in vitro;

(2) that the sterilization of threads impregnated with suspensions of the above mentioned microbes took place in from one to ten minutes, while it was affected within one minute by iodine tincture; (3) that the surface of the normal skin painted with this disinfectant, though not sterile, was almost free from pus forming microbes, as seen in the case of iodine tincture application; and a small portion of the skin, comprising all its layers, when put into a suitable culture medium, generally had growths of microbes belonging to the groups of *B. subtilis* and staphylococci, this also being the case for iodine tincture; (4) that this disinfectant was unable to penetrate as deeply into the skin as iodine tincture; (5) that in twenty-seven cases in which operation was done aseptically by this method of skin disinfection, all the wounds showed primary healing; (6) that this disinfectant was absolutely nonirritating to the skin.

**Arspenamin Injection Followed by Jaundice and Pigmentation of Skin.**—Nagai's patient received an intravenous injection of a diluted solution of 0.3 gm. arspenamin, and one week later a second intravenous injection of a concentrated solution of 0.6 gm. of neo-arsaminol was given. The jaundice and black pigmentation of the skin developed in about two weeks after the second injection, and the patient had the appearance of one suffering from Addison's disease, though he complained of no subjective symptoms. The jaundice disappeared in three months, and the black pigmentation of the skin, although much improved, was still traceable from deposits of pigment, after seven months.

### Japan Medical World, Tokyo

Oct. 12, 1919, No. 304

\*Cholesterin Contents of Blood in Kakke, Anemia, Syphilis and Hemiplegia. T. Yakakoshi.

Excretory Function of Kidneys; Special Reference Urea and Chlorid Compounds. G. Ebara.

Treatment of Gonorrhoeal Affections with Silver Electrodes. T. Karasumaru.

\*Relation Between Perforation of Heart and Death. M. Ando.

Cancer of Esophagus. T. Iriwawa.

**Cholesterin Content of Blood in Kakke, Anemia, Syphilis and Hemiplegia.**—Yamakoshi reports that the cholesterin content of ten normal Japanese varied from 130 mg. to 160 mg. in 100 c.c. of blood plasma. The cholesterin in forty cases of kakke disease was generally decreased but the decrease is by no means specific. The cholesterin was also decreased in cases of anemia and syphilis. Three cases of hemiplegia were examined. In all there was a remarkable increase in cholesterin.

**Relation Between Perforation of Heart and Death.**—Ando states that the length of the wound bears an important relation to the time of death. An oblique wound through the cardiac muscle layer causes a more delayed death than does a perpendicular wound. By tamponing the heart, a more speedy death occurred. If the wound involves the cardiac nerves, death occurs more rapidly than otherwise. If the wound is present in a more actively motile portion of the heart muscles, a more sudden death occurs than when it is present in more sluggish portions.

### Lancet, London

Oct. 25, 1919, 2, No. 5017

International Standards of Public Health and Welfare Work. W. C. White.—p. 719.

Ideals in Radiology and Electrology. A. E. Barclay.—p. 720.

\*Adjustment of Reaction of Bacteriologic Mediums. J. McIntosh and W. A. M. Smart.—p. 723.

\*Traumatic Rupture of Intestine Without External Injury; Four Cases. E. G. Stanley.—p. 726.

\*Celiac Disease or Boric Acid Poisoning? D. Forsyth.—p. 728.

\*Spanish Influenza: Its Nature and Etiology. A. Ebrington.—p. 730.

\*Influenzal Bronchopneumonia and Pneumonia Treated with Arsenic Mixed Vaccine. J. Black Milne and K. Rogers.—p. 734.

Hypertyroidism in Influenza. A. T. Todd.—p. 735.

Two Cases of Foreign Body in Esophagus Requiring Esophagotomy in Children. I. Colledge and G. A. Fawcett.—p. 734.

\*Hypertonic Salt Solution in Treatment of Tuberculous Abscess. L. Durante.—p. 735.

**Reaction of Bacteriologic Mediums.** McIntosh and Smart claim that failures to adjust the reaction of a bacteriologic medium correctly arise chiefly from the use of unsuitable indicators, difficulty in judging the indicator "end point,"

titration at the boiling point, and the hydrolysis which occurs during the process of sterilization. The chemical titration method has been found to be quite a reliable means of adjusting the reaction in routine practice, and by the procedure described the authors find that it is quite easy to adjust with considerable accuracy the reaction of a culture medium to the desired point. By means of specially prepared graph the Eyre system will, with certain precautions, indicate  $pH$  values. In the colorimetric method the preparation of the accurate standard solutions required is much more difficult than is usually believed, and the error in the reaction is often quite appreciable when tested against the hydrogen electrode. The ideal method of adjusting the reaction would be by the hydrogen electrode, but the use of this apparatus requires a technical skill and knowledge which places it at present beyond ordinary laboratory application.

**Traumatic Rupture of Intestine.**—It used to be taught that the most fixed part of the intestine, being unable to escape the compressing force, was the part most frequently ruptured. In theory this seems probable, but in actual fact the reverse is true. The most fixed parts of the intestinal tract are the duodenum and parts of the large intestine other than the cecum, the transverse and pelvic colon, and the rectum. Experience shows, however, that the most movable parts of the large gut—the cecum, the transverse colon, and pelvic colon—are the most frequently ruptured, in that order. The coil of intestine nearest the abdominal wall at the point struck is usually the coil in which rupture takes place, and in so far as the first few feet of the jejunum and the last few feet of the ileum before the ileocecal junction are usually in this position they will tend to be injured. The mechanism is simple. If the abdomen is struck above the umbilicus the force is transmitted to the first few feet of the jejunum. The mobility of this coil allows it to be pushed back till it is checked ultimately by the vertebral column, and between the latter and the moving body it is crushed and ruptured. The frequency with which one finds a small tear in the posterior parietal peritoneum close to the summit of the vertebral column would suggest this mechanism, also the bruising and laceration at the tear. A parallel situation occurs at the ileocecal junction. There is no sure and invariable sign or symptom, or group of signs or symptoms, which render the diagnosis certain. Occasionally, a group of symptoms such as rapid pulse, marked abdominal rigidity and extreme tenderness, with the history, and with visible bruising and fracture of the ribs, makes rupture of the intestine almost a sure diagnosis; while, on the other hand, the absence of these signs and symptoms makes such a diagnosis improbable. The only two signs which appear of real use in diagnosis are cutaneous hyperesthesia and edema in the left flank. The difficulty of diagnosis thus makes it clear that if there exists in the mind of the surgeon a suspicion that the intestine is ruptured, the right procedure is to open the abdomen and see, providing the patient can stand the added shock of the operation.

**Celiac Disease or Boric Acid Poisoning.** In Forsyth's case the poisoning was due to the milk fed this 8 months old baby. It contained boric acid to the amount of 5 grains to the pint—i. e. the child had been taking from 75 to 10 grains of the preservative daily. With no other change in the treatment than a new supply of the cow's milk the aggravation of the symptoms ceased, and within a couple of days the child began to get well, though it was some months before she was herself again. The symptoms never recurred.

**Vaccine in Influenzal Pneumonia.** The vaccine used throughout was the official army formula (30 million *B. influenzae*, 100 million pneumococci and 30 million streptococci, in 9 mmims). The dosage used was at first 3 mmims (and later 5 mmims) for the first dose, 5 mmims (and later 8 mmims) for the second. No bad effects were observed, the condition being unaltered in the few cases where it was not improved. The vaccine was only administered in severe cases with definite lung signs, actually in thirty-five cases out of a total of 216 cases of pneumonia. Out of the thirty-five cases there were three deaths. One patient had only one small and late dose and had rather

mitral stenosis, the second and the third patients appeared overwhelmed by the infection on admission; one patient had much hemorrhage from the lung, the other suffered from malarial debility of long standing. Each of these patients had two small doses of vaccine but died in a few days, without favorable response. Milne and Rogers are convinced of the improvement in general condition, in character of the sputum, and feeling of well-being of the patients that followed the injections in the majority of the cases.

**Hypertonic Salt Solution in Treatment of Tuberculous Abscess.**—To obtain a lymphatic current in the abscess cavity from the circumfoveal area, Durante uses a sterilized hypertonic salt solution composed of magnesium chlorid, 2.5 gm.; distilled water, 100 c.c.; liquor formaldehydi, 0.5 c.c. The treatment of tuberculous abscess with hypertonic salt solutions is carried out in the same way and on the same indications as treatment with iodine solutions; but the abscess cavity should be emptied, washed out and filled with salt solution every four days. This frequency of treatment is called for by the fact that the quantity of lymph collected in the abscess cavity by osmotic pressure is great and produces a slight distension of the tissues, and, that this distension, united with active hyperemia, causes a feeling of pain. The quantity of liquid that Durante leaves in the cavity varies from 10 to 40 c.c. according to (1) the capacity of the cavity, and (2) the greater or lesser degree of vascular action, which varies with the individual.

Nov. 1, 1919, 2, No. 5018

- Forerunners of Harvey in Antiquity. R. Crawford.—p. 765.  
Hysteria in Light of War Experience. A. F. Hurst.—p. 771.  
Serum Treatment of Bacillary Dysentery; Dysentery Arthritis. B. G. Klein.—p. 775.  
Antidysentery Serum in Treatment of Bacillary Dysentery. W. E. Waller.—p. 778.  
Edema in Monkey Fed on Diet free from Fat Soluble "A" Accessory Food Factor and Low in Fat. A. Harden and S. S. Zilva.—p. 780.  
Violet Excitement. A. L. Taylor.—p. 781.  
Value of Antistreptococcus Serum in Influenza. W. Hughes.—p. 782.  
Case of Cardiac Massage in Circulatory Failure Following Administration of Chloroform, Ether and Oxygen. M. J. Petty.—p. 784.  
Perforation of Cecum by a Pin: Death from General Peritonitis. J. A. Maeween.—p. 785.

**Serum Treatment of Bacillary Dysentery.**—According to Klein antidysentery serum should be given in large doses, from 60 to 100 c.c. It is best given intravenously. It is most efficacious when given early in the disease. From the point of view of serum treatment a severe case of bacillary dysentery may be considered in three stages: (a) From the onset of the illness to a period somewhere about the fifth or sixth day. During this stage antidysentery serum (especially if given intravenously) has a most favorable effect, both as regards averting a fatal result and hastening recovery. A minority of cases fail to respond even to this early treatment. (b) An intermediate stage, from about the sixth to the tenth day. A patient having reached this stage is likely either to die or recover, irrespective of serum treatment. Nevertheless, the rate and completeness of recovery may still be affected by serum, especially if given in large doses, such as 100 c.c. (c) A third stage—the stage of "dehydration and profound intoxication"—generally starting about the tenth day. During this phase of the disease serum treatment is practically useless. A minority of patients who have survived to the tenth day or beyond it (without passing into the third stage) are still benefited by serum given in sufficient amount. In a series of 973 cases of bacillary dysentery, true dysentery arthritis occurred in eight instances. The arthritis has no relation to the arthritis of serum sickness, five of the eight patients had not received serum. Neither had the arthritis any relation to previous injury. Clinically, it might have been mistaken for gonorrhoeal arthritis, but in no case was there a history of such infection. The treatment consisted in immobilizing the joint by the application of a McIntyre's splint and the removal of some of the fluid to relieve the pressure; from 60 to 100 c.c. was removed, generally much to the relief of the patient.

**Serum Treatment of Bacillary Dysentery.**—The statistics given by Waller tend to show that in cases in which serum was used early, the acute stage is of shorter duration, the tendency to chronicity is less, and convalescence is more

satisfactory than when the serum was used late in the course of the disease, or by alternative methods. As a routine, in fairly severe cases as soon as the diagnosis had been made on clinical grounds, 140 c.c. of serum was given in three subcutaneous injections at eight hour intervals during the first twenty-four hours, while in cases of less severity 100 c.c. in two subcutaneous injections only was given during this period.

**Experimental Edema in Monkey.**—Harden and Zilva describe some preliminary experiments instituted with the object of studying the influence on monkeys of a diet free from the fat soluble A factor. As an antiscorbic, lemon juice, from which the acids had been removed according to the method of Harden and Zilva, was employed, a dose equivalent to 4 c.c. of the original juice being administered daily to each animal. The diet was, therefore, complete in every respect, except that it lacked the fat soluble A factor and was low in fat. All the animals had been kept for 198 days on the experimental diet before it was modified by the addition of butter fat and olive oil. During the whole of that time, although they did not grow, they showed no signs of ill health.

**Antistreptococcus Serum in Influenza.**—Hughes is convinced that antistreptococcus serum aborted or considerably shortened the course of the disease in ordinary cases that were seen early. Whether any of these patients would eventually have developed pneumonia if they had not been given serum is, of course, impossible to say. The fact, however, that the serum was proved to have a beneficial effect in pneumonic cases justifies Hughes in thinking that it sometimes aborted a potentially pneumonic one. The value of the serum, speaking generally, depends on whether a streptococcus is implicated in any case, and on the treating of the patient in the early stages of the disease. In those very virulent and fulminating pneumonias characteristic of the epidemic the serum was disappointing. In the very grave pneumonic cases the danger of anaphylaxis or an unreliable serum should be considered carefully.

## Quarterly Journal of Medicine, Oxford

October, 1919, 13, No. 49

- \*Treatment of Malaria. J. Cowan and R. H. Strong.—p. 1.  
\*Pulmonary Manifestations in Malaria. A. W. Falconer.—p. 25.  
Respiration and Circulation in the Goat. J. Barcroft, A. E. Boycott, J. S. Dunn and R. A. Peters.—p. 35.  
Measurement of Pressure Changes in Right Ventricle of Goat by Cardiac Puncture. J. S. Dunn.—p. 46.  
\*Effect of Experimental Pleural Effusion on Blood Pressure in Right Ventricle. J. S. Dunn.—p. 57.  
Influence of Digitalis on Different Phases of Heart Beat, Particularly as Regards Intracardiac Pressure. I. Harris.—p. 63.  
\*Primary Pulmonary Tuberculosis in Children. R. G. Canti.—p. 71.  
Certain Phenomena Associated with Protein Shock Reaction and Intravenous Vaccine Therapy. A. E. Gow.—p. 82.

**Treatment of Malaria.**—Experience has convinced Cowan and Strong that many cases of "malaria" are really suffering from quinin poisoning. The amount of quinin that is administered is often large, and the smaller doses are continued for too long. In consequence, a condition of debility is induced, which, as its cause continues, also persists. Heroic doses of quinin do not cure chronic cases. The sheet anchor in chronic cases is arsenic. It, too, should be given in courses of from three to six weeks. It may be given by the mouth and pushed to full doses. If it upsets digestion, or fails to produce definite improvement, the next course should be given intravenously. Its special indication is anemia, in particular of the pernicious type. But all drugs are of little value if attention is not paid to rest and next protection from the sun and chill. Without attention to these apparent details all treatment is unlikely to produce rapid or permanent results.

**Pulmonary Manifestations in Malaria.**—Although malaria is frequently complicated by pneumococcal infection, Falconer maintains that numerous cases occur in which there are notable changes in the lungs without any evidence of superadded infection. These may present the physical signs of bronchitis, pulmonary congestion with more or less definite evidence of consolidation, or massive collapse of the lung. In many cases the symptoms at first are almost

entirely pulmonary and the malaria infection may be entirely overlooked. Its recognition at the earliest possible moment is important, as untreated with quinin there is a great liability for the lung to become secondarily infected with the development of true inflammatory changes.

**Blood Pressure in Right Ventricle in Pleural Effusion.**—In these experiments the blood pressure in the right ventricle was measured by passing a hollow needle through the skin and thoracic wall into the ventricular cavity, and connecting the needle to a Hürthle manometer by pressure tubing. Continuity between the blood in the ventricle and the tambour membrane of the manometer was established by filling the rubber tube and tambour with a 10 per cent. solution of sodium citrate. Pleural effusion was produced by infusing a quantity of defibrinated blood from another animal of the same species into one or other pleural cavity, usually the right. The most important change observed in all the experiments was the rise in mean diastolic pressure in the right ventricle. This was found at the first examination after the pleural effusion had been produced, and in two instances it was maintained at eighteen and at sixteen and one-half hours, respectively. It had subsided at twenty-three hours in one animal which was recovering, and also at twenty and one-half hours in another animal, which was dying. It was only in the first goat, which received the largest volume of fluid, that there was any considerable rise in the mean systolic pressure, which must represent the pressure in the pulmonary artery. Here is evidence that the bulk of fluid in the pleura was sufficient to cause actual obstruction to the pulmonary circulation.

**Primary Pulmonary Tuberculosis in Children.**—The findings of eighty-four necropsies made on children up to 10 years of age, carried out by Canti are recorded. Sixteen (19.05 per cent.) showed tuberculous lesions. The lung focus was found to be most often the size of a pea. Single lung foci were found on eight occasions. Two foci, apparently about the same age, were found in one case, and in one case showed more than two foci, of which one, being cavernous, appeared decidedly older than the remainder. In the majority of cases the focus was caseous or fibro-caseous. In one case it was calcareous, in one case liquefying, and in one case there was cavitation. In all cases the lung focus was situated just beneath or involving the pleura. In the cases where only one lung focus was present it was situated in the left lower lobe in three cases, in the right upper lobe in two, in the left upper lobe in two, and in the right middle lobe in one. Tuberculosis of the mediastinal glands, other than acute military tuberculosis, was found in twelve cases. Tuberculous lesions of the intestines were found in four cases. Tuberculous mesenteric glands were present in seven cases. Broncho-pneumonic changes in the lung tissue, due apparently to the direct spread from a tuberculous lesion, were found in three cases. Military tuberculosis was found in five cases where a lung focus was present, and in two cases where no lung focus could be found. From these findings it would, therefore, appear highly probable that tuberculosis of the mediastinal glands is secondary to a focus in the lung, and, further, that the focus in the lung is primary and not secondary to a focus elsewhere.

**Bulletin Medical, Paris**

Oct. 15, 1919, 33, No. 44

\*The Polymorphism of Tuberculosis. Emil Sergent—p. 579

**The Polymorphism of Tuberculosis.**—Sergent emphasizes that the disease in adults is the flaring up of infection acquired in childhood or reinfection after partial immunization. This flaring up or reinfection is announced by a set of disturbances and symptoms which are usually called "pretuberculosis" but which had better be called the "pre-relapse of tuberculosis." He declares that it is wrong to say that tuberculosis is the most curable of diseases; the cure of tuberculosis is exceptional. But a first attack confers a relative immunity. To maintain this immunity the resisting powers must be kept at a high level. Tuberculosis cannot progress—in the adult at least—if the soil is

unfavorable. Prophylaxis must combat weakening of the race and of the individual. Treatment must combat the bacillus (serotherapy), and tone up the organism until the soil becomes unfavorable for it (repose, fresh air and nourishing food, and medication to restore minerals and especially calcium).

**Journal de Médecine de Bordeaux**

Oct. 10, 1919, 90, No. 19

- \*Aviators' Neurosis. R. Cruchet—p. 304
- \*Aneurysm of Aorta Opening into Esophagus. Coulaud and R. Debédat—p. 401
- \*Nystagmus and Nodding Spasm. C. Lafon—p. 404
- \*Advisability of Wearing Light Gauze Underwear Inside Flannel Underclothing. Rymaillac—p. 416
- \*Medical Impressions of America. Béguin and Piqué—p. 407.

**Aviators' Neurosis.**—Cruchet explains aviators' neurosis as merely ordinary neurasthenia and psychasthenia but colored by the reactions special to aviation.

**Association of Nystagmus and Nodding Spasm.**—Lafon saw a boy of 12 with rotatory nystagmus who in early childhood had had nodding (bowing) spasm. He has also seen horizontal nystagmus in youths and soldiers and in one man of 30, accompanied in all with nodding spasm, but without isochronism, except that the nystagmus usually appears only as the nodding ceases. He theorizes to explain the mechanism.

**Impressions of the United States.**—In this further installment of their report, Béguin and Piqué describe their impressions of the hospitals in this country, saying in conclusion that America leads the world perhaps in surgery of the duodenum and of goiter. "But," they add, "more than the importance of the men and, generally speaking, of science in America, is the abundant resources at its command and the collective discipline which enables the chief and the personnel to accomplish the maximum of work. The abundance of resources allows organization of a scope unknown in France but which singularly facilitate the task. The assistance from a numerous personnel allows the chief to accomplish what he does without exhausting fatigue. *Richesse et organisation, voilà, with initiative in action, the points in which America seemed to us actually superior.*"

**Le Nourrisson, Paris**

September, 1919, 7, No. 5

- \*Restricting an Infant to Water. A. B. Marfan—p. 57
- \*Infant Welfare Work During German Occupation of Lille. M. Hretou, H. Poncet, L. Ducano and J. Vanvers—p. 71
- \*Malaria in Infants. Henri Lemaire—p. 78
- \*Soapy Stools. E. C. Avrainnet and H. Deroy—p. 81

**Restricting an Infant to Water.**—Marfan ascribes to A. Luton of Reims in 1874 the first systematic use of the *diète hydrique* as a therapeutic measure in intestinal disease at all ages. Restriction to water rests and soothes the digestive apparatus, and probably molifies the intestinal flora while replacing the fluids lost in the diarrhea, and washing out the system by flushing the kidneys and the sweat glands, with the secondary effect of combating retention of heat. The water should be plain pure water, directly from the spring, or boiled. The quantity should be about that of the food the child has been previously taking. A good rule is about 125 gm. of water per kg. of weight, up to one year. Above one year, a liter of water per day will do. Unless this much is taken, the *diète hydrique* fails of its purpose. If the child does not care for the water, it can go from six to ten hours without even water. The best way to get the child to take the water is by a teaspoonful at a time. Two teaspoonfuls every half hour for the first two hours; then four teaspoonfuls every half hour for two hours, and then six teaspoonful every half hour for two hours. Then eight teaspoonfuls every hour and the ten every hour and a half. The last third of the first twenty-four hour the child can be given more than a nursing bottle of 100 gm. of water. Water is very curative, and uncontrollable vomiting a teaspoonful at a time every fifteen minutes may be preferable to giving medicinal drops slowly, mistified in the mouth of the child.

every five or ten minutes. This water diet should never be kept up for more than three days, or the child will have to contend with the effects of inanition in addition. A breast fed child very rarely requires restriction to water for more than twelve hours. The resumption of ordinary feeding should be gradual and progressive, as he describes in detail. The ordinary food can be resumed more or less promptly according to the digestion, temperature and pulse findings. In favorable cases, about the twentieth day, the child is ready for the standard feeding for its age and weight.

**Principles for Infant Welfare Work.** Breton and his co-workers describe the work of the well baby clinic and the dispensary at Lille during the German occupation. As the Germans carried off all the cows, no milk was available, and, as the factories were not running, the women could not find wage-earning work and had to stay at home. The consequence was that the women were driven to suckle their infants, and that the infants had their mothers with them at home, and the infantile death rate was far lower than ever known before in the town. The conclusion seems inevitable that distributing milk stations are an evil. The mothers rely on them and do not suckle their children, and the death rate keeps high. They urge the suppression of the milk stations or *gouttes de lait*, as they are called in Latin countries. That they are unnecessary is proved by the infinitely small number of women who are actually incapable of nursing their child when circumstances compel. Another lesson confirmed by the Lille experiences is the necessity for an adequate dietary as well as repose during the last months of the pregnancy.

**Soapy Stools.**—Aviragnet and Dorencourt devote twenty-two pages to the results of research on the pathogenesis of soapy stools, and comment on the numerous points that are still waiting for solution as well as on the facts apparently established to date.

### Paris Médical

Oct. 11, 1919, 9, No. 41

- \*Vaccine Treatment of Osteomyelitis. R. Grégoire.—p. 285.
- \*Phlebitis of the Basilica. G. Milan.—p. 295.
- \*Treatment of Laryngeal Tuberculosis. E. Halphen.—p. 296.

**Vaccine Therapy in Osteomyelitis.**—Grégoire refers to acute staphylococcus osteomyelitis and describes eight cases in infants and older children which, he remarks, upset all preconceived ideas as to the course and treatment of acute osteomyelitis in children. Treatment was with a regional staphylococcus stock vaccine until the autogenous vaccine was ready, so as to waste no time. This proved so effective that in some of the cases the regional stock vaccine was continued to the complete cure. The dose seemed to be important; at first only 0.1 c.c., representing 200 millions of the killed micro-organisms. From two to seven injections were made, the intervals guided by the reaction on the part of the heart and kidneys. The pulse runs up in eight or ten hours and keeps high for two or three days. Albumin appeared in the urine but only in minute proportions and transiently in all but one case, in which it persisted for twenty-seven days. The vaccine proved futile in the two cases with septicemia already installed, and both children died. There is no hope from vaccine therapy if the general system is endangered too much, and the general symptoms were half-way healed. In the six other cases the children began to feel better in twenty-four or forty-eight hours. The pain subsided and they ate and slept well and within fifteen, twenty or thirty days the child was using his limb without pain. During the four months to date there has been no tendency to exostoses or sequestrations.

**Phlebitis from Infection of Skin.**—The basilic vein in Milan's case became inflamed by extension of a trichophyton lesion on the wrist. He has encountered some cases in which pustular scabies was responsible for the phlebitis.

**Laryngeal Tuberculosis.**—Halphen appeals to practitioners in general to relieve their patients with tuberculous laryngitis by blocking the superior laryngeal nerve and thus doing away with the painful dysphagia. In his extensive

experience at the Lariboisière Hospital with this class of patients, the relief has been constant, and the injection of alcohol to block the superior laryngeal is simple and easy, owing to the superficial course of this nerve. The nerve is located by the cornua of the thyroid and of the hyoid bone, and the injection of a few drops of alcohol along its course blocks it completely, and in some cases definitely. There is a sharp pain at once, especially if cold alcohol is used, but it subsides in a few seconds as the nerve becomes blocked. The edema and infiltration retrogress and the patient can eat without dread of pain. A single bilateral injection answered the purpose in some cases; others required a new injection in five or ten days, but permanent anesthesia was finally realized after a few injections. Seven was the maximum in his experience. With the patient seated in front of him, Halphen pushes with two fingers the larynx toward the right with the left hand, and explores with his thumb the groove between the thyroid and hyoid bone on the right side. Holding the thumb there, he introduces the needle on a line joining the two cornua, first perpendicularly, then parallel to the hyoid bone, 1 cm. toward the median line. The thumb feels the needle making its way under the skin between the two landmarks. Then the needle is lightly pushed in deeper as the plunger is worked. A sharp violent pain shows that the nerve has been reached. The cricothyroid membrane must be left unmolested. Others may prefer to reach the nerve by starting from the median line, following the upper margin of the thyroid and then passing upward until the nerve is reached.

### Presse Médicale, Paris

Oct. 11, 1919, 27, No. 58

- \*Surgery of the Large Intestine. J. Okinczyk.—p. 581.
- \*Early Symptom of Rabies. L. Robert.—p. 584.
- Transactions of French Surgical Congress.—p. 585. To be Cont'd.

Oct. 15, 1919, 27, No. 59

- Transfusion of Citrated Blood. R. Lewisohn (New York).—p. 593.

**Surgery of Large Intestine.**—Okinczyk protests against the general assumption that the death rate with operations on the large intestine is necessarily extremely high. The technic is difficult but not necessarily more dangerous than with operations at other points in the intestine. Among the features which render the operation difficult is the extreme thinness of the walls of the large intestine. This compels the use of fine needles and still finer suture material, and making the incision always lengthwise in the region of the straight bands, where the wall is reinforced, rather than in the rounding protruding part of the wall. Another special feature is the scanty vascularization which renders it necessary to spare and save all the vessels. Only at the angles is there anything approaching the rich vascularization of the small intestine, and the anastomosis should aim to avoid the regions where the blood supply is scantiest. The large intestine is also partially fastened to the posterior parietal peritoneum, but cleavage is easily realized as, originally, the large intestine was as freely movable as the small. He gives ten illustrations to show different points in the technic. He advocates an artificial anus beforehand as a useful preliminary and he warns that the feces in the left half of the colon are comparatively solid as a rule while the contents of the right half of the colon are more fluid. This renders it unwise to use a Murphy button in the colon, at least in the left half, as the button is so liable to become obstructed. He expatiates on the indispensable usefulness of the valve of Bauhin; the waves of antiperistalsis seem to stop here. When this ileocecal valve is lost, the subject is tormented by the distention from the reflux of gases.

**Early Symptom of Rabies.**—In the eight cases of rabies encountered by Robert in Siam, he noted the constant appearance of intense pruritus as the first and most reliable symptom of the rabies. The region of the bite was all that itched at first, but then the pruritus spread to the entire body and persisted till death. The premonitory phase is characterized by irritability, depression, weeping and this pruritus. Other writers have mentioned the pruritus but none have emphasized its diagnostic importance.

**Progrès Médical, Paris**

Sept. 13, 1919, 34, No. 37

- \*Morally Abnormal Children. G. Paul-Boncour.—p. 361.
- \*Diabetes Insipidus and the Pituitary. P. Lereboullet.—p. 363.
- Prophylaxis and Treatment of Nontuberculous Vertebral Disease. A. Aimes.—p. 366.
- Medicine in Persia.—p. 368.

**Morally Abnormal Children.**—Paul-Boncour is chief of the Vitry Institut Médico-Pédagogique and he says that his seventeen years of living among abnormal children has demonstrated that they can be classed in five categories: the simply unruly; the delinquent unruly, led into vagabondage and thefts by bad companions; the backward heedless, affectionate truants; the unruly who have been led into vicious practices by others. Their perversion is pronounced and numerous delinquencies are credited to them. They may belong to criminal gangs, and they may have been trained to crime, but change of environment before the age of 13 may rescue them completely. Their moral sentiments are only temporarily perverted, and it would be inhuman to exclude these unruly delinquents from normal life. He adds, however, that after the age of 13 the character is so settled that there is not much hope of reform, and he refuses to admit to his school an *instable vicie* of this type if he has passed his thirteenth year. The fifth and last group comprises the actual pervers or vicious unruly. These are vagabonds and thieves like those of the fourth group, but there is a malignancy, a cruelty which colors their actions and has always accompanied them. This perversion is constitutional. By the fifth or sixth year this perverse instinct can be recognized. One of the first evidences of it is the lack of sympathy and affection for parents or friends. These children may display an insensibility to the pain of others, or a cruelty without regret for the sufferings they cause, or an actual fondness for inflicting pain on others. These constitutional pervers are the more dangerous the more intelligent they are. They are unsocial and do not join loyally in play with their mates, and yet they may be good students. Time is the best aid for classifying abnormal children, and observation for a few weeks may be the only means to distinguish between the naturally vicious and those merely trained to viciousness. The constitutionally vicious should be detected and classified by the medical school inspectors.

**Diabetes Insipidus and the Pituitary.**—Lereboullet in the course of his regular lecture on this subject describes the case of a man of 50 who had had syphilis at 18 and at 31 a protracted pneumonia, after which there was retrogressive infantilism, impotence, asthenia, falling of the hair and tendency to obesity. There was also polyuria. Treatment of various kinds proved futile until pituitary treatment was given, and then the output of urine dropped from the 7 or 8 liters, which had been the average for ten years, to the normal figure as long as the pituitary treatment was kept up. The extract from the posterior lobe alone was most effective.

Sept. 27, 1919, 34, No. 39

- \*Pyloritis. M. Loeper.—p. 381.
- \*Recent Progress in Malaria. Paiseau.—p. 384.
- \*Serum Sickness in Diphtheria. L. Ramond.—p. 387.
- Blanders in Radiology of the Wrist. P. Japart.—p. 391.

**Pyloritis.**—Loeper describes the gastritis limited to the pylorus region. In three typical cases the microscope showed the changes in the mucosa: hypertrophy of the foveolae, lymphocyte reaction and diapedesis—all restricted to the region close to the pylorus. In many cases of dyspepsia, gastritis can be invoked and among these pyloritis is frequent, and is revealed by the presence of small round cells in the stomach content. Whether they are lymphocytes or not is immaterial. There is no blood with it, and no large cells. The pains are tardy; they may be attenuated by dieting, and there are no true or persisting attacks of pain. There may or may not be nausea and vomiting, but they are rhythmical like the pains. Hyperacidity is less common than with ulcer. The pyloritis may in time encender ulceration. Treatment consists in alkalines, fasting for three hours after

meals. Milk should be the only food; addition of sodium citrate will prevent its clotting and thus ward off mechanical injury as it passes the pylorus. Bismuth is as useful as with ulcer, and an alkaline citrated solution before meals rinses out the stomach and pylorus.

**Malaria.**—Paiseau reviews the experiences and publications on malaria during the war, concluding his analysis with the statement that to date no means is known that will permit definite sterilization of an organism infected with malaria parasites. He adds that arsenical treatment as an adjuvant to quinin seems to be coming into favor.

**Serum Sickness.**—The young woman recovered promptly from a mild attack of diphtheria. She had been given three injections of antitoxin in five days and was apparently convalescing when fever returned, with extreme prostration, a nonitching eruption and polyarthritides including even the vertebrae, intensely painful at the slightest movement, but she rapidly recovered. There is danger of mistaking this for meningitis or for a relapse of the diphtheria or of a meningitis. This might have serious consequences if more of the antiserum were to be injected on this mistaken basis. Lumbar puncture may be the only means to exclude meningitis by the lack of turbid fluid and of numerous damaged polynuclears. He discusses serum mishaps in general, and adds that prevention is as effectual as treatment is futile, with the serum sickness once under way.

**Correspondenz-Blatt für Schweizer Aerzte, Basel**

Oct. 2, 1919, 49, No. 40

- \*Microsporon Infection at Lucerne. Max Winkler.—p. 1497.
- \*Embolism of Artery of the Retina. J. Strehel.—p. 1502.
- \*Inflammation Around Achilles Tendon. Peter Ryhiner.—p. 1507.
- Colloidal Silver in Cystitis. H. Koller.—p. 1511.

**Microsporon Epidemic.**—Winkler relates that there have been a number of brief epidemics of microsporon infection at different points in Switzerland. At Lucerne vigorous measures were taken, the children affected were segregated in a special school, and radiotherapy applied so that the infection was stamped out with only twenty-four cases.

**Embolism of Retinal Artery.** Strehel has had three patients with obstruction of the central artery of the retina. Obliterating arteritis was evidently to be incriminated in two cases, and no relief was to be hoped for. The other patient had an old cardiac defect and the artery became suddenly obstructed by an embolus. He punctured the anterior chamber with a broad short lancet and massaged, and in less than a month the scotoma had disappeared and the field was normal for white and all colors. The consistency of the embolus and the degree of obstruction determine whether clinically normal conditions can ever be restored. There are only fifteen cases on record of cure of embolism of the central artery of the retina. In Strehel's two other cases there was arteriosclerosis, and the retinal embolism was the precursor of cerebral hemorrhage.

**Peritendinitis.**—Ryhiner remarks that inflammatory processes in and around the Achilles tendon, as well as all other pathologic conditions in the feet have become very rare since more attention has been paid in military circles to the shoes and care of the feet. This renders the more remarkable a small epidemic of 17 cases of inflammatory processes around the Achilles tendon which developed in the course of two weeks in his battalion. There had been no marching and the shoes could not be incriminated, but all the men involved had just been under treatment for adenoiditis sore throat. The salivates seemed to act favorably in some cases, associated with the usual measures for tendinitis. A purely palliative but quite effective measure was to fasten a wooden block, 3 or 4 cm. thick under the heel of the shoe, thus relieving the strain on the tendon. Men could go on marching without special pain when the heel was thus raised.

**Gazzetta degli Ospedali e delle Cliniche, Milan**

Set. 4, 1919, 10, No. 35

- \*Stab Wound of Trachea and Esophagus. G. Maffei.—p. 41.
- \*Empyema of Chest Following Inoculation. P. Cossentino.—p. 43.

**Empyema of the Chest.**—Constantini thinks he is justified in a favorable prognosis in cases of postinfluenzal empyema, as he was successful in curing his twenty-five patients in this category. All were cured in an average of forty days. Most of the patients were children, but one was 60 years old. He resected ribs and evacuated pus and fibrinous masses, all under local anesthesia, noting at most a little fever five or six days later, and a little dyspnea and cyanosis when the pleura was opened, and some coughing after the cavity had been cleared out.

### Riforma Medica, Naples

Set. 7, 1919, 35, No. 9

- \*Amebic Dysentery. Endemic in Sardinia. G. Boeri, p. 814.  
 \*Epileptic Disturbances. C. B. Farmachidis, p. 809.  
 \*The Skin and Respiratory Organs in Influenza. Bergamini, p. 831.  
 \*The Lenticular Nucleus. Antonio Jappelli, p. 834.  
 \*Hemolysis with Urine. G. Molinari, p. 837.

**Amebic Dysentery.** Boeri declares that emetin not only serves to differentiate and cure amebic dysentery in its acute form, but it is able to eradicate the disease even when the amebas are in the encysted form if systematically and perseveringly pushed. It may likewise arrest and cause the retrogression of liver amebiasis progressing toward an abscess. The abscess once formed, however, will scarcely yield to emetin alone. In prophylaxis, it is important to discover and cure all healthy carriers.

**Pluriglandular Disturbances.**—The young man in Farmachidis' case presented symptoms showing deficient functioning in several of the endocrine glands, the suprarenals in the lead. The Wassermann reaction was repeatedly negative, and there was no history of venereal disease, but under tentative mercurial treatment all the symptoms gradually disappeared and earning capacity was permanently regained.

**The Urine Hemolysis Coefficient.**—Molinari cites some recent research by Amati which confirms that physiologic urine has no hemolytic action but it seems to make the erythrocytes increase in size a little. Even when the specific gravity of the urine is very low, it does not injure the blood corpuscles. This suggests that the urine in health must contain some antihemolytic substance, and the absence of this in kidney disease and with cancer may serve in differential diagnosis from the resulting hemolysis. The latter does not seem to obey the laws of osmosis, and the hemolytic action of the urine does not necessarily parallel the hemolytic action of the blood serum. The substance in the urine causing hemolysis is apparently not modified by heating to 50 C. for half an hour.

As a distinctly hemolytic urine is rarely encountered, Amati has been studying the phenomenon from another standpoint, namely, he has been investigating physiologic urines for their content in the hypothetical antihemolytic substance, testing them with a hemolytic substance, that is, distilled water. The amount of distilled water that has to be added to the nonhemolytic urine before hemolysis is observed is thus an index of the content in antihemolytic substance. Healthy urine has to be diluted with 5 parts of distilled water to one of the urine before hemolysis occurs. Taking this figure, 5/6, as the average and almost constant index, the physiologic range seems to be from 4/6 to 10/11. When the index is lower, however, hemolysis may be induced with an index of 1/11, and an index of 1/11; 1/6 or 1/3 may be obtained.

We have found a differential sign which may prove important in certain cases. Amati found the index within normal range in pathologic conditions outside of nephritis and cancer, but his experience has not been very extensive. He distributes the urine in 8 test tubes commencing with 6 c.c. and reducing by 0.5 c.c. in the different tubes. The first tube serves for control. To the others are added the distilled water in amounts increasing from 0.5 c.c. to 5.5 c.c. in the last tube. A drop of blood from the same person whose urine is being tested is added to each of the tubes. A control set of tubes is prepared in the same way but the drops of blood used are from another person. After the sets of tubes have been incubated for a sufficient time, the

least dilution with which hemolysis is observed is the index of the content of the antihemolytic substance, that is, the urohemolytic coefficient of the urine in question.

### Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil

July, 1919, 10, No. 7

- \*Reflex Paralysis. Enjolas Vampré, p. 145.  
 \*Infant Feeding. Infection and Constitution. Ohnd. Chaffarelli, p. 156. Cont'n.

**Remote Paralysis.**—Enjolas Vampré describes the case of a man shot through the chest who developed paralysis with vasomotor and trophic lesions in the left hand and arm. He compares the case with similar ones on record, and theorizes to explain the mechanism. His theory is based on the anatomy and physiology of the nerves involved, with the physiopathologic and clinical data—all demonstrating that the *paralysis a distancia* depends on a reflex paralysis in the true Babinski sense. The flagrant contrast between the localization of the wound in the chest and the diffusion, and the ascending course of the paralytic and trophic disturbances in the arm are special features, as also their tenacious course refractory to intensive and protracted treatment.

### Archivos Españoles de Pediatría, Madrid

July, 1919, 3, No. 7

- \*Suppuration in the Urinary Passages in Children. A. Romeo Lozano and A. Ruiz Falcó, p. 385.  
 \*The Indin Reaction in the Urine. L. Tejero y Ruiz and Celestino Moliner, p. 420.  
 \*Prophylaxis of Child Abandonment. G. Araoz Alfaro, p. 424.

**Suppurative Kidney and Bladder Disease in Children.**—Lozano and Ruiz give full details of 25 cases, all but 5 in girls. Most of the children (10) were between 2 and 5; six less than a year old; four between 1 and 2, and four between 5 and 13. The colon bacillus alone was found in 25 per cent., and associated with other germs in 33 per cent. The disease was primary in less than 15 per cent. In the others, it followed gastro-intestinal disease in about 33 per cent., measles in 25 per cent. and infectious sore throat in about 10 per cent. High fever is usually the first symptom to attract attention, remittent or irregularly intermittent, often accompanied by chills and sweats. Cystitis is less liable to be accompanied by fever, especially in older children. The pallor, disturbances in micturition, possibly pus in the urine confirm the diagnosis. The discovery of renal cells points to the kidney; both kidney and pelvis as well as the bladder may be involved at the same time. The absence of bacteria from the urine suggests possible tuberculosis, but they had one case with negative findings in which the pyelitis seemed of toxic and nontuberculous origin. There was no mortality in their 25 cases except in 3 tuberculous children. They emphasize the necessity for surveillance of the kidneys during acute infectious disease, giving fluids in abundance. Small doses of hexamethylenamin may be useful. The genital organs should be kept scrupulously clean, and phimosis, etc., corrected. During the febrile period the child should be kept in bed and fed only on milk with large quantities of water. If it does not like to drink, the water can be given in enemas or through a tube in the esophagus. Alkalines are said to render conditions less favorable for the colon bacillus, but large doses have to be given usually for this, every two hours, for eight or ten days, and their experience with this has not been very brilliant. Salol is irritating to the kidneys, and should not be given if they are involved. Epinephrin has proved very useful in their hands. It is especially potent in pyelonephritis cases. They give from 4 to 6 drops per year of age approximately, of the 1 per thousand solution, along with 0.75 to 2 gm. of hexamethylenamin, keeping up the latter until the pus disappears from the urine. If this treatment does not suffice, they advocate an autogenous vaccine. In one case of colon bacillus pyelonephritis that had lasted for four months, the cure was soon complete under the vaccine therapy, as also in a case of lactic aerogenes pyelocystitis, which had been flaring up repeatedly for fifteen months. In the other case treated with the vaccine, merely improvement was observed.

Local treatment of the bladder is rarely needed. Pain is relieved by hot applications and sitz baths.

**The Iodin Reaction in the Urine.**—Tejero and Moliner have been testing Pezetakis' iodine reaction, and never obtained positive findings in normal subjects. The test has no diagnostic value in tuberculosis, but it is a sign of bad omen as the majority of those giving a strongly positive reaction died within six weeks. The test is merely the addition of 2 or 3 drops of an alcoholic 5 per cent. solution of iodine to 15 or 20 c.c. of filtered urine in a test tube. The wall of the tube is tapped a few times to mix the fluid. With a positive reaction the urine turns a golden yellow. The presence of quinin and certain other drugs impedes the reaction. In thirty-seven tuberculous children followed for three months all of the seventeen giving a negative reaction are living, as also seven with a slight reaction. Of the eight giving a moderately positive reaction, only five are still living.

### Gaceta Médica de Caracas

Aug. 15, 1919, 26, No. 15

\*History of Parasitology in Venezuela. J. R. Rísquez.—p. 155.

**History of Parasitology in Venezuela.**—Rísquez relates that over 200 works have been published in Venezuela since 1910 dealing with the rich and varied parasitology of the country.

### Gaceta Médica de Cartagena

April June, 1919, 2, No. 16-18

Mortality in Cartagena in 1918. F. S. Paz.—p. 3.

### Prensa Médica Argentina, Buenos Aires

Aug. 20, 1919, 6, No. 8

Endocrine Origin of Eunuchoid Type. G. P. Goñalons.—p. 73.

\*Electric Tests of Nerves and Muscles. Virgilio Teleschi.—p. 79.

\*Cartilage Implant in Skull. F. M. Bustos.—p. 81.

Histologic Findings in Occult Tuberculosis. P. M. Barlaro and J. P. Mawzinger.—p. 81.

**Electric Tests of Nerves and Muscles.**—Tedeschi describes an apparatus which allows more exact estimation of the element of time in electric tests of nerves and muscles.

**Cartilage Implant in the Skull.**—There was a breach in the skull and slit in the dura where the man had been kicked by a horse. Bustos fitted in the gap an implant cut from the costal cartilage, and the esthetic and clinical result is perfect to date (three months).

Aug. 30, 1919, 6, No. 9

\*Tardy Inherited Syphilis in Glands. M. R. Castex and J. Palacio.—p. 85. Cont'd.

Mechanism of Delivery. J. A. Berutti.—p. 89.

Mediopsychologic Conception of Aphasia. E. Mouchet.—p. 90.

**Tardy Inherited Syphilis.**—Castex and Palacio here continue their profusely illustrated monograph on tardy inherited syphilis, based on extensive clinical experience and the literature. In this instalment, cases of multiple glandular malformations are described. One young woman has one well formed breast while there is only a nipple in place of the other breast, and the fingers of one hand have only one phalanx each. Some of the four cases illustrated are examples of what they call "false scrofula from inherited syphilis." They discuss further the association of inherited syphilis with tuberculosis, and reiterate the importance of treatment for the suspected syphilis in glandular disease of the scrofula type.

### Revista de la Asoc. Med. Argentina, Buenos Aires

April-May, 1919, 30, No. 173-174

\*Bone Complications of Diabetes. C. Bonorino Udaondo.—p. 285

(Cytitis with Incrustations. Enrique Castaño.—p. 293.)

\*Sign of Cancer in Chest. Raúl Novaro.—p. 300.

\*Brain Tumors in Children. R. A. Rivarola.—p. 316

Treatment of Infected Abortion and Delivery. L. O. Romero.—p. 314

Tuberculosis. J. José Vitón.—p. 338. Cont'd.

**Bone Complications of Diabetes.**—Bonorino Udaondo has recently encountered two cases of diabetes in men of 48 and 50 in which the bones had become very fragile in the protracted course of the disease. Fracture occurred at the slightest provocation, one man having thus fractured the upper third of the left humerus, the patella and the lower

third of the same humerus. The fractures in the other man were in the left tibia and fibula and the right humerus at the middle third. Consolidation took long and the callus was always extensive. No other cause for the fractures could be found except the chronic, almost constant glycosuria accompanied with moderate acetouria. Similar spontaneous fractures have been observed in three of four rabbits given injections of sugar for one to three months. In nearly all these animals the bones became abnormally flexible and more transparent under the induced hyperglycemia. Acetone seems to promote the rarefaction of the bone tissue and the consecutive dystrophy. The dental caries in his two cases may be ascribed to the same factors as the fractures. Treatment was mainly dietetic, supplying food rich in calcium or Ferrier's recalcifying dietary.

**Cystitis with Incrustation.**—Castaño reports successful surgical treatment in two cases of cystitis with ulceration and deposits of calcium phosphate on the ulcerations. The aspect is that of a calculus, usually multiple, and adherent to the wall of the bladder. Both his patients were women, and the symptoms in one were those of simple cystitis. In the other, there was intense hematuria in addition. Pyelonephritis and pyonephrosis developed in this case. In women, these incrustations can be scraped off, unless they are so extensive that the bladder has to be incised, as was necessary in one of his patients.

**Sign of Cancer in Chest.**—Novaro found in three cases, with necropsy control in one, that the sternum was pushed over to the other side with a neoplasm encroaching on the pleura, lung and mediastinum. Pitres called attention some time ago to the similar pushing aside of the sternum by an effusion in the pleura, but in this case the deviation of the sternum is toward the side of the effusion. As the pleura is distended, the sternum is drawn toward that side. With a neoplasm, on the other hand, the reverse occurs; the neoplasm pushes the sternum over to the other side. The lung on the comparatively sound side expands and thus draws the sternum toward it, so that this inverted Pitres' sign may prove an aid in differential diagnosis of neoplasms in this region. The comparatively sound lung has to work extra hard to compensate for the damage of the other lung, and this entails the inversion of Pitres' pleural effusion sign.

**Brain Tumor in Children.**—Rivarola's conclusions are based on fifteen cases of brain tumors in children and considerable experimental work with paraffin tumors in dogs. The cerebellum is the usual site of tumors in children, and aside from syphilitic tumors (which are exceptional in children) and tumors forming during the last stage of generalized tuberculosis craniotomy is imperative, removing the tumor if this is possible. To permit the operation, the tumor has to be located, and the general condition must be good. The very early symptoms from the lesion may permit more exact localization than later, when the tumor has grown larger. When only a small zone feels the injury from the tumor, the local symptoms are most instructive. Months and even years may elapse without general disturbance, or only headache and convulsions. The diagnosis should be made then, without waiting for choked disk, vomiting and vertigo. If the convulsions are clearly localized, this suffices, and operations in this stage are usually successful.

In his cases and in those on record the clinicians and surgeons and specialists kept waiting and waiting for more definite signs of the location of the tumor, and postponed the operation until it came too late to save the child, as a rule. The retrospective diagnosis usually shows, however that the child early presented symptoms which, if heeded in time and the child placed at once on the table, might have permitted the eradication of the neoplasm. His clinical and experimental experience has demonstrated, he reiterates, that incision of the cortex with the bistoury, allowing exploration of the subcortical tissues and white substance through a linear or crucial incision, does not entail permanent injury, not even when it impinges on the parietal lobe, the seat of the sensory-motor centers. Operating at this stage, with a good general condition, there is no need to operate at two sittings.

## Revista Médica Cubana, Havana

June, 1919, 30, No. 6

Nature and Treatment of Accidents Produced by Arsenical Treatment of Syphilis. A. Pardo Castañ. p. 346.

## Revista Médica del Uruguay, Montevideo

January, 1919, 22, No. 1. Rec'd Nov. 12, 1919

- \*Leprosy in Uruguay. J. Brito Foresti. p. 1.  
 \*Torsion of Ovarian Cyst. C. A. Nario. p. 39.  
 \*Ferrán's Theory of Tuberculosis. A. María Oyuela. p. 41.  
 \*Cancer of Vulva. C. Stajano. p. 61. Rec'd in No. 2, p. 166.

**Leprosy in Uruguay.**—Brito Foresti discusses the prevalence and the clinical forms of leprosy in Uruguay from the earliest times to date. He remarks that except for Chile, where leprosy is rare, all the South American countries suffer more or less from this scourge. There have been 215 known cases in Uruguay during the last twenty years, and 180 are still under observation, in a population of about 1,315,714. He regards chaulmoogra oil as the most effectual treatment but the intolerance for it by the mouth and the occasional suppuration when injected subcutaneously have compelled him to discard it, and he now prefers ichthyol. This has materially benefited many but not all, and there was no intolerance and no protests against even its prolonged use. He gave it in 0.30 gm. capsules to a total of 2 or 2.50 gm. daily for twenty days and then kept repeating this course with ten day rests. During febrile periods, sodium salicylate was very effectual. An antiserum did not display any benefit. Colloidal chaulmoogra oil is now being tried. The youngest victim of leprosy was a boy who was 7 when the first manifestations of the disease appeared; the oldest was a man of 70. No race, nationality nor social position seems exempt, but he never happened to see a negro leper.

**Torsion of Ovarian Cyst.**—In Nario's two cases the clinical picture was complicated by simultaneous torsion of the appendix. The latter had twisted close around the pedicle of the cyst in one case, the tip adherent. In the other the appendix had twisted twice around the long pedicle, like a vine around a tree. In both, the mucosa of the appendix was still smooth and velvety. These and analogous findings in cadavers demonstrate that a twisting cyst is liable to draw into its twist any loose organs or tissues around. The traction from the torsion may be felt at quite a distance, even in the retroperitoneum. He suggests in conclusion that this may be a factor in ptosis.

**Ferrán's Vaccination Against Tuberculosis.**—Oyuela discusses Ferrán's theories and deplors the skepticism with which his revolutionary ideas have had to contend. See Madrid Letter, Oct. 4, 1919, p. 1074.

**Cancer of the Vulva.**—Stajano tabulates the details in 30 cases of vulvar cancer of four different types. Four of the 30 women had never borne children and another woman of 31 was a virgin. The details in regard to child bearing were not known in 8 other cases. All the 18 others had borne from one to fourteen children. The neoplasm was marginal in 22 cases, in the clitoris region in 6, and around the meatus in 2 cases. He gives a chart to show the complications liable with these four types. With the marginal type, the Bartholin's and Skene's glands are involved from the very first, and may be glands in this region. Not only the Bartholin's glands but also the corresponding lymphatic drainage and infiltration are characteristic. The treatment is to be traced to with cancer in the clitoris or clitoris region. This patient had had a painless small scapular tumor for months, never in the line several pregnancies. An ovarian cyst had had just a pruritus for seven years and the vulvar cancer developed. Both presented typical cancer. The need for successful intervention was long felt when pains and discomfort drove them to seek medical aid.

In conclusion Stajano emphasizes the analogy between cancer of the vulva and cancer of the mouth so far as the prognosis and the treatment are concerned. Seven of his 30 patients are known to be still in good health. All these were marginal cases. All the other patients are known to

have died except 6 that could not be traced. He warns that an incipient cancer in the vulva, without glandular lesions, will probably disappear under roentgen treatment but that this disappearance is deceptive, the lesion usually recurring and often in inoperable form. This, he adds, is particularly liable in hospital and country patients that cannot be kept under supervision. Raying was regarded at first as a valuable aid in inoperable cases, but experience soon showed that these cancers soon became refractory to the rays, or seemed to progress under them, thus displaying marked difference in the response to that presented by cancer in the uterine cervix, although the two points are so near together. These deplorable results from raying vulvar cancers have been a great disappointment; they harmonize however with the experiences with raying of cancer of the lip, tongue and floor of the mouth. The only resource is complete and ample excision of the vulvar cancer, with all the inguinocrural glands on each side and, in case of clitoris cancer, also of the retrocrural glands and connecting lymphatics. He details the minute technic of the three kinds of operations required for the three groups, and insists on postoperative raying as an important adjuvant.

February, 1919, 22, No. 2

- \*Bacillary Dysentery. A. M. Cuervo. p. 117.  
 \*Mucocele of Frontal Sinus. J. M. Alonso. p. 143.  
 \*Aims in Child Welfare Dispensary Work. J. A. Bauzá. p. 150.  
 \*Atiposis Dolorosa from Syphilitic Ovarian Insufficiency. J. C. Mussio Fournier. p. 155.  
 \*Weber's Syndrome in Boy of Four. C. Pelfort. p. 163.

**Bacillary Dysentery in Uruguay.**—Cuervo reports experiences which testify that *Y bacillus dysenteriae* is common in Uruguay, and that this bacillus is responsible for many cases of intestinal disease, resembling dysentery, in children.

**Mucocele in Frontal Sinus.**—Alonso reviews some cases in the literature and compares them with an operative case in his own practice in which a mucocele cyst was found in the frontal sinus. In his case there was an extensive destructive process, but in Avelli's case the mucocele was sterile.

**Weber's Syndrome.**—Pelfort reports a case in a boy of 4 presenting total paralysis of the left side with paralysis of the oculomotor nerves on the other side and positive tuberculin skin reaction. The spinal fluid seemed normal and the Wassermann reaction was negative and there were no symptoms suggesting involvement of the cerebellum.

## Semana Médica, Buenos Aires

May 8, 1919, 26, No. 19. Rec'd Nov. 3

- \*Motor Plastic Operations. G. Bosch Arana. p. 171.  
 \*Vaccine Therapy of Tuberculosis; Maragliano's Biologic Method. E. Jauregui and N. Lettieri. p. 498.

**Motor Plastic Operations.**—Full details with illustrations are given of eleven cases in which Bosch Arana restored more or less volitional control to an artificial leg.

July 24, 1919, 26, No. 30

- \*Degeneration and Regeneration of the Race. V. Melcior Farré. p. 77.  
 \*The Wassermann Reaction in Breast Milk. D. A. Rojas. p. 100.  
 \*Fluorene as Reagent for Aldehydes. J. A. Sánchez. p. 103.  
 \*Tetanus in Argentina. E. R. Conti. p. 104.

**The Wassermann Reaction in Breast Milk or Colostrum.**—Rojas reports a frankly positive Wassermann reaction in the breast milk and in the blood in 7 of 28 women; in 3 of the group the reaction was more pronounced in the milk than in the serum. In 6 the reaction was negative in the serum and positive in the milk. It was absolutely negative in the milk or colostrum only in 6 of the number, and was negative also in the blood in 4 in this group. Seventeen of the women had been delivered within five days; 11 were in the last two months of pregnancy.

**Tetanus in Argentina.** Conti states that in the six years before 1917 there were 10,868 deaths from tetanus in Argentina, including 8,347 in the newly born; 1,292 under 10, and 1,129 above this age. The ten years before 1878, tetanus was responsible for about 9.2 per cent. of the total mortality at Buenos Aires, but in the last ten years the proportion has dropped to 2.9 per thousand.

July 31, 1919, 26, No. 31

- \*Erythremia. J. Raúl Goyena and T. J. Masoch.—p. 113.
- \*Diathermy in Obstetrics. J. A. Beruti.—p. 118
- \*Giant Ovarian Cysts. N. Pelliza.—p. 120.
- Influenzal Hemorrhagic Purpura in Chronic Malaria. A. E. Moreira.—p. 125.
- Psychophysiology of the Aviator. VII. J. A. López.—p. 126.
- Colloidal Iodin in Treatment of Acute Influenzal Meningitis. C. Heuer.—p. 129.
- Appendicitis as a Manifestation of Rheumatism. G. Giacobini.—p. 129.

**Polycythemia.**—The case of Vaquez' disease reported in detail by Goyena and Masoch was peculiar in that great enlargement of the spleen was the first sign of trouble in the woman of 30. Three years later she developed typical erythremia and while in the hospital on this account polycythemia became manifest, the erythrocytes running up from 4,510,000 to 8,400,000.

**Diathermy in Obstetrics.**—Beruti expatiates on the theoretical advantages of diathermy to influence atony of the uterus. The technic is not perfected enough yet to be applied directly to the gravid uterus, but applied at a distance it might tone up the physiologic processes in the uterus. It is possible also that it might aid in eclampsia, in asphyxia neonatorum, and to warm up the prematurely born, and in obstetric shock, and in rigors. He merely suggests these possible applications, not having had any experience with them. But he has found heat applied to the legs by the ordinary technic very useful in aiding the obstetric uterus to recover tone and energy.

**Giant Ovarian Cysts.**—Pelliza relates that in Caballero's service an ovarian cyst which weighed 55 kg. was removed from a woman of 52 in 1906. In another case, in 1914, the cyst weighed 59 kg.; this patient was a woman of 22. Gallo drained 80 kg. of fluid from a similar case. Pelliza then gives an illustrated description of a case in a woman of 49 who measured 1.43 meters around the waist. She weighed 96 kg. before the cyst was removed and 57 kg. two weeks later. Recovery was smooth, but the microscope revealed sarcoma in the ovary.

### Siglo Médico, Madrid

Oct. 4, 1919 66, No. 3434

- Ferrán's Vaccination against Tuberculosis. A. Polido.—p. 833. Cont'n.
- \*Necropsy Findings in Influenza. J. H. Cerdeiras.—p. 836.
- High Frequency Currents in Treatment of Syphilis. G. Hurtado.—p. 837.
- \*Treatment of Vertebral Tuberculosis. Decré.—p. 839. To be cont'd.
- \*Traumatic Shock. J. Segovia y Caballero.—p. 841. Cont'n.

**Necropsy Findings in Influenza.**—Cerdeiras describes the postmortem findings in seventy-nine influenza cases at Basel. This group of fatal cases formed 15 per cent. of the total pneumonic cases. The constant finding of lesions in the lungs confirms that influenza is preeminently a disease of the respiratory passages.

**Treatment of Vertebral Tuberculosis.**—In this instalment of his long article, Decré emphasizes that we should aid Nature's processes of healing instead of trying to make Nature work in our way. Necropsy of persons with healed Pott's disease has shown ossification of the anterior ligament and this, he thinks, is the model which we should imitate. Nature provides curves and compensations which enable the organism to balance its forces and adapt the organs to new conditions. Our task is to detect the disease early. He refers to Albee's method, saying that the latter claims that secondary operations are not necessary with his technic. "But," he adds, "Albee is not sincere, as, after making these claims, he goes on to speak of the satisfactory findings when the implant was inspected at a second operation. Why should he do a second operation? Surely not merely for the purpose of inspecting the graft, as radiography will supervise this."

**Traumatic Shock.**—Segovia here concludes his long article begun in No. 3431. It is based mainly on war experiences and he remarks that toxic shock is rarely encountered in peace times. Surgical measures are not needed so imperatively with peace time wounds. Nervous shock and hemorrhagic shock directly contraindicate operative measures beyond what is necessary to control hemorrhage.

### Gann, Tokyo

August, 1919, 13, No. 2

- \*Syncytium Cells in Tumor Tissue. K. Hashidzume.—p. 5.

**Syncytium Cells in Tumor Tissue.**—Eighteen photomicrographs accompany Hashidzume's article, as also a summary in German. The micrographs are from eleven tumor cases and they demonstrate that this type of cell may be derived from epithelium and endothelium as well as from connective tissue, and further that these cells may group, to form a villi-like arrangement.

### Mitteilungen aus der Med. Fak. der Univ. zu Tokyo

Aug. 28, 1918, 20, No. 2

- \*Obliterating Thrombophlebitis of the Hepatic Vein and Inferior Vena Cava. V. Nishikawa.—p. 151.

**Obliterating Thrombophlebitis of Hepatic Vein.**—Nishikawa's monograph fills the 154 pages of this number, with several photographs of the macroscopic and microscopic findings in seventeen cases personally observed or dissected. A large folding table gives the full details of the twenty-nine on record. He discusses the pathogenesis, clinical consequences and pathologic anatomy. A number of factors are probably involved, but congenital malformations have never as yet been demonstrated. The patients were mostly in the thirties and forties, but no age and neither sex seem to be exempt.

### Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Sept. 6, 1919, 2, No. 10

- \*Cardiospasm. C. E. Benjamins.—p. 659.
- \*Pernicious Anemia. K. A. Rombach.—p. 671.

Sept. 13, 1919, 2, No. 11

- \*Induced Pneumothorax. B. H. Vos.—p. 713.
- Hysteria. T. Meinema.—p. 730.

**Treatment of Cardiospasm.**—It is evident from the experiences Benjamins reports that a different mechanism may be responsible for the spasm in different cases, but that usually the spasm is in the lowest segment of the esophagus and not in the cardia itself. General measures to reduce the tendency to spasm should be supplemented by systematic dilatation under esophagoscopic control. If this has been given a thorough trial and failed, an operation should be recommended. In 2 of his 3 cases of simple spasm, it was overcome by a single introduction of the olive tipped catheter. In the third the simple spasm passed into a phase of spasmodic contracture. There is a sensation of oppression, generally ascribed to the stomach itself. The lively antiperistalsis causes the food accumulating in the esophagus to be expelled, especially when aided by retching movements. In 5 of his patients the retention caused great distention of the esophagus, and in 2 others cicatricial degeneration had actually closed the lumen, compelling an operation. Guisez had 15 cases of cardiospasm in persons from 60 to 89, and 2 of Benjamins' patients were men of 54 and 64. Radioscopy with the contrast meal and with a small metal ball is usually instructive, but esophagoscopy is conclusive. In one man of 73 with symptoms of cardiospasm, not until the sixth examination did the catheter slide into the stomach and allow the discovery of a nodular cancer in the upper portion. Treatment should be that of spasm in general; the recovery in all his cases confirms that there was no paralysis. The tube is sometimes gripped by a spasm, and spasms elsewhere in the body may accompany the cardiospasm. He dilated the cardia with a set of olive tipped sounds passed through the esophagoscope tube. The irritation from imperfectly chewed food may be the cause of the spasm. In 4 of his 9 patients he found a large chunk of meat or of some fruit in the esophagus content. But there is probably some predisposing factor besides. The exaggerated reflex irritability is combated by passing the sound through the cardia, training the latter to allow the passage of other substances, so that it does not react with the spasm to the passage of food.

**Pernicious Anemia.**—Rombach relates experiences which confirm that pernicious anemia is not a morbid entity but merely a set of phenomena which may occur with any one of a number of actual diseases.

**Artificial Pneumothorax.**—Vis describes fifteen cases of induced pneumothorax in the last seven years. The immediate effects were excellent, but the ultimate outcome was far from satisfactory. The long rest of the lung did not seem to have improved the general condition on the whole, and the disease finally progressed as in cases in which this collapse therapy had not been applied.

### Acta Medica Scandinavica, Stockholm

1919, 52, No. 11

- Gastric Ulcers and Reticular Niche. H. Öhnlöf.—p. 1  
 \*Studies in the Concentration of Indifferent Naresites in Blood and Serum. F. M. P. Widmark.—p. 87  
 \*The Treatment of Alopecia Areata. J. Strandberg.—p. 165  
 \*Pulse and Electrocardiogram with Change of Position. H. Engström.—p. 175  
 \*Research on Motor Systems in the Abdomen. G. Söderbergh.—p. 211.

**Internal Treatment of Gastric Ulcer.**—Ohnell reports experiences which differ from the usual in that gastric ulcers showing a tongue like pocket or niche with the contrast meal healed definitely under internal treatment alone. The niche is usually accepted as an indication for operation. In 36 certain and 2 probable cases the narrow pocket disappeared as the ulcer healed. In 3 other cases, the pocket grew very much smaller. There has been no recurrence in any instance during the six to eighteen months since. The reason why internal treatment does not give such good results in the hands of others, he explains, is probably because the treatment is not kept up long enough. The different features of the 56 cases are tabulated under twenty-six headings, and the roentgen findings in each are reproduced. The tests for occult blood were negative, as a rule, in the cases in which the niche disappeared under internal treatment. The smallest niche shadow was 4 by 3 mm.; the widest 55 by 16, and the deepest 6 by 28 mm. The niche region was tender before or during the treatment but not in any case after completion of the course of treatment. Radioscopy of the stomach with the patient in different attitudes shows the widely different positions assumed by the stomach, with consequent traction, and on this account he keeps the patient absolutely still in his back for four weeks, and keeps him in bed for a further two weeks.

If the patient wearies of lying on his back and finds it difficult to sleep in this position, he gives a little sedative by the rectum the first few nights. This aids further in relieving paritosis during the first three or five days in a week, nothing is allowed by the mouth, and the extremely moist atmosphere of food thereafter. Most heat is applied as a counteraction for about a month; then he changes to warm, and when the patient gets up this is changed for an abdominal band. Fluids are supplied copiously by the rectum. The patient is given grape sugar solution, 6 per cent, honey, or 0.9 per cent. potassium chlorid. He began with 400 gm. three times a day, reducing the amount proportionally as feeding by the mouth is resumed, never letting the fluid intake drop below 1 liter a day. To ward off thrombosis, the patients are made to change the position of their legs repeatedly. Hygiene of the rectum is enforced. He had no paritosis develop in any instance.

The bowel movements are promoted by an enema of olive oil. The patient is warned not to strain. It is better to let feces accumulate than to strain and hinder healing of the ulcer. The diet is 30 gm. milk seven times a day, one egg on the fourth day plus the yolk of an egg. But 100 gm. grape sugar solution are given by the rectum three times a day from the first day on. Then two rectal injections are made, and the seven milk feedings total 630 gm. with two yolks. On the fourteenth day the rectal injections are dropped and 200 gm. milk is fed seven times, plus two yolks. On the fourteenth day 210 gm. of milk seven times a day and two yolks, and after this two to five soft boiled eggs, zwieback and butter are given with up to 1,500 gm. milk or five to six eggs. The course takes a full month. His experience confirms that a rictogenin may be due to a determined but not ulcerated part of the gastric mucosa. The article is in German.

**Acetone Concentration in the Blood and Tissues.**—Widmark has been able to deduce certain general laws which seem to

regulate the concentration of acetone and other "indifferent" narcotics. He writes in English.

**Thyroid Treatment of Alopecia.**—Strandberg now has a record of nine cases in which endocrine disturbances seemed to be responsible for malignant patches of alopecia. All were in men except 3 but there was nothing to indicate positively endocrine disturbance. Two of the patients had dementia praecox and one signs of syphilis. Thyroid treatment was applied in every case but only briefly in 2; in 3 of the cases the hair grew again under the thyroid treatment. In one man with dementia praecox the hair began to grow in as the mental condition improved. One woman who was not benefited by the thyroid had her hair drop out again during a pregnancy, and also when menstruation returned. The article is in German.

**Action of Passive Change of Position on Pulse Rate and Electrocardiogram.**—Engström found a slowing of the pulse when the subjects were changed from a horizontal to a vertical position, the head down, while an opposite effect was apparent in rapidly changing the subject to an upright position. He theorizes to explain the mechanism of this. The article is in German, and the pivoting table is illustrated.

**Root Motor Innervation of the Abdomen.**—Söderbergh here presents his eighth communication on the motor disturbances in the abdomen which can be traced to spinal roots. The motor anomalies may reveal the point where the root lesion is located. The article is in French.

### Hospitaltidende, Copenhagen

Sept. 17, 1919, 62, No. 38

Relations between Tuberculosis and Lupus Erythematoses. A. L. Fønss.—p. 1065. To be cont'd.

Oct. 8, 1919, 62, No. 41

\*Duration of Diabetes Mellitus. K. A. Heiberg.—p. 1137.

**Duration of Diabetes.**—Heiberg has been analyzing the figures of the fatal cases of diabetes in Denmark in the last ten years. He has records of 820 fatal cases in men and 683 in women. The duration is far longer in older subjects and in men than in women. The 1,503 cases are classified by age and duration in a table for comparison. In all of the patients under 20 the disease proved fatal in from six months to three years.

### Norsk Magazin for Lægevidenskaben, Christiania

October, 1919, 80, No. 10

Bacilli of Whale Septicæmia. D. M. Christiansen.—p. 993.  
 Mortality from Pulmonary Tuberculosis at Christiania. Arne Fisher.—p. 1038.

\*Forceps with Transverse Presentation. S. Lange-Nielsen.—p. 1045.  
 \*Inhibition Phenomenon in Antiserums. T. Thjotta.—p. 1051. Concn.

**Forceps with Transverse Presentation.**—Lange-Nielsen gives an illustrated description of what he says is a new method for introducing the anterior blade of the forceps. He introduces it over the back of the head with the convex edge forward. He says that this seems awkward, but in reality it permits better the *tour de spirale* which brings it up better in place with less danger of injury of the head.

**Inhibition Phenomenon in Immune Serums.**—Thjotta here concludes his long study of the nature and significance of the inhibition phenomenon described by Neisser and Wechsberg in 1901. It seems to be decidedly specific, becomes more pronounced as immunization progresses, and was found particularly intense in dysentery immune serum. The inhibition is the work of immune substances which develop during immunization or in the course of natural infection. But these immune substances are not identical with the ordinary immune agglutinins, bacteriolysins or precipitins. These special substances in the serum probably combine with the antigen to form a molecule complex which adsorbs the complement and thus keeps it away from the bactericidal substances in the serum. It is possible, he adds, that they may reduce or annul the action of antibacterial therapeutic serums, especially meningococcus antiserum. It is important therefore to determine this inhibition titer for each meningococcus antiserum, and, before using it, to dilute it proportionately with fresh complement-containing serum from the patient himself.

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## CREDULITY AND CURES

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The psychology of credulity is the main theme of this article—not credulity in general as applied to various religions, philosophies and political tenets—but credulity as related to the treatment and cure of disease, to the art and science of medicine. Why do people believe in "patent medicines," in all sorts of systems of healing, and quite generally also in doctors of medicine? Why do physicians often pin their faith to special methods and special medicaments? The general principles that govern faith, opinion, conviction, act also here; but an unusual factor in the field of medicine is the extraordinary complexity of the human body and mind. We often compare the organism to a machine; but even the most intricate machine is simplicity itself compared to the human body. On the one hand, we have metals and mechanics that almost any one can understand, adjust, repair and run; on the other, we have such a combination of sixteen elements in the greatest of chemical and physical laboratories, such complexity of anatomy, such intricate processes of physiology, and the whole permeated by spirit, by psychology and the mutual reaction of body and mind—all having occupied nature a hundred million years to build—that it is small wonder that even the greatest students and experts in this field of work cannot grasp it all, are dismayed at the difficulties they meet, and rejoice if a lifetime of work may chance to wrest one tiny fragment of new and permanent knowledge from the great mass of the still unknown. The healthy organism is difficult enough to know and to understand, but when we have added to this the innumerable diseases that develop within the body and the scores of invisible and intangible enemies that attack it from the outside, the problem grows colossal, and it is no wonder that people in general, no matter how erudite in other directions, have not the smallest conception of the problem of medical therapy.

The more one knows of a subject, the more critical, even skeptical, one becomes. If one knows nothing of a subject, the soil is prepared for faith, preconception, conviction. The great majority of illnesses are temporary, selflimited, and tend to recovery by nature unassisted. It is not surprising, then, that when an intelligent professor or learned clergyman happens to take during such a spell of illness a packet of cottage cheese, carefully powdered, with a long Greek name, his prompt recovery should fill him with a profound conviction of the value of

the remedy. He has this one convincing case, and its being his own lends a strong personal note to his recommendation of the agent to his friends. In fact, he becomes an authority by a single case, commends it to others, and even writes letters of his experience for use by the advertisers.

The physician works differently. If he observes good effects from a remedy in one case he tries it on others, and if it works well on twenty or thirty or perhaps fifty patients he will call it to the notice of other physicians by publication in a medical journal. Others are thus led to try it, some with similar success, some with critical reservation based on exceptional experience and conditions. Gradually, after use in thousands of cases and perhaps through the years by thousands of physicians, a new remedy takes its place in the pharmacopeia with a record of all the facts as to its utility and its limitations. It is thus that the hard won truths in regard to our small armamentarium of really useful therapeutic agents have been wrested from the years<sup>1</sup>

## CREDULITY AMONG THE LAITY

General intelligence, even great scholarship in all directions outside of medicine, is no criterion for judgment in the matter of means and methods for curing disease. Of Berkeley, one of the greatest minds of England, a philosopher, a scholar, it was said, "Ancient learning, exact science, polished society, modern literature, and the fine arts, contributed to adorn and enrich the mind of this accomplished man." He was a distinguished bishop as well as an illustrious scholar. But he discovered an elixir of life made by mixing a gallon of water with a quart of tar, leaving it for forty-eight hours, and pouring off the clear water. One of his essays which ran through many editions was "On the Virtues of Tar Water." Having tried it on himself and his family he was so sure of its efficacy that he felt it a duty to announce the wonderful discovery to the suffering world. Twenty-five fevers in his family were cured by this medicinal water. He recommended it as a preventive and alleviator of smallpox. It would cure impurities of the blood, coughs, pleurisy, pneumonia, erysipelas, asthma, indigestion, hysteria, dropsy, scurvy and hypochondria, and was of great use in gout and fevers, a preservative of the teeth and gums, and a substitute for all diet drinks and mineral waters. He forestalled criticism by saying, "Effects misimputed, cases wrong told, circumstances overlooked, perhaps, too, prejudices and partialities against truth, may for a time prevail," and furthermore, "Men may

<sup>1</sup> This is the normal progress of a useful drug, and of course I refer only to remedies not controlled by special interests. Unfortunately, at times, an agent does not follow this normal growth and evolution, but is imposed on a too credulous profession by powerful propaganda and suggestive advertising.

measure and object as they please, but I appeal to time and experiment." It is needless to say that the appeal of this wise and great man has been answered. Far water is forgotten. I merely refer to this shining example because the same psychologic reaction to cures for diseases has been manifested often since the time of Berkeley.

Even at this moment, a quite new method of therapy is being widely exploited by distinguished scholars, who if not as able as Bishop Berkeley, still have immense influence on the academic circles of their time. An Australian music teacher by the name of Alexander has adopted a system of cure of diseases in general which would seem to be a cross between massage and chiropractic. He has written a book entitled "Man's Supreme Inheritance," describing his theories and results, and this book is now having a huge circulation in this country. Prof. John Dewey, one of the most distinguished educators in the world and a professor of philosophy in Columbia University, writes a laudatory preface to the book. The *Atlantic Monthly* in its April number this year gave the method seven pages of free advertising in the shape of an article by Prof. J. H. Robinson, professor of history in Columbia University, entitled "The Philosopher's Stone," which he found in the Alexander method after "a lifelong personal experience of physical and mental depression." He says:

I am not telling my plain tale because I happen to have been redeemed in body and soul through Mr. Alexander's method, or because I have known others to be so redeemed. I think his ability to straighten out adults and give them new energy and courage is very important, but by no means so important as the possible application of his theories in the field of education by which it seems as if it might be possible to raise the whole race to a far higher plane than it now occupies.

Now, what is the method? A careful search through the book affords no clear account of what the author does or how he does it, but leaves the reader naturally to infer that the only way to recover from his malady is to consult the author himself, who practices in London six months and in New York six months.

From this book of well over 300 pages, one obtains with difficulty a limited general outline of the method of the new cult. I judge it is not intended that any but the writer should be able to employ this new cure, so that the patient to obtain his supreme inheritance would have to pay doubtless a considerable inheritance fee. However, one gathers by careful reading that the first principle is to establish a normal kinaesthesia by placing the patient in a position of mechanical advantage which induces a perfect system of natural massage such as has never before been attained by ordinary methods, and which is extraordinarily beneficial in breaking up toxic accumulation, in alleviating evils arising from auto-intoxication (This is always a word for word). By the use of his special technique, the author claims to have cured paralysis, erysipelas, tuberculosis, asthma, adhesions of the lungs, hemorrhage, congenital and other malformations, cerebral infantile paralysis, many varieties of throat, nose and ear trouble, hay fever, chronic constipation, chronic appendicitis, and colitis. I quote his own list. He anticipates the regeneration of mankind through his scheme of physical therapy.

Thus, we see that the assertions of an authority carry conviction to hundreds of listeners and thou-

sands of readers, and establish credulity in mankind. It does not matter whether the authority be an expert in philosophy, religion, education or history, what he says about a panacea for disease believed in by himself will induce belief in others. The assertion of authority is a powerful suggestion to believe, but a bare *assertion* by any one, even by a newspaper advertisement or the label on a bottle of "patent medicine," acts also as a suggestion to arouse credulity, as psychologic experts in advertising have been delighted to find.

Another factor in credulity is that we are so constituted as to be tremendously inclined to believe in what we would like to believe. When a man is ill there is nothing he desires more than to get well. This predisposes him at once to faith in any promise of cure.

And still another feature in cures is mystery. The commercial and therapeutic value of a "patent medicine" is secrecy as to its ingredients. Tar water was too plain and simple to live long. If it had had an incantation said over it, if it had had to be concocted at the conjunction of some planet with the moon, if it had had some high-sounding name, like Golden Discovery or Sanatogen, it might be alive today. This is true not only of medicines, but also of other methods of cure. The religious mystery associated with Christian science and the phenomena at Lourdes, the elaborate psychologic discussion in connection with "new thought" and mind cures, the anatomic dissertations on the spine and circulation in the advertisements of osteopaths and chiropractors, the rodomontades of men who write books like "Man's Supreme Inheritance," all these dealing with the mysterious, the occult and the unknown, make a wonderful appeal to that instinct of faith in those who are utterly ignorant of the significance of the theories suggested or terms used; and if one recovers by employing one of these methods, as often happens, since most diseases are self-limited and get well of themselves, the personal experience fixes a faith in the means that cannot be shattered. If you add to this personal experience the psychologic fact that once a conviction is firmly established in the mind of a grown man, it is almost hopeless to dislodge it, one learns to understand the credulity and gullibility of the race in the matter of panaceas for its ills. No one will easily give up an opinion when it will show him to have been wrong, even foolish. No amount of argument could have upset the belief of the brilliant Berkeley in tar water, nor could we swerve Professor Dewey or Professor Robinson one iota from their faith in a "readjustment which will establish a normal kinaesthesia" in their anatomies.

Now, I do not believe the medical profession has any quarrel with all these cults and methods, certainly not as to the good they may accomplish in some instances, but only so far as they may be hurtful or pernicious or untrue. We do object to the sale of secret "patent medicines" to the gullible public, even though they too may cure at times, because they have often contained dangerous ingredients such as morphin and alcohol, and because they too often lure the people into false hopes and to cruel disillusion. This is especially true of the much advertised tuberculosis, cancer and epilepsy cures. We do not object to cures by Christian science—we welcome cures by any method whatsoever, so long as they are cures—but we do object to the denial of the existence of disease and interference with its prevention in such disorders as smallpox, diphtheria and typhoid fever. It would be

idle to deny the recovery of patients under treatment by osteopathy and chiropractic, knowing what we do of self-limited diseases and the power of faith; but we have all encountered the evil results of their indiscriminate use, and deprecate their employment as a panacea by the unskilled and the ignorant. In the matter of the new cult of "readjustment to establish a normal kinaesthesia," the physician cannot accept as evidence the testimony of its one practitioner, or any of the evidence of those who claim to be cured by it, as decisive of a new advance in therapy—for all this evidence is combated by ages of experience in similar exploitations. The truth is that medicine is a great and difficult and progressive science, and that its truths are the results of the sifting of the centuries. No doubt all the cults and fads and fancies that have had and are having their day contribute something to the sum total of medical knowledge. Homeopathy, which is now little practiced, doubtless helped to diminish drugging. The numerous mind cures have done good by awaking the profession to a greater realization of the importance of the mind in every therapeutic procedure, though this idea is not new, having been well described by Plato in his *Charmides*. The various schemes of manipulation of the body by massage, osteopathy, Zander apparatus, etc., have made valuable additions to our knowledge of physiotherapy.

#### CREDULITY IN THE MEDICAL PROFESSION

Now, after this résumé of the many features of credulity among the laity, I approach with some trepidation and a feeling of delicacy the subject of credulity in the medical profession itself. We, above all others, should be hypercritical, should make a cult of skepticism in therapy. But do we? No one knows so well the extraordinary progress in all branches of medicine, especially during the past fifty years; no one knows so well the tremendous difficulties and complexities encountered, the mistakes made, the old paths retraced or abandoned, the amazing vistas opened. All these experiences should make the doctor of medicine, in particular, a profound skeptic, and happily also we may well believe an optimist.

I am afraid, however, that we too—just because dazzled by the effulgence of so many new discoveries—share, in a measure, the credulity of the public in remedial agencies. We see their errors plainly, and sometimes they see ours; but do we see our own? The same psychologic factors are at work in us as in the general public for the creation of faith in the new drug or in the new method. We do not know enough about it to be sufficiently critical. This ignorance of ours prepares the ground for the new belief, the new conviction. Its value is asserted by authority. And we are eager to believe in the new hope of help held out to us for the healing of the sick. Then, again, there are the marvelous mysteries behind all the new names—hormones, opsonins, endocrines, amboceptors, etc.—such a wide field for new facts, such a vast horizon for new theories. We can hardly be blamed for not being always able to get our bearings in these uncharted seas.

It has interested me to go over in this connection some of the therapeutic measures heralded to the profession with more or less vehemence of assertion during my own day. Some of these have already passed into oblivion. When I began practice, clitoridectomy was a reputed cure for many nervous disorders. One

scarcely hears of it now. About that time, too, surgeons were competing for their first hundreds in ovariectomy, an operation often then performed not because of ovarian disease, but for some theoretical relation to epilepsy, insanity and the psychoneuroses. Around that period the rhinologists came into their own with the turbinated bone obsession. I suppose the reason one hears so little of it now is that most of the turbinated bones of our generation were removed. Turbinated bones have gone out, and submerged tonsils have come in. In Vienna many cases, especially those of nervous disorders, were cured by magnets applied to the spine. Electricity had a great vogue, and large static and other machines were a part of office equipment. One rarely sees them now. For a time, suspension of patients with locomotor ataxia on the theory that stretching the spine affected favorably the fibers in the posterior roots had vogue, and it was rather startling to enter a clinic, hospital or doctor's office and see one man or several men hanging by the head from a miniature gallows. The passing of urethral sounds for the cure of locomotor ataxia had a brief but meteoric career. There was a good deal of trephining for microcephalia, under the impression that the brain would grow if it was given more room; and trephining was done for a time in general paresis but abandoned for good reasons in the course of time. The rest cure had a comparatively long life among remedial measures, and it had behind it great authority and much good logic; but as a cure it owed its success chiefly to the psychotherapeutic genius that launched it into existence. Except for the reverberations of his dicta in remote places, it is not employed nowadays, the antipodes of his teachings, namely, exercise and occupational therapy, taking its place. I suppose very few drugs have had such a rapid rise and sudden drop into the medical limbo as croctalin, exploited for epilepsy. It ended like the sky-rocket. Perhaps I should mention here in connection with croctalin, *Bacterium cinchinnaticum*, which caused so many epileptics to have their colons reduced to semicolons by operation. This germ is extinct, along with the general paresis germ discovered in Scotland some years ago. I presume many recall a series of volumes entitled "Biographic Clinics," by which the enthusiastic author, an ophthalmologist, sought to prove that the majority of diseases were due to eye strain and could be corrected by prisms. He was very bitter against certain of his confrères who believed in the same etiology of human illnesses, but who insisted quite violently on the cutting of eye muscles by a long series of delicate operations to remove eye strain. The originator of the latter method was awarded a prize by a distinguished foreign medical society for his great contribution to science!

Our past experience should lead us to be extremely cautious and skeptical in the presence of many of the therapeutic measures before us now. Leaders, despite their great intelligence, and high position, often stam pede the rank and file of us like sheep. Our leaders are very human and subject to the sway of the personal equation. I know one general consultant who seldom makes a diagnosis of anything except hypothyroidism or hyperthyroidism; in fact, I believe that he must in his mind have classified the whole human race as superior and inferior thyroids. I know another who does not see ordinary things in the ordinary light of day, but by a prismatic light; he sees them through the

rinow of the endocrines. Surely, so much pulling at teeth, so much removal of submerged tonsils, is not justified by results. At least I feel so from the many cases of psychoses, nervousness, sciaticas, neuralgia, spinal pains, cervicobrachial neuritis, and the like which have come under observation after such treatment had proved futile.

I am glad to see a growing skepticism with regard to Wassermann tests. They are of real value as corroborative of clinical findings, but when these are in doubt, the Wassermann tests should be controlled by reports from three different laboratories. It is not long since a single laboratory test was considered final, and that despite the presence or lack of clinical evidence.

#### PSYCHANALYSIS

I shall close with a few words as to psychoanalysis, on which subject I am qualified to speak, for I know Freud and Jung personally, have examined the method theoretically, and have or have had a number of practitioners of this cult as my friends. It has taken a considerable hold in America—though not so much in Europe—and owing to the fact that many reporters and writers are psychopaths and have undergone treatments by psychoanalysis, these doctrines are now frequently encountered in editorials in newspapers, magazine articles and a few books by mediocrities. The theories of Freud and Jung are to psychology what cubism is to art, new, sensational and rather interesting. If they were not so pernicious in their application, as well as untrue in psychology, I should say nothing of them, but let them take their place in our historical medical museum along with all the other fancies which the centuries have accumulated. In a few years they will be catalogued in that museum. I doubt if any persons have been benefited by this treatment. It requires months or years of work over each case and it is very expensive. I have, on the other hand, seen very bad results from the psychoanalysis of young women and men, permanent insanity, even suicide—and if it were not destined to be so short lived, I should advocate a law to prevent its employment in the treatment of young people.

There is only time to touch on one or two of the more salient features of the freudian theories. One of the most prominent is, for instance, that every dream is the fulfilment of a wish. This is a kind of turning back in a very crude way to the philosophical speculation on the world as will and presentation of ideas men as Berkeley, Schopenhauer and von Hartmann. If there is one clear fact in the psychology of everyday life it is that the essential function of the mind is its ability to deal with the future. It is anticipation of the future that guides our conduct, plans for our actions, distinguishes the right paths from the wrong paths that we are to follow, and the ways that are readily to progress from those that are unfavorable. Our memories are our experience on which we base our life; by the present is a point, the future is our goal. This is true especially of youth, which is full of anticipation of the future, a long preparation for all that is in store. Hence our minds are always full of anticipations in our waking life—hopes, desires, wishes, plans, ambition, aspirations, as well as fears, timidity, anxiety, dread, suspense. Naturally, our dreams, which are a sort of uncontrolled replica of waking thought, but with a wider horizon of memories,

reflect in a moonlight kind of way the thinking processes of our day. These anticipations come to us in our dreams. Sometimes they are pleasant; sometimes, anxious and apprehensive. Now, Freud, observing that his children usually dreamed of pleasant things anticipated, the theater, toys, country trips, quite arbitrarily jumped to the conclusion that a dream is the fulfilment of a wish. Then he said all dreams were a fulfilment of a wish, and as the obsession grew in his mind, he decided it must always be a sexual wish, however disguised. When confronted with fear and anxiety dreams he had to invent words like distortion, displacement, etc., to twist around an easily explicable dream, easily explicable by study of the normal anticipations of the mind, to make such a dream in some extraordinary manner fulfil a wish. When a friend of his, after hearing him lecture on this subject, came to him triumphantly with a fear dream, wholly opposed to his theory, Freud suddenly exclaimed exultingly, "You had this dream just to confute my theory. That was the hidden wish." The freudians will talk to you much about an elaborate symbolism which is wholly their invention. There are no symbols in anybody's dream life which were not first present in their conscious life. The freudian makes the claim that all the arts, and in fact all our civilization, had its origin in one drive, the sublimation of the sexual. The reader will remember that Rabelais had Pantagruel meet one Gaster in his travels who claimed that all the arts, powers, accomplishments of our civilization were the sublimation of the desire of the stomach. One theory is as good as the other. They are both rabelaisian. If one reads the analyses made by the psychoanalysts, one will find a complete revelation there of the type of mind of the analyst himself, his intelligence, his logic, his symbolism, his character; indeed, one will learn much more of him in this way than one will of the unfortunate patient the analyst thinks he is studying.

#### CONCLUSION

Most of these methods of cure are in the past. They are a part of our experience, and of certain value as such, although mostly of a negative value. Of course, this has been more than counterbalanced by enormous accessions of positive value during the same period of time. But these errors have a lesson for us today. We must try to take a middle path, if that is possible in the presence of new theories, to be broad enough to know that there are great mysteries in our complex organisms and all the sciences that have to do with them, to feel that precious discoveries are always before us awaiting some Cortez or Columbus, and therefore not to be too prejudiced to weigh, ponder and examine; and at the same time we should cultivate the critical faculty.

20 West Fifth Street.

**Import of Mental Deficiency.**—People speak of "mental deficiency." They seem to mean by that always "intellectual deficiency," or "cognitive deficiency." I think there is far too little attention paid to deficiency in feeling, or emotional deficiency, and to the deficiency in volition or conation. The feelings and the will are just as much parts of the mind as the intellect is a part of the mind, but the term "mental deficiency," as it is often employed, nearly always refers merely to the intellectual or cognitive side. In my opinion, we see just as many, or more, defects on the emotional and conative side as we do on the intellectual or cognitive side.—Dr. Lowells F. Barker, *New York State Journal of Medicine*.

PRESENT STATUS OF THE DEFINITE  
TREATMENT OF THE  
PNEUMONIASOBJECTS, INDICATIONS, AND METHODS OF USE  
OF QUININ, PITUITARY PRINCIPLE  
AND DIGITALISSOLOMON SOLIS COHEN, M.D.  
PHILADELPHIA

The definite plan of treating pneumonia is so called because it uses definite agents for definite objects, on definite indications. It does not exclude, but definitely includes, rest, diet, fresh air (the open air if possible, but with regulated temperature), and all other methods of good nursing, together with the free use of water and alkaline-saline drinks (chlorids, citrates, carbonates, bicarbonates).

Its pharmacodynamic center is quinin, and the principal pharmacodynamic aids are solution of hypophysis and digitalis. These substances are not "specifics" and are not advocated as such; but their use under definite indications is of special advantage. The indications are the important elements. They constitute the plan of treatment. The drugs are merely the present means of carrying out the purposes for which they are respectively indicated, and might be superseded by other agents found by experience to be superior, without affecting the fundamental principles involved. Thus far, however, I have found no other agents equal to them; except—within limitations—the specific Type I serum in Type I cases and mixed (polyvalent) pneumonia bacterins in other cases. The serums and bacterins may some day displace drugs in the treatment of the pneumonias; but that day has not yet come. For the present the two classes of agents may usefully supplement one another. As for the watchful waiting of the "expectant" plan of treatment, that is confessedly bankrupt. "Nature cures," it is true; but in the pneumonias, nature needs the guidance and assistance of scientifically minded art.

Auxiliary agents under special circumstances are oxygen, atropin, camphor, musk, strychnin, etc., and auxiliary measures of great importance are counter-irritation at the beginning, warmth to the chest throughout, and bleeding when indicated. These need not be discussed here.

PURPOSE OF QUININ, AND INDICATIONS  
FOR ITS USE

Quinin is not employed for the purpose of reducing temperature, but to combat bacteria, bacterial poisons and tissue poisons. Reduction of temperature, however, is an incident of its action, and thus affords a convenient index to its pharmacodynamic effect. The temperature curve is therefore taken as a guide for dosage, both as to quantity and frequency. Commonly the temperature, if above 102 F., is brought to or below that figure within three or four hours after the administration of the drug in sufficient quantity. A persistent tendency to reascend is the indication for continuing or increasing the medication. Cases of moderately high temperature, that is to say, from 104 to 105 F., in which quinin sufficiently and persistently used, fails to make a decided impression, are rare, and the failure is of bad omen. So far as I have been able to have such cases typed, the sputum contains, either singly or in

addition to other types, the organism of Type III, or of what seems to be a particularly virulent variety of Type IV. Among typed cases of resistant temperature, I have not seen any instance in which Type I or Type II was found alone. Many, perhaps the majority, of such cases have been seen late, and have given evidence, either antemortem or postmortem, of extensive suppuration, pleural or pulmonary. Various streptococci and staphylococci, sometimes Friedländer's bacillus, Pfeiffer's bacillus, *Micrococcus catarrhalis*, etc., are likewise found, but these are present also in cases that do not resist quinin. So far as my own studies go, however, quinin has no special influence on streptococci poisoning—its virtue is against the pneumococcus. This long-standing clinical observation has been verified experimentally through a series of studies by Drs. Kolmer, Heist, Steinfeld, Weiss and myself.<sup>1</sup>

## COMPOUND USED, AND DOSE

The preferable salt of quinin for administration by mouth is the dihydrobromid; for intramuscular injection, quinin and urea hydrochlorid; for intravenous injection, either of these, or the dihydrochlorid.

Massive dosage is commonly needed. The larger the quantity that can be taken in the first twenty-four hours, the better the prospect of recovery.

By the mouth, from 25 to 35 grains are given to begin with, and later, according to effect, from 5 to 15 grains every two, three or four hours. When the drug is given by the mouth, it is well to keep the temperature index down to 100 F. or less; and even should it fall to normal, there is no occasion for alarm, in the absence of severe symptoms of cinchonism—such as sweating, amblyopia, or tintinnus aurium. I have not, myself, encountered any instance of untoward cinchonism, the extreme tolerance of pneumonia patients to quinin being, indeed, one of the evidences of its antitoxic virtue. Two instances of transient amblyopia have, however, been reported to me. In this respect the unmodified quinin molecule differs very much from optochin (ethylhydrocuprein), whose toxicity is so great as to render it unsafe for internal use, although unequaled for local applications in pneumococci infections. The common practice, which may be used tentatively in any case, is to make the second dose of the quinin salt 15 grains, and the third dose 10 grains, and after that to keep up doses of 10 grains every fourth hour (during the waking hours) for a day or two, and then reduce the quantity to 5 grains every fourth hour. This plan, however, is not a rigid one and is subject to considerable modification, both as to quantity and frequency, according to the reaction and progress of the individual patient. Even in cases of quinin idiosyncrasy, it will be found that quinin in large doses is well tolerated during the progress of an acute lobar pneumonia—probably in other forms of pneumococcus infection as well, although it so happens that I can speak from personal observation only of that first mentioned. I have seen six such cases, and they have furnished six instances of recovery from the infection, without injury by the drug.

By intramuscular injection, the practice originally was to give 1 gm. (about 15 or 16 grains) as soon as the patient was seen, and to repeat this every third hour until the temperature persistently remained below 102 F. Later observation would point to 100 F. as a better index point. Also, it has been found that

<sup>1</sup> Summarized by Cohen, S. S. Penn. M. J. 22: 596 (May) 1919.

an initial injection of 1.5 gm. (say from 20 to 25 grains) is well borne, and that it may be followed by administration by mouth with almost equally good result as the continuous intramuscular injection. Thus the physician who sees his patient only once a day may make an injection at that visit and have even unskilled attendants continue to give the drug in capsule, in doses of from 5 to 15 grains every third hour, or every fourth hour, according to effect. If the intramuscular route is used continuously, the doses are continued at 10 or 15 grains every three or four hours until the temperature keeps at 100 F. or less. The solution is best made with boiling water, extemporaneously, and may be from 25 to 50 per cent. The skin must be painted with iodine, the injection given deeply, the needle emptied before withdrawal, and the point of puncture sealed with collodion. This averts local irritation and necrosis.

*Intravenous injection.* The initial dose has thus far been 1 gm. or less (from 10 to 15 grains) in 100 c.c. of physiologic sodium chlorid solution. At first, the attempt was made to make the solution neutral by the use of monosodium phosphate and disodium phosphate in physiologic proportions. An elaborate formula was worked out, and when the manipulations were carefully made, precipitation did not occur and the result was satisfactory. While this refinement was necessary to eliminate certain sources of error in some of our experiments on animals, it is unnecessary in the therapeutic use of the drug. No harm, local or general, results from the slight degree of acidity of the 1 per cent. solution in saline. It is rarely necessary to repeat an intravenous injection. The temperature commonly falls rapidly to normal or a little below, and in the course of a few hours returns to a moderate elevation. Sometimes it is not necessary to give the drug again at all; in other cases, administration by mouth in doses of from 5 to 10 grains every fourth hour suffices.

Observations concerning the bactericidal properties of the blood and serum of cinchonized animals and those on pneumococcus cultures *in vitro* have demonstrated that the power to kill or inhibit the pneumococcus is retained much longer when quinin is given in moderate doses, not more than three, or at most four hours apart, than when it is given in much larger doses, but with greater intervals. The frequency of repetition therefore is important, irrespective of the size of the dose. Small doses, however, are sufficient, even when repeated as often as every two hours. The first dose must always be from 10 to 20 grains by muscle or vein, or from 25 to 35 grains by mouth. After that, not less than 5 grains, and as much as 15, if needed.

#### GRAPHIC RECORD OF SOLUTION OF HYPOPHYSIS, AND INDICATIONS FOR ITS USE

Solution of hypophysis is used to sustain blood pressure and prevent profligate eutery-paralysis. Gibson has observed the great prognostic omen, in acute lobar pneumonia, of a fall in systolic blood pressure to a point at which the number of millimeters of mercury is less than the number of pulse beats per minute. The arithmetic relation is purely accidental, but is convenient for the plotting of curves. The fundamental fact of vagus and vasomotor depression shown by these curves is of high importance. Although the accuracy of Gibson's interpretation has been denied by

many good observers, it has been confirmed by others, equally good; and the phenomenon described may be accepted as indicating a condition sufficiently serious to call for therapeutic correction—which is all we have to do with at present.

After considerable experimentation with various pressor agents—atropin, cocain, ergot, epinephrin and the posterior pituitary principle, in particular—the last named was chosen for routine administration for several reasons. Its action is less prompt than that of epinephrin, but equally powerful, and much more lasting. Cocain is equally lasting, but not so marked in result, and no more prompt. Atropin is as prompt as epinephrin and somewhere between epinephrin and solution of hypophysis in staying power, but no more marked than cocain. Hence solution of hypophysis excels all others in that it possesses both of the most important requisites, namely, intensity of action and duration of effect. In addition, it has the great virtue, in most instances of its continuous administration, of preventing that paralytic dilatation of the stomach and intestine which frequently accompanies the general vasomotor and cardiac depression indicated by the fall of blood pressure; both being the result, no doubt, of the action of the pneumonic poisons on the autonomic-sympathetic nerve system. When solution of hypophysis does not prevent dilatation, it frequently overcomes that untoward symptom.

The rule of practice is to inject 1 c.c. of any good commercial extract of the posterior pituitary body every third hour, until the systolic blood pressure in millimeters of mercury exceeds by five points or more the frequency of the pulse in beats per minute, and to continue its use as long as needed, in order to maintain this relation. Irrespective of pulse rate, the systolic pressure should not be permitted to fall below 90 while fever persists. In conditions of urgency, solution of hypophysis is repeated hourly, or is aided by one of the other agents (as, cocain, epinephrin [adrenalin] or atropin) given at alternate hours. When dilatation of the stomach threatens—as shown by tympany beyond the midaxillary line on percussion of the left lower thoracic region, or as indicated by other symptoms—solution of hypophysis should be given hourly for three hours, independently of the effect on blood pressure; and if the symptom is not then overcome, should be continued every two hours, with physostigmin (eserin),  $\frac{1}{60}$  grain (1 mg.), alternated hourly, as long as necessary.<sup>2</sup>

#### PURPOSE OF DIGITALIS, AND INDICATIONS FOR ITS USE

Apart from the ordinary pharmacologic action of digitalis, it appears to have, in lobar pneumonia at least, a special usefulness not explicable by anything known concerning its action on the nervous or muscular mechanism of the heart. Concerning this unknown factor, naturally, nothing definite can be said.

The purpose of the administration of digitalis, then, be stated as the support of the cardiovascular action, particularly as evidenced by the relation of the

<sup>2</sup> When gastric dilatation, not having been thus anticipated and prevented, occurs, the stomach should be washed out, and solution of hypophysis and physostigmin should be administered in the manner stated. When intestinal paralysis is shown by tympanites, the same are as to be made of solution of hypophysis and physostigmin; added to hot turpentine-stupe to the abdomen, perhaps the use of turpentine by mouth, the insertion of a rectal tube, and, if necessary, by a hot enema of a-safedid and alum. No degree of tympanites is slight enough to be neglected, but the activity of treatment will, of course, be regulated by the severity of symptoms.

diastolic blood pressure to the respiration frequency. By an arithmetical coincidence similar to that which underlies the Gibson pressure-pulse relation, it can be affirmed that whenever the diastolic pressure in millimeters of mercury falls to within less than ten points of the respiration frequency in excursions per minute, the prognosis tends to become grave; and that so long as the interval of ten points or more is maintained, the prognosis remains fairly good.

Furthermore, a drop of diastolic pressure below 60, irrespective of the respiration rate, if occurring before fever ends, is potentially of unfavorable import. Consequently, either rise of respiration rate or fall of diastolic pressure so far that the two curves fail to show an interval of ten points or more, or a tendency of diastolic pressure to fall and remain below 60, constitutes the definite indication for the production of full digitalis action. The effect is best measured by the rise of diastolic pressure,<sup>3</sup> which is a much more trustworthy and significant index than the pulse rate. Numerous charts in my possession, some of which have been published, exhibit this fact beyond contravention; and recent observations directed solely to this point, on patients with lobar pneumonia and on patients convalescing from lobar pneumonia, exhibit the digitalis effect on diastolic pressure in a marked degree, while as yet pulse rate and systolic pressure are influenced but slightly. I would invite confirmatory or connective clinical studies by others.

There is one practical point, however, which needs repeated emphasis: Even when a good preparation of digitalis is given hypodermically or intramuscularly and in full dose,<sup>4</sup> say the equivalent of 3 grains of the leaf, at least four hours elapse before a marked rise of diastolic pressure can be noted; sometimes it is eight hours or more. This interval can be shortened by previous sensitization of the heart to digitalis. At least, it is shorter when digitalis in moderate doses has been previously administered for two or three days. Hence it is well to give the digitalis from the beginning, in small doses—about 5 minims of a good tincture, by mouth three times a day, ordered as soon as one sees the patient—irrespective of the symptoms presented. Such dosage does no harm, in any event. The malady may run its course to recovery without any definite indication for full digitalis action being presented; but the drug is continued in these small doses, nevertheless. If, however, the indication for digitalis arises, as shown by the approach of the respiration and diastolic pressure curves, the drug is then immediately given hypodermically in full dose and repeated every four hours so long as necessary to maintain diastolic pressure at the height indicated. Should symptoms of digitalis poisoning occur, judgment would have to be used as to the continuance or discontinuance of the drug, or the modification of quantity or interval. It is only right, however, to say that digitalis poisoning has not been observed in my experience, in this manner of using the agent; and this, like the parallel quinin tolerance in pneumonia, calls attention to an obscure point in the study of toxemias of infection and drug-antidotism, that is well worth the attention of clinicians and experimenters. My own studies have made only a beginning. Additional and independent work is much needed.

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## CAROTINEMIA: A NEW CLINICAL PICTURE\*

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AND

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About a year ago one of us (A. F. H.) observed that two children in a ward containing about twenty-five infants, from a year to a year and a half in age, were developing a yellowish complexion. This coloration was not confined to the face, but involved, to a less extent, the entire body, being most evident on the palms of the hands, which showed also distinct signs of desquamation. The sclerotics were not at all affected. The urine was amber, and the stools normally yellow. For a time, we were at a loss to account for this peculiar phenomenon, when our attention was directed to the fact that these two children, and only these two, were receiving a daily ration of carrots in addition to their milk and cereal. For some time we had been testing the food value of dehydrated vegetables, and when the change in color was noted, had given these babies the equivalent of 2 tablespoonfuls of fresh carrots for a period of six weeks.

It seemed as if this mild jaundiced hue might well be the result of the introduction into the body of a pigment rather than the manifestation of a pathologic condition. Attention was accordingly directed to the carrots, and the same amount of this vegetable was added to the dietary of two other children of about the same age. In the one instance, after an interval of about five weeks, a yellowish tinge of the skin was noted, and about two weeks later the other baby had become somewhat yellow. There was a decided difference in the intensity of color of the four infants, indicating probably that the alteration was in part governed by individual idiosyncrasy. On omission of the carrots from the dietary, the skin gradually lost its yellow color, and in the course of some weeks regained its normal tint.

The subject was pursued farther, and blood was aspirated to ascertain whether it contained the pigment, and more particularly to determine, if such were found to be the case, whether the nature of the coloring matter could be identified. In the two instances in which blood was withdrawn, the serum, as well as the plasma, was found to be distinctly yellow, much like that which is obtained in cases of jaundice. Various tests were carried out in order to determine the solubility of the pigment. They may be summarized by the statement that it was found to be soluble in purified petroleum benzine. To test its solubility, the plasma was first allowed to stand for a short time in contact with plaster of Paris; a few drops of absolute alcohol were added, and it was then extracted by means of a large continuous extractor (of the same pattern as was employed by Myers and Wardell<sup>1</sup> for cholesterol, only about seven times larger) for about eight hours. The extract had a very definite yellow color, whereas subsequent ether extraction proved negative. This is the test which has been devised by Willstätter and Mieg<sup>2</sup> to determine the presence of carotin.

\* Presented before the American Society for the Advancement of Clinical Medicine, Atlantic City, N. J., Jan. 13, 1919.

<sup>1</sup> Myers and Wardell, *J. Biol. Chem.*, **24**: 147 (Oct. 19) 1918.

<sup>2</sup> Willstätter and Mieg, *Ann. d. Chem.*, **355**: 1, 190.

<sup>3</sup> The diastolic pressure is taken at the time of the disappearance of the sharp sound, not at the time of the last faint pulse.

<sup>4</sup> I have never used in pneumonia the "Bagleston method." It might be well to try it out. I am not prepared to say.

It was evident that we were dealing with a systemic condition brought about by the introduction of an excess of carotin in the food. A search through the literature failed to reveal a description of this condition, either in children or in adults. It is probable that von Noorden had this pathologic condition in mind when he described a "peculiar canary yellow tint of the epidermis, which appears especially in the nasolabial folds, on the palms of the hands and soles of the feet," which he had observed in diabetes, especially in those who are youthful. He regarded this peculiar alteration as the manifestation of some metabolic disturbance and termed the condition "xanthosis diabetica," reading a paper under this title before the International Dermatological Congress in Berlin (1904).

Excellent studies, however, have been carried out on animals in the last few years by Palmer and Eckles<sup>1</sup> and by Palmer as to the relation of fodder to the carotin content of the tissues. It was found, for example, that green feeds greatly increase the color of the butter fat of cows, mainly because they contain carotin, which accompanies chlorophyll in green plants. The body fat of the animal, the blood serum and the corpus luteum all depend for their intensity of color on the pigment of the food. This pigment, furthermore, is of two kinds: carotin, having the solubility mentioned above, and the xanthophylls, which are distinguished as being insoluble in purified petroleum benzine but soluble in 80 to 90 per cent. alcohol. In some animals, xanthophyll was found to be absorbed in by far the greater ratio, as, for example, in the hen, which, when deprived of this pigment in its food, has produced eggs having almost colorless yolks;<sup>2</sup> in others, as in the cow, carotin predominates in the tissue pigment. In still other animals, in the sheep and the goat, neither pigment is absorbed, so that we observe the colorless fat in so characteristic of these species. We are informed that in man "the relative proportion of carotin and xanthophyll is much more nearly equal than in the fat of cow's milk."

These pigments are very widely distributed among our foodstuffs, and it is probable that they frequently play a rôle in coloring the skin. As they are nontoxic<sup>3</sup> and lead to no physiologic disturbance, the discoloration usually overlooked or attributed to some minor impairment of the liver or of the intestinal tract. The discoloration may be brought about not only by carrots but also by any food which contains the carotinoids in high degree—we have seen it follow when the dietary included two oranges a day, or the yolk of one egg in the diet for a period of two months, or 2 ounces of egg yolk daily for one month. It is the pigment of the hemoglobin and of the highly colored colostrum, and they will play a part, although a minor one, in the coloring of the raw horn.

It is probable that there will be found to be considerable individual variations in regard to the absorption of these pigments. Such was found to be the case to a marked degree in relation to another vegetable pigment which we mentioned, namely, that in beets. In certain children, a diet containing a moderate amount

of beets will lead to the occurrence of a red coloring matter in the plasma and in the urine, which may excite alarm. In others of the same age or younger, extraordinary amounts of beets or beet juice, as much as 8 ounces a day, may be given without any change in the body fluids.

#### EFFECT ON THE URINE

There is quite another aspect of this subject which is of interest: In the course of subcutaneous injections of an extract of carotin,<sup>4</sup> carried out in order to note whether an alteration in the color of the plasma could be occasioned by this means, it was noted that not only did the plasma become yellow but that the urine was changed in color. Following these general observations the urine was collected, evaporated to a very small volume, and extracted with purified petroleum benzine as in the case of the plasma. An extract of a definite yellow was thus obtained. In order to substantiate this result, concentrated carotin was given by mouth, and careful note was made as to whether the color of the urine was thereby heightened. The total amount of carotin in carrots is surprisingly small, less than 2 gm. per hundred pounds, and it is very difficult to obtain in a pure state. For our purpose it seemed adequate to follow the same procedure employed for the subcutaneous injections, to extract a considerable quantity of carrots with purified petroleum benzine and take up the residue with olive oil. In this way we obtained finally 15 c.c. of a preparation which represented about 10 pounds of carrots. To one infant, aged a year and a half, 5 c.c. of this carotin extract were given by mouth, and to another, twice this amount. The urine was collected previous to giving the extract and every half hour subsequently for a period of eight hours. This test definitely showed that the urine becomes yellower within three quarters of an hour after giving from 5 to 10 c.c. of concentrated carotin, and that this increased color persists for about six hours. Eighteen specimens, in all, were obtained from each case, and there could be no mistaking the intensification of color and the subsequent return to an almost colorless urine.

This pigmentation of the urine is perhaps of theoretical rather than of practical or clinical importance. Textbooks and physiologists teach that the urinary pigment is urochrome, and that it is a decomposition product of bile. If our observations are correct, it would seem that pigments derived from the blood likewise play a rôle in coloring the urine. In this way we may account for the characteristic light color of the urine in infants, compared to that of older children and of adults who are on a more liberal diet, containing a larger amount of vegetable pigment. This factor should be borne in mind in considering the nature of highly colored urines, which are now attributed solely to the absorption of bile and its derivatives.

#### CONCLUSIONS

We have shown that a diet rich in carotin (carrots, spinach, egg yolks, oranges, etc.) will bring about a yellow discoloration of the skin, a condition resembling mild jaundice, except for the noninvolvement of the sclera. This pigmentation, no doubt, has been frequently overlooked, confused with mild grades of icterus, or attributed to some obscure metabolic disturbance. It

7. A very large carrot was dried and completely extracted with purified petroleum benzine. The liquid was allowed to evaporate, and the carotin was taken up in olive oil. One and five tenths c.c. of this preparation were injected.

1. V. S. Palmer, *Comp. Rend. Zool. Bot. Soc. E. I.*, 4, Berlin, X  
4, 1917, p. 134.  
2. V. S. Palmer, *J. Biol. Chem.*, 17:11, 11,  
1915, p. 113.  
3. P. L. S. J. B. C. 23: 1 (XV) 1915 and 27: 7  
1916.  
4. Wess, H. C., and Herzberg, O. I., *J. Biol. Chem.*, 27:21  
1919.

cannot be of rare occurrence, as carotin is widely distributed throughout our diet, being a constituent of almost all our vegetable foods. It is a disturbance which, therefore, will occur most readily in those subsisting on a dietary containing a large quantity of vegetables. The discoloration of the skin is accompanied by a similar yellow tingeing of the blood serum and the plasma. The pigment in the blood was identified as carotin.

In cases of carotinemia the urine was colored yellow as well as the serum. When a small quantity of concentrated carotin was ingested, the pigment appeared rapidly in the urine. These observations are of interest in view of the fact that clinicians as well as physiologists consider that the urinary pigments are formed solely from bile or its derivatives.

## VENEREAL DISEASE REPORTING IN MINNESOTA

### A STATISTICAL STUDY

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Until very recently, statistical statements relative to venereal disease have been largely guesses; and in case a definite basis was present, the material has been of very fragmentary nature. The only figures available have been gathered from hospital or institutional surveys and from men living more or less permanently under military discipline. No one knows how much venereal disease exists in this or any other country. Various estimates by capable men place the syphilitic portion of the population at from 3 to 15 per cent.

#### THE VENEREAL DISEASE RATE IN THE ARMY

The induction of several million men into naval and military service revealed on their examination an apparently larger venereal disease rate in the civilian male population than among the men in the regular army. The annual rate per thousand for the regular army in 1917 was 88. The computed annual rate for the draft army at one time shortly after the first draft went into camp mounted at one time to 388 per thousand.<sup>1</sup>

The second million men were more carefully examined than the earlier draft increment, and the records were more carefully kept. These men were examined at mobilization camps, and these examinations revealed that 5.4 per cent. of this million men, in all 108,000, between the ages of 21 and 31, had on the date of examination a venereal disease. How many of these men had previously had a gonorrhoeal or syphilitic infection that was entirely cured, or at least could not be detected in the army medical examination, it is impossible to say.

The percentage of soldiers with venereal disease has been worked out, not only for the entire group, but by state of residence. This percentage runs as low as 1.3 per cent. in some states (Vermont), and as high as 15.6 per cent. in others (Florida). All the states showing a rate in excess of 6 per cent. have a large negro population. The rate for Minnesota is 2.31 per cent.

#### THE VENEREAL DISEASE RATE OF THE CITIES

The rate was similarly worked out for the principal cities of the country. This rate ran as high as 27 per cent. in some of the Southern cities and as low as 2 per cent. in some of the New England cities. In all sections the urban rates were higher than the general rate for the state. The rates for the principal Minnesota cities were: Minneapolis, 4.09 per cent.; St. Paul, 3.98 per cent., and Duluth, 4.37 per cent. The general rate for cities was found to be 5.8 per cent.<sup>2</sup>

This short explanation is given chiefly for the purpose of showing Minnesota's relative position with reference to the prevalence of venereal disease, so far as we are able to consider the figures for the army an index of the condition of the civilian population. It is not unreasonable to believe that it is at least a fair index of the relative venereal disease incidence in the several states. Other data that will be presented in this paper indicate the draft age period as the one for which the venereal disease rate is highest among civilians. Therefore, it is not safe to assume that the percentages shown above are correct for all ages. However, we may go so far as to assume that a state having a relatively high percentage of young men with venereal disease has also a relatively high percentage of venereally infected persons in all age groups, and the comparison of ratios in different states may be the means of arriving at other conclusions of value in studying the distribution of venereal infections in our own state.

#### REPORTING OF VENEREAL DISEASE IN MINNESOTA

The regulation of the Minnesota State Board of Health requiring the reporting of venereal diseases was put in operation, Aug. 1, 1918. The fiscal year of 1918 ended June 30, 1919. During the eleven months of this fiscal year, 6,777 cases of venereal disease were reported. These reports, by disease and by month, are given in Table 1.

The Minnesota report card calls for certain medical and social data regarding patients with a view to furnishing material for statistical studies and, if possible, to assist in getting at the actual source of the particular infection.

Physicians have not been required to report venereal infections by the patient's name but are given the option of using the number printed on the card, as the identifying designation of the case. In spite of this option, a very considerable proportion of cases have been reported with the name of the patient, and a great number of physicians have been successful in getting at the name of the person who was the source of infection. This information has led to the apprehension of many dangerous and careless carriers of these infections by the social service investigators of the board.

The percentage of cases in which the name of the patient has been given is 62.5, leaving 37.5 per cent. reported by number. These percentages, which represent all cases reported, include, of course, the many cases reported by clinics, which always give the patient's name.

There were reported from the smaller towns of the state and from Duluth, exclusive of the clinic at Duluth, 1,611 cases. All these reports were made by private physicians, yet the reporting by name continues

1. Circular C 02, War Dept., Commission on Training Camp Activities.

2. A. D. Parke of the U. S. P. H. S. reports that a complete report of the Surgeon General on the prevalence of venereal disease in the United States has not been made available for publication at the date of this paper.

high, namely, 48 per cent., leaving 52 per cent. reported by number. These figures go far toward refuting the often propounded argument that a law requiring venereal disease reports cannot be enforced. In short, the physicians of Minnesota, outside the Twin Cities at least, are voluntarily reporting the names of patients in approximately one half of their venereal cases.

#### THE MARITAL STATUS OF PATIENTS

One of the questions asked on the report card refers to the marital status of the patient, namely, whether

TABLE 1.—REPORT OF VENEREAL DISEASES IN MINNESOTA FOR THE PERIOD AUG. 1, 1918, TO JUNE 30, 1919

	Gonorrhoea	Syphilis	Chancreoid	Total
August, 1918	296	372	18	683
September, 1918	230	331	22	673
October, 1918	40	295	16	701
November, 1918	34	263	12	629
December, 1918	96	264	10	560
January, 1919	316	246	21	583
February, 1919	115	229	16	360
March, 1919	46	223	8	284
April, 1919	29	220	8	249
May, 1919	275	227	14	689
June, 1919	20	225	9	280
Total	1,777	1,961	174	6,718

married, single or widowed. Under the last expression are included divorced persons. As was expected, the majority of infections were reported among single persons, the married and the widowed combined being less than the single. It was to be expected that the percentage of widowed persons would be small because this group is a comparatively small percentage of the population and is a status that is not commonly reached until long after the age at which exposure is most likely to take place. The result of this tabulation was: single, 3,932, or 60.7 per cent.; married, 2,260, or 34.9 per cent.; and widowed, 285, or 4.4 per cent.

The question of source of infection is, of course, one of the most important concerning which information is desired by the state board of health. The question on the report card, "Source of infection?" is supplemented by "Commercial or clandestine?"

Physicians have not only indicated whether the source was a clandestine or a commercial prostitute, but have indicated when the spouse (husband or wife) of the patient was the source of infection and when

TABLE 2.—MANNER OF REPORTING VENEREAL CASES IN MINNESOTA

Manner Reported	No. of Cases	Percentage
By Name	772	48
By Number	809	52
Total	1,611	100

the case was congenital (syphilis) or accidental. These last two classifications, being relatively infrequent, have been grouped together. The percentages are shown in Table 3.

It should be noted that a very considerable portion of the cases in which no data as to the source of infection were available are tertiary syphilitics whose infection dates back some time, but who are now being reported because of the short time that has elapsed since reporting began. It is highly probable that in the "unknown" cases the infection was acquired in the same ways and in somewhere near the same proportion as those for whom the sources were given.

A table has been prepared from which the "unknowns" have all been dropped. Out of a series of 3,710 cases, in which the reporting physician has very clearly answered the question as to the nature of the source of the infection, we have, therefore, been able to determine the corrected percentages that fairly represent the actual ratio in which these various classes of sources are responsible for the spreading of venereal disease in Minnesota (Table 4).

#### RELATIVE PROPORTION OF CLANDESTINE AND COMMERCIAL PROSTITUTES

It is interesting to note the fact that there were 6.5 per cent. more cases reported as infected by clandestine prostitutes than by commercial prostitutes. While this does not necessarily prove that clandestine prostitutes are quite as likely to be infected as the professional sort, it does tend to bear out similar observations that have been made before. The accidental infections are so few in number that they were grouped with the congenital syphilis cases. The 4 per cent. indicated in this group are almost all cases of congenital syphilis. It may be stated as an item of interest that a majority of them were reported by the Mayo Clinic at Rochester.

TABLE 3.—STATISTICAL DATA ON THE SOURCE OF VENEREAL INFECTION

Reported Source	No. of Cases	Percentage
Not reported or indicated as unknown	2,870	42.4
Commercial prostitute	1,604	23.7
Clandestine prostitute	1,861	27.5
Spouse	318	4.7
Congenital and accidental	108	1.6

TABLE 4.—THE SOURCE OF VENEREAL INFECTION, THE "UNKNOWN" CASES BEING OMITTED

Reported Source	Percentage	No. of Cases
Clandestine prostitute	46.8	1,736
Commercial prostitute	40.3	1,495
Spouse	8.9	331
Congenital syphilis and accidental	4.0	148
Total	100.0	3,710

The person who was the source of the infection was given in comparatively few cases, only 7 per cent. of the entire number reported. This number, about 450, would constitute about 11 per cent. of the cases in which any information at all is available regarding the source of the infection. It would seem that with thousands of cases very recently infected by prostitutes, in addition to the cases in which the spouse is the source and known by name to the physician, more of this valuable information could be secured. It is on the basis of this information that much of the most valuable work of the board in eliminating carriers can be accomplished.

#### DISTRIBUTION OF CASES ACCORDING TO AGE GROUPS

One of the most interesting studies in connection with these cases has been their distribution into age groups. It should again be kept in mind in this connection that the groups of cases studied include a considerable number of long-standing syphilitics under treatment at dispensaries and therefore do not show really accurately the age of infection. It does show, however, that the approximate age at which the venereal patient finds himself in the hands of a reputable physician or institution is between 32 and 33 years. A study was made of the average ages by

location of cases. For certain months the patients from outside the Twin Cities, so far as this point was studied, appear to be of the average age of 27 years. The latter cases do not include so many old syphilitics as the reports from the cities, which include clinic cases and many others coming to city specialists for the treatment of advanced conditions; but even this figure is probably too high to represent the true average age at which infection with venereal disease takes place.

Table 5 gives the age grouping in 5,683 cases. This table was made up before all cases, reported up to

TABLE 5.—THE AGE GROUPING IN 5,683 CASES OF VENEREAL DISEASE

Ages	Number of Cases	Percentage
20 years and under.....	842	14.8
21 to 25 years inclusive.....	1,295	22.7
25 to 30 years inclusive.....	910	16.0
31 to 35 years inclusive.....	640	11.4
36 to 40 years inclusive.....	525	9.2
41 to 45 years inclusive.....	400	7.0
46 to 50 years inclusive.....	335	5.9
over 50 years.....	736	13.0
Totals.....	5,683	100.0

July 1 and indicated in Table 1, had been tabulated. It has been noted that the age grouping has been fairly constant from month to month.

SUMMARY

The following points in particular have been observed in studying case reports of venereal disease in Minnesota for the past year:

1. Of all cases, 62.5 per cent. were reported by name, and only 37.5 per cent. by number. This includes a large number of cases reported by clinics. Of cases seen by physicians in private, practically 48 per cent. were reported by name, and 52 per cent. by number.

2. Of all cases reported, 61 per cent. were single persons, 35 per cent. married, and 24 per cent. widowed or divorced.

3. Of all cases reported, 27 per cent. are females, and 73 per cent. are males. Among those cases in which the report card contained any statement whatever regarding the source of infection, 87 per cent. were stated to be pro-titutes. Of these 47 per cent. were clandestine, and about 40 per cent. were commercial prostitutes. The name of the person who was the source of the infection was reported in 7 per cent. of the total number of cases.

4. A larger number of patients fell in the age group from 21 to 25 years than in any other. The next largest group was from 25 to 30 years. This group comprised 16 per cent. of the total, and was very slightly larger than the total for all ages under 20.

**Is Your Community Fit?**—What is being done to protect the babies in your community? Have you a baby health station? Do you supervise the work of midwives? Do you make provision for expectant mothers in your community who are in need of advice and supervision? Proper organization for prenatal care, with sufficient bed space in maternity wards, and a baby health station should be provided if the financial condition of your community is at all able to support such expense. If your community is small, at least one full-time public health nurse should be employed for the instruction of mothers in the care of themselves and their babies. You owe this to the mothers.—*Pub. Health Rep.*, April 25, 1919.

ACUTE NEPHRITIS IN CHILDHOOD\*

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At the Children's Hospital we have been for several years especially interested in nephritis. This paper is a brief exposition of our experience with the acute cases.<sup>1</sup>

ETIOLOGY

It is now generally recognized that the vast majority of cases of acute nephritis are of infectious origin. In the older textbooks, cold and exposure are given as perhaps the more important causes, and it is undoubtedly true that these factors may have something to do with certain cases. In chronic nephritis in older persons, the wear and tear of life, especially on the blood vessels of the kidney, is often of great importance etiologically; but as far as children are concerned, micro-organisms or their toxins may be said to play the main etiologic rôle. It is well known that in many diseases (pneumonia, typhoid fever, etc.) there is enough irritation of the kidney to cause small amounts of albumin and a few blood cells to appear for a few days in the urine; and although this has been called "acute degenerative nephritis" by some authors, I believe it is best to speak of it as "acute renal irritation," and to reserve the term "nephritis" for those cases in which the inflammatory condition of the kidney is more lasting, and is the dominant feature in the disease picture.

Scarlet fever has long been regarded as the most important cause of acute nephritis, but I believe far more cases are secondary to tonsillitis than to scarlet fever. At the Children's Hospital we take no contagious cases, and would therefore naturally see little acute scarlet fever nephritis; and in our series of chronic cases we have seen, in the last three or four years, only four or five cases due to scarlet fever. Almost any acute infectious disease in a child may bring

TABLE 1. ETIOLOGY OF ACUTE NEPHRITIS

Disease	Number of Cases
Tonsillitis.....	14
Unknown etiology.....	1
Scarlet fever.....	4
Impetigo contagiosa.....	4
Orch's media.....	4
Pneumonia.....	1
Pyelocystomy.....	1
Pruritis.....	1
Carious teeth.....	1
Stomatitis.....	1
Cold.....	1

about nephritis, but tonsillitis is by far the most important of them, as Table 1 will show. Whether it is the toxins of the organisms causing the primary acute disease which cause nephritis as they are excreted through the kidney, or whether the kidney is itself invaded by micro-organisms, is not certain.

The reason so many cases are classed as of unknown etiology is that in most of these instances the patients entered the hospital some time after the nephritis started, and in many it was not possible to get an accurate history. I believe there is no question, how-

\* From the Method Service, Children's Hospital.  
1 For more detail paper, see Hill, L. W., Nephritis of Childhood, *Am. J. Dis. Child.* 14: 67 (Oct.) 1919, and 173: (Nov.) 1919, *M. Clin. N. America*, July, 1919.

ever, that many of these unknown cases were secondary to mild throat infection. It is quite characteristic of those cases secondary to tonsillitis that the nephritis does not appear during the period of sore throat and fever, but usually a week or so after the patient is up and around, and apparently well.

#### DESCRIPTION OF TYPES

There have been many complicated pathologic classifications of acute nephritis, but for many reasons a simple clinical classification seems best, and I have therefore suggested dividing acute nephritis in children into two groups, according to the clinical picture: (1) acute hemorrhagic, and (2) acute exudative.

1. *Acute Hemorrhagic Nephritis*.—This is a type of nephritis occurring especially in children, although it is seen occasionally in adults. Its chief characteristic is a very bloody urine containing very few casts. The urine may be so bloody as to resemble clear blood, and sometimes several specimens of sediment may have to be looked over before any casts are found. The urine is not diminished in amount, and there is usually no edema. The various tests for renal function usually show a moderate impairment of kidney efficiency, but never the severe impairment that is often seen in the clematous cases with scanty urine containing many casts. The blood pressure is occasionally somewhat elevated, the highest we have ever seen being 140 mm. of mercury, but it is more likely to be normal than high. The subjective symptoms are insignificant, and we have never seen uremia in this type of nephritis. The urine usually contains blood for from six to twelve weeks, and in many cases may contain microscopic blood over a period of several months. Occasionally, a urine which shows no albumin will show a considerable number of blood cells in the sediment when examined microscopically. The prognosis is, as a rule, good, and we have seen no child die with this type of nephritis. Usually the process clears up entirely and leaves a perfectly good kidney behind it, but in a few cases chronic nephritis unfortunately develops.

2. *Acute Exudative Nephritis*.—The second type of acute nephritis, which we have called "acute exudative," presents a somewhat different picture. Edema is usually marked, and is sometimes extreme in degree. The urine output is very scanty during the early stages, and as the kidney begins to recover there is a polyuria. The urine is likely to be brownish red, with a heavy sediment of disintegrated blood, and contains a large amount of albumin. Microscopically, it shows large numbers of granular or cellular casts, and considerable numbers of blood cells. The child is likely to become more ill in this type of nephritis than in the acute hemorrhagic type. The blood pressure is usually elevated, there may be headache and convulsions, and occasionally a patient dies in uremia. The renal function tests, as a rule, indicate considerable impairment of kidney efficiency. Most patients recover, however, and usually without the development of chronic nephritis. Two patients out of twenty-four with this type died during the acute stage.

In our series of forty-nine cases of acute nephritis there were twenty-five of the "hemorrhagic" and twenty-four of the "exudative" type. In most of the hemorrhagic cases, tonsillitis was the etiologic agent, as it was also in the "exudative" cases; but far more of the exudative cases were of unknown etiology than were cases of the "hemorrhagic" type.

#### TREATMENT

Acute nephritis of either type should always be regarded as a serious disease. It seems rather unnecessary to say this, but I have seen a number of patients without edema who were allowed up and around, although the urine contained a large amount of blood.

It is especially important to keep a child with acute nephritis warm, and at the Children's Hospital we always have these children wrapped in an extra blanket, and take especial care to keep them out of drafts. It goes without saying that bathing and proper care of the bowels are of great importance. In the cases without edema we use licorice powder as a laxative, and in those with edema, when free watery catharsis is desired, magnesium sulphate. It is surprising to see how well most children take magnesium sulphate; they do not seem to object to it as much as do adults. Sometimes the best results can be obtained with it if it is given in small, frequent doses, that is, 1 teaspoonful every hour for five or six doses. Diuretics play a very small part in the treatment of acute nephritis, and most authorities are agreed that the stronger diuretics, such as the caffeine derivatives, may do more harm than good in this condition. There is no objection, however, to giving such mild diuretics as potassium citrate or cream of tartar. Iron is always indicated in acute nephritis of any type, as there is a considerable daily loss of blood in the urine, and anemia rapidly develops. For children, we prefer the saccharated ferric oxid in doses of from 3 to 5 grains three times a day. We have used the hot pack, or hot air bath, to promote sweating, in a few cases with extreme edema, but in the vast majority of patients the edema can be controlled by dietary measures and purgation. In severe cases, the hot air bath is used as an adjunct to these. Drugs, with the exception of laxatives and cathartics, are of comparatively small value in the treatment of acute nephritis, and far more important is the general care of the patient, particularly as regards the diet and the water intake.

*Diet*.—In acute nephritis we are dealing with acutely inflamed kidneys. It should be our aim, in accordance with general therapeutic principles, to rest these irritated organs as much as possible, and to protect them from the irritating end-products of metabolism. Food-stuffs may be divided into four groups: fat, carbohydrates, protein and salts. The fats and carbohydrates are not excreted through the kidney, but are burned in the body; therefore, free administration of fat and carbohydrate is permissible in acute nephritis. The kidney's chief function is to excrete the end-products of protein metabolism and some of the salts, particularly sodium chlorid. Consequently, in any dietary measure designed to spare the kidney, it is necessary to consider these two substances.

*Protein*: It is not desirable to put a patient with acute nephritis on a strictly protein free diet, which would probably do him more harm than good, as a certain amount of protein is necessary to repair the wear and tear of body tissue, and to keep the patient in nitrogenous equilibrium. Not a great deal is known of the exact protein requirements of children, but probably the old figure of from 1.5 to 2 gm. protein per kilogram of body weight is near enough to the actual requirement for practical purposes. The child should have, then, not more than 2 gm. of protein per kilogram of body weight. For practical purposes, in many cases, it is quite sufficient to omit meat, eggs, fish and

meat soups from the diet, and to make it up of cream, milk, cereals, bread, potato, etc. In the hospital we usually roughly calculate the protein and caloric value of the diet, according to the accompanying table of values (Table 2).

Table 3 represents an actual diet given during the acute stage to a boy, aged 5 years, with acute hemorrhagic nephritis.

Salt: In the cases without edema, it is quite sufficient to prohibit any salt cellar on the tray. The bread and butter does not need to be salt free, nor is it necessary to omit salt when cooking the vegetables and cereals. In the edematous cases, a more rigid salt restriction is necessary, as the most generally accepted view of edema in acute nephritis is that it is brought about by a primary salt retention with secondary water retention. In this group of cases the butter should be unsalted, and the bread, cereals and vegetables should

a day. If the patient handles water well, and there is no increase in weight or edema, the fluid intake may be gradually raised. It is important to weigh these patients every day, as often there will be an increase in weight, due to waterlogging, that is not apparent on the surface of the body. It is also important to keep a daily record of the fluid intake and output, and to observe closely their relationship.

EDEBOHLS' OPERATION\*

This operation consists in stripping the capsule from the kidneys, and should not be considered except in extreme cases, when there is a large amount of edema present which will not respond to ordinary measures of treatment, or when the patient is in such a severe state of uremia or anuria that the prognosis is very bad.

This operation has been used more in chronic cases than in acute, but we have had it performed in three of our acute cases with these results:

1. In a case of severe acute exudative nephritis, the operation undoubtedly saved the child's life; the child recovered completely.

2. In a case of severe acute "exudative" nephritis, the operation saved the child's life temporarily, but did not prevent the development of a chronic process.

TABLE 3.—ACTUAL DIET GIVEN IN ACUTE STAGE TO BOY, AGED 5 YEARS

Food and Amount	Calories	Protein, Gm.
Oatmeal, 2 tablespoonsful	70	0.3
16 per cent. cream, 2 ounces	107	1.8
Sugar, 4 drams	100	...
Bread, 3 slices	225	0.9
Butter, 2 cubes	450	...
Peas, 1 tablespoonful	49	0.3
Potatoes, 1 tablespoonful	70	0.2
Custard, 2 tablespoonfuls	110	0.5
Orange juice, 6 ounces	78	...
Ice cream, 2 tablespoonfuls	77	0.9
	1,327	24.7

3. In a case of subacute hemorrhagic nephritis, the operation did no good.

CARE DURING CONVALESCENCE

The child should not be allowed out of bed until the urinary sediment is practically free from blood. By this I mean 3 or 4 red blood cells to a high power field. A small amount of albumin may persist intermittently for months, and is not a contraindication to a moderate amount of activity. If the amount of blood increases when the patient gets up, as it does in some cases, he should be put to bed again. During the ambulatory stage of convalescence, it is especially important to avoid over-exertion and chilling of the body. The patient should be kept under observation for at least a year, and the urine examined every month or two. It is not necessary during convalescence to keep the child on as strict a diet as during the acute stage, and meat or eggs may be allowed once each during the day. It is especially important to guard the patient against throat and respiratory infections, as often if one of these occurs there is an acute exacerbation of the nephritis.

If the tonsils were apparently the original source of the disease, they should be removed as soon as the character of the urine has begun to improve, usually before the patient has been out of bed. If there are any dental pus pockets, the offending teeth should be extracted.

\*99 Commonwealth Avenue

TABLE 2.—CALORIC VALUE AND PROTEIN CONTENT OF ORDINARY FOODS\*

Food	Calories	Grams of Protein
Whole milk, 1 quart	670	34.0
Skim milk, 1 quart	400	35.0
Gravity cream, 1 pint	800	14.0
Buttermilk, 1 quart	360	35.0
Whey, 1 quart	260	9.0
Bread juice, 1 ounce	10	2.0
Crackers, 1 ounce	120	3.0
Beef, 1 slice	75	3.0
Zwiebach, 1 slice	120	3.0
Shredded wheat biscuit	105	3.0
Rollt oats (cooked), 1 tablespoonful	35	1.5
Cream of wheat, and most other cereals (cooked), 1 tablespoonful	40	1.5
Potato, size of large egg	70	2.0
Macaroni, 1 tablespoonful	30	1.0
Eggs—		
Whole	72	7.0
Yolk	60	6.0
White	12	3.0
Meat, fish, 1 ounce	60	7.1
Bacon, 1 slice = 1/2 ounce	90	1.5
Butter, 1 1/2-inch cube = 1 ounce	225	...
Sugars—		
Milk, 1 round tablespoonful	60	...
Cane, 1 round teaspoonful	25	...
Green peas, Lima beans, 1 tablespoonful	40	3.0
Carrots, squash, turnip, beets, onions, 1 table spoonful	30	1.0
Orange (medium sized)	50	...
Apple (medium sized)	70	...
Pearna	115	...
Prunes, 4 without sugar	30	...

\*Table used in Children's Hospital, prepared by Dr. J. I. Morse

be cooked without salt. Such a diet is called a "salt free" diet, but the designation is not strictly accurate, as most of the ordinary foodstuffs contain a small amount of salt. This is not enough, however, to do any harm. The employment of a "salt free" diet is one of the most effective methods we have of getting rid of nephritic edema, especially when its use is combined with free catharsis and fluid restriction.

Water: In the nonedematous cases no restriction of water is necessary, and indeed it is desirable to give a reasonably large amount of water, as it helps in diluting and eliminating toxins. In these cases the kidney is usually able to handle water, and about 48 ounces of fluid a day is what we like to have the patients take. If the urinary output becomes much less than about two thirds of the intake, and the patient begins to gain in weight, the amount of water should be reduced.

The edematous patients need to be restricted considerably as regards the fluid intake. It is rarely advisable to try to give less than 12 ounces of fluid a day, as there is too much suffering from thirst. Most children, in ordinary weather, can get along very well for a limited period of time on from 16 to 20 ounces of fluid

### THE OMISSION OF DRAINAGE IN COMMON DUCT SURGERY

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AND  
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Too little attention has of late been devoted to the possibility of a cleaner and safer technic in common duct surgery, namely, the tight closure of the duct following exploration, and closure of the abdominal incision without the use of drainage material of any type. This technic was attempted and abandoned in the early days of gallbladder surgery because of disastrous results, which we feel now can be avoided. Most theses on the surgery of the biliary tract emphasize two points essential to a safe outcome: (1) that the common duct itself should be well drained by placing a tube either within it or to it, and (2) that the abdomen should be drained down to the line of suture. It has been pointed out: (1) that the infected ducts should be drained as infection elsewhere is drained, and (2) that closure of the common duct is not without dangers of the leakage of infected bile.

Contemporary literature contains few references to any attempts at radical changes in common duct surgery. Most surgeons feel that when the common duct has once been opened, the safety of the patient lies in free drainage. But we feel that several important factors in details of technic have been overlooked, the observance of which will make the procedure we wish to suggest almost universally applicable.

The patent common duct, lined with mucous membrane, is a suitable drainage tube in itself and offers an ideal method of draining the affected parts above. If its patency is assured, it may be opened and sutured with impunity, as we would suture the intestine. The means used of assuring ourselves of its patency will be described.

We explore all ducts that show obvious pathologic changes. These changes include either enlargement or the palpatory findings of stone or the presence usually of numerous small stones in the gallbladder when there is any suggestion either of enlargement of the duct or a clinical picture of common duct involvement. We open most ducts showing enlargement, since this usually denotes obstruction due either to stone, to stricture, or to a thickened sphincter. Enlargement is, however, often associated with a functionless, shrunken gallbladder. We open the ducts in all jaundiced cases. A large proportion of these ducts carry infected bile, and this undoubtedly is an important factor in the greater mortality that accompanies common duct exploration over that of simple cholecystectomy.

If the detail of technic rather than any new operative procedure that we wish especially to emphasize; The duct is exposed in the usual manner; a variety of procedures may next be indicated. It is palpated for stones, no complete exploration, mobilization of the duodenum may or may not be necessary. The duct is then incised in the supraduodenal portion. This we have found to be more satisfactory than exposing through the cystic duct, because in cases in which it is necessary to extend the incision, it is difficult to get a tight suture line at the juncture of the two ducts. Furthermore, the inadequacy of exploration through

the stump of the duct must be obvious to any one accustomed to a free incision in the common duct.

The use of the silver probe or sound is an unreliable method of determining the patency of the duct, since by this method a stone of sufficient size to obstruct the free flow of bile may be overlooked. For determining the patency, a scoop or curet is more satisfactory and should be passed through the duct into the duodenum. Transduodenal cholecystectomy remains, however, the safest method of determining the condition of the distal end of the duct, when there is doubt concerning its condition. The biliary orifice is readily found, the sole cause of difficulty probably being an incision placed too high on the duodenum. When in doubt, the location of the end of the duct may readily be determined by passing a probe down the duct from above. That is, a supraduodenal incision is always made in addition to the transduodenal exploration. The orifice having been found, it is slit open to permit the removal of stone or to correct a stricture. It should be emphasized that opening the duodenum is a relatively safe procedure, and should be resorted to more frequently. An overlooked obstruction in this portion of the duct would be a fruitful cause of back leakage through the line of sutures in the duct above.

The patency of the duct being thus assured, and only under these conditions, the common duct is carefully sutured with the finest needles and suture material obtainable. Here lies the crux of the situation; capillary leakage through the line of the suture must be a constant accompaniment of the use of ordinary suture materials. In 1913 Courtenay,<sup>1</sup> working under the direction of one of us (H. M. R.), demonstrated that the finest suture materials that could be handled gave the nearest to ideal results in intestinal suturing. Thus human hair, used with the finest cambric or bead needles, obtained the conditions most to be desired in intestinal suturing: 1. The immediate strength of the line of suture as determined by hydrostatic tests was greater than when a heavier suture was used. 2. There was no capillary leakage along the needle perforations. 3. The histologic sections showed the minimum amount of scar, an ideal condition.

We have used two layers of such sutures, one uniting the free edges, the other burying the first row. In one case, the duct appeared not to be large enough to permit of its inversion in this way, and a single layer of sutures was used with perfect success. An essential part in the suturing of the duct is to include its peritoneal coat. No drain of any kind is placed in contact with the suture line any more than would be done in the case of a sutured bowel. The analogy is exact. The suggestion of E. Wyllis Andrews to drop the omentum down between the liver and duodenum to prevent postoperative adhesions is well taken.

Closure of the duct in this manner, avoiding the use of any foreign body for drainage material, is accompanied by a minimum of peritoneal traumatism. In previous articles<sup>2</sup> we have called attention to the ability of the peritoneum to care for infection. The soiling by infected bile, that may occur during exploration, caused practically no postoperative clinical reaction. In the absence of drainage, postoperative adhesions are reduced to a minimum. The extensive postoperative adhesions, following gall tract operations, are

<sup>1</sup> Courtenay, G. T.: Illinois M. J., 23:443, 1913.  
<sup>2</sup> Richter, H. M.: Surg., Gynec. & Obst., 28:399 (April) 1919; Buchbinder, J. R.: Ibid., 29:70 (July) 1919; Richter, H. M.; Ibid., 29:445 (Nov.) 1919.

due much more to the gauze drains than to any other factor. An analogy may be found in the postoperative adhesions in the female pelvis following prolonged drainage. The omission of drainage results in the omission of adhesions.

We have carried out this technic in consecutive operations only in the past three months, during which time we have operated on eleven patients, with one of whom only did we vary the technic by placing a piece of rubber dam down to the duct. In the ten cases, there was prompt recovery with a convalescence that was exceptionally smooth. In the one case, in which the rubber dam was used, an accumulation of purulent bile developed on the third or fourth day and was evacuated, after which recovery was prompt.

We began this practice following five years' experience in closing without drainage in our cholecystectomies during which, in a considerable series of cases, we have had no occasion to regret our action. As in the case of cholecystectomy, we do not feel that every common duct operation should be completed without drainage. It would not be safe in the presence of a virulent infection with severe inflammatory reaction present. It cannot easily be done when the duct is small. The frequency of the need of drainage is possibly illustrated by this series in which it was used once in eleven consecutive cases. A condition that occasionally requires gauze packing is oozing from the liver surface. This is unusual and did not occur in the series, though the gallbladder was removed in each case.

We offer these suggestions with a feeling that the one radical improvement in the technic of gall tract surgery is the omission of external drainage, and that a wider use of this method will demonstrate not only its feasibility, but also its comparative safety.

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### RENAL FLUOROSCOPY AT THE OPERATING TABLE\*

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Surgical treatment of renal lithiasis is rendered unsatisfactory by complications as follows:

1. The difficulties of an exact interpretation of the roentgenogram.
2. The difficulty of locating the stone.
3. Inability to find the stone.
4. The possibility of overlooking one or more stones when multiple stones are present.
5. The possibility of having fragments of stones broken off or loosely connected with the original stone.

It is true that a large number of renal stones are easily diagnosed and removed. This is particularly true of stones with a diameter of two or more centimeters, situated in the pelvis. When the stone is small and flat, however, or when it is deep in the calix, projecting into the cortex, palpation of the stone may be impossible, even when the kidney is brought out of the incision. The possibilities of error in diagnosis have been greatly reduced through the aid of cystoscopy and pyelography. Nevertheless, it may be quite impossible (1) to differentiate extrarenal

shadows which are obscured by the renal pelvis outlined in the pyelogram; (2) to identify small stones in the kidney that have not caused any pathologic changes in the outline of the renal pelvis, and (3) to recognize calcareous patches which are occasionally found in the kidney cortex and differentiate them from actual stone.

The preoperative localization of the shadow has been made fairly accurate (1) by interpretation of the size and shape of the shadow; (2) by the relation of the kidney to the shadow, and (3) by means of pyelography. Stones with a triangular or branched outline are almost always situated in the pelvis. If the outline of the kidney is definitely determined by the roentgenogram, the position of the stone may frequently be approximately inferred. Although pyelography will usually afford even more accurate data in the localization of the stone, it may also be inexact. It may be impossible to determine whether the stone is free in the upper calix, impacted in the end of the calix, or projecting partially or wholly into the cortex.

Nothing is more disconcerting than the inability to find a stone in the kidney when the various methods of clinical examination have definitely shown it to be there. In the presence of a hydronephrosis, particularly when the dilatation is largely confined to the calices, a stone of fair size may be secreted in the bottom of a calix and defy discovery by the palpating finger. A stone lodged in the end of a calix which is shut off from the pelvis by inflammatory or cicatricial change may escape palpation. When the stone is in the cortex, the venous congestion of the kidney consequent to delivery may render its palpation exceedingly difficult. Needling, while occasionally of aid, is more often of doubtful value, and since it causes considerable damage to the kidney tissue, should be discouraged. Cortical incision, when extensive and multiple, is objectionable because of consequent destruction of renal tissue and the danger of subsequent hemorrhage.

It may be very difficult to determine, from the roentgenogram, the number of stones in a kidney. The shadow may appear to be single when in reality it represents two stones which either overlap or are closely approximated. What appears to be a single branched stone may be made up of several distinct stones. The shadow may be misleading when it has a projecting branch which is seemingly explained by irregularity in the stone removed; a second small stone which actually caused the shadow may be easily overlooked. On the other hand, the shadow of an irregular stone may assume an outline and consistency suggestive of several stones. When only one stone is found at operation, the surgeon, after persistent search with more or less damage to the kidney, is still in doubt as to a remaining stone.

On the removal of branched stones, fragments are easily broken off, particularly when the ends are impacted in minor calices. Examination of the stone removed may show this, but more often it cannot be determined definitely. Rough stones that are extracted with difficulty may have a soft fragment wrenched off. Occasionally soft stones have a putty-like mass of crystals adjacent to them which may later form the nucleus of another stone.

Because of the difficulties in interpreting the roentgenograms and determining the number and location of stones, surgery for renal lithiasis is frequently an unsatisfactory procedure. Many so-called cases of recurrences of renal lithiasis are due to the fact that

\* From the Section on Urology and the Section on Roentgenology, Mayo Clinic.

the stone or stones have not been completely removed at the time of operation. Whether or not stones or their fragments have been overlooked may often be determined by a roentgenogram made following convalescence from operation. This may give the desired information; but if a shadow persists, the patient's condition will not be improved, and the surgeon is then faced with the awkward necessity of being obliged to advise either an immediate or a postponed operation. An immediate operation is rendered difficult by the patient's condition, by changed conditions of the peritoneal tissues, the possibility of renal hemorrhage, and so forth. If the operation is postponed, the patient may neglect the condition until the kidney becomes seriously damaged.

Realizing the difficulties involved, it is apparent that a more accurate method of examination of the kidney at the time of operation is desirable. Unfortunately, the usual roentgenographic examination at the operating table is an awkward procedure and requires too much time. It would seem that if fluoroscopic examination when the kidney is brought out of the wound could be made practical, the various difficulties surrounding lithotomy would be readily overcome. Taking advantage of the recent improvement in fluoroscopic apparatus and simplification of roentgenographic machines, we have employed the apparatus described herewith.

#### APPARATUS

The apparatus used for making fluoroscopic observations of the kidney at the operating table is essentially the same as that used in the base and field hospitals of the army, but with certain minor changes which make it adaptable to civilian practice.

Such instruments (machines) consist of a transformer and autotransformer enclosed in a metal cabinet mounted on large casters for portability. To the cabinet is attached a tube stand with a horizontal arm having universal joints for supporting the tube. The tube is of the Coolidge radiator self-rectifying type, mounted in a lead glass shield.

The unit is small and compact, requiring less than 20 square feet of floor space. It is of light weight, portable, and has no moving parts which might cause noise and vibration. The current is turned on and off either by a hand or a floor switch. These portable units may be operated from the ordinary lamp socket without special wiring.

#### TECHNIC

As an essential preliminary, the roentgen-ray operator should wear goggles of smoked glass for about fifteen minutes before the observation is to be made so that he may have the necessary dark-accommodation and retinal perception. The roentgen-ray unit should be placed as close to the operating table as possible, and the rays focused through a small diaphragm so that they will pass through the delivered kidney on the fluoroscopic screen. When the fluoroscopic is ready to make the roentgenoscopic examination, the hooded screen held in the left hand is placed over the eyes, and the goggles are removed. The current is turned on by means of a foot switch. In the right hand is held a sterilized metal-tipped rod 18 inches long with which the fluoroscopist accurately points to the stone shadow in the kidney. The exposure is short, requiring little more than a flash. The various details can be easily arranged so that there is no interference with surgical asepsis.

## A CARDIOPLEURAL SUCCUSSON SIGN\*

W. S. DUBOFF, M.D.

EDGEWATER, COLO.

The object of this report is to describe and explain a most unusual—and to us, new—physical sign.

#### REPORT OF CASE

A man, aged 21, was admitted to the sanatorium, June 11, 1918, with a history of two years' illness. Because of repeated, large hemoptyses, in the presence of a unilateral left-sided tuberculosis, pneumothorax was induced, July 25. Moderate amounts of air (about 500 c.c.) were injected at intervals varying from a few days to four weeks, without reactions. November 1, he developed a spontaneous pneumothorax with an effusion two weeks later, at first serous but rapidly becoming purulent. Because of pressure symptoms, he was aspirated, April 9, 1919, 900 c.c. of purulent fluid being removed and replaced by 600 c.c. of air. This was repeated, September 4.

June 20, 1919, the patient complained of a constant noise in his chest which seemed worse at night and prevented sleep.

Physical examination revealed a left-sided pyothorax to the clavicle, with a clear right lung and cardiac displacement to the right. The apex of the heart was neither visible nor palpable. The left border could not be percussed out because of flatness due to the effusion, while the right border was about 3 cm. to the right of the right sternal margin. The heart sounds were regular, clear and without accentuations. A distinct, short splash could be heard at each systole over the entire precordium. The splash could be heard easily without a stethoscope by placing the ear before the open mouth of the patient. It was audible to the patient himself.

The explanation of this peculiar sign was not obvious roentgenologically until September 6. Fluoroscopy at this time disclosed a conical accumulation of fluid at the left base, apex down, with a fluid level above, pulsating distinctly with each heart beat. The lung was well collapsed, except at the base, which explained the conical appearance of the fluid. The heart was displaced moderately to the right. The right diaphragm was freely movable; the left diaphragm was immobile, the outer half being lost in the fluid shadow.

#### COMMENT

A splashing sound synchronous with the heart beat is described by the French as the "bruit de moulin" and is supposed to be characteristic of hydropneumopericardium.<sup>1</sup> It occurred in nineteen out of thirty-eight cases collected by James, who also mentions it as occurring conceivably in hydropneumothorax, but cites no case. Speaking of pneumopericardium, Babcock<sup>2</sup> says, "Finally, the confounding of this disease with the presence of air and fluid in the pleural cavity is scarcely likely, if one will bear in mind that in pneumothorax the succussion sound is only obtained when the patient's body is agitated, while in the affection under discussion, the peculiar sound is present even when the patient is at rest."

This statement is not necessarily true. In our case pneumopericardium could be definitely ruled out by the fluoroscopic examination alone, while the history and physical signs do not in the least suggest such a possibility. Obviously, our patient had a pericardial-pleural adhesion which set the fluid in the pleural space suddenly in motion at each cardiac contraction.

\* From the Sanatorium of the Jewish Consumptives' Relief Society.  
1. James, W. B. Tr. A. Am. Phys., 19: 351-363, 1904.  
2. Babcock, R. H.: Diseases of the Heart and Arterial System, Ed. 3, New York, D. Appleton & Co.

Falling Birth Rate.—In the six months during March, 1917, the number of deaths in England and Wales exceeded the births by 126,000.—*Medical Officer*, Nov. 1, 1919.

RATIONAL SURGERY OF VISCEROPTOSIS  
BY THE CORRECTION OF  
MALFUSION\*

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This paper is based on observation and treatment of many nonoperative cases of visceroptosis, and on careful examination within the abdomen, and operation for its cure, in 116 cases. After-results are based on questionnaire returns from eighty-five patients, who were operated on more than one year ago. The first operation was performed eight and a half years ago.<sup>1</sup>

It is generally accepted that the most rational plan of relief for visceroptosis consists in its treatment by means of belts, postures, calisthenics and fattening. There are cases, however, which under the most painstaking attention to these principles fail to respond in a satisfactory degree. It is only in such cases that the assistance of surgery should be employed.

MALFUSION

To go back to the beginning, there is an embryologic basis for the congenital type of visceroptosis, which is more common than the acquired, being 96 per cent. in our series. This consists in certain defects in the process of agglutination and fusion of the peritoneum

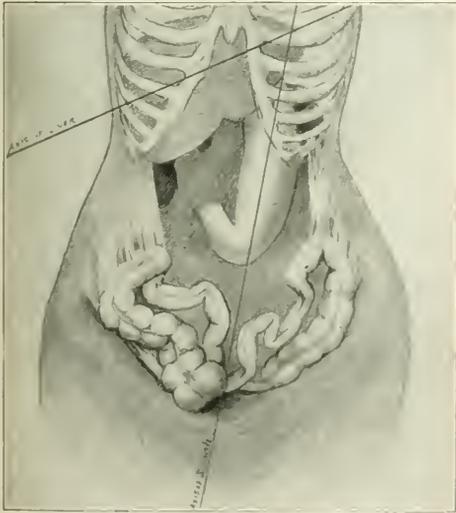


Fig. 1.—General visceroptosis: ptosis of flexures and consequent ptosis of transverse colon with secondary atony and elongation; ptosis of right kidney; axial rotation of liver and stomach, with prolapse of liver and pylorus.

of the back with that of the cecum, ascending colon, hepatic flexure, splenic flexure and descending colon.

\* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

<sup>1</sup> Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

<sup>2</sup> A preliminary report was read before the Illinois State Medical Association, and published in the Illinois Medical Journal in December, 1912.

These errors in fusion are harmful, when later they result in ptoses, angulations, constrictions and traction strains; and we shall consider them under the general term "malfusion." Thus, malfusion constitutes the fundamental pathology in visceroptosis.

The prevailing operations, of suspension, plication, colectomy, colostomy, etc., are not universally accepted. We see in them a basic objection in that they do not strike at the source. They do not correct the mal-



Fig. 2.—Ptosis of colon, involving the hepatic flexure and transverse colon; such findings may mean much or little, depending on the location of traction strains.

fusion, nor do they restore the static equilibrium of the abdominal viscera one to another, and, therefore, they can scarcely be expected to give uniformly good results.

Rational surgery, as herein described, is a constructive procedure, as the ptosis subject is virtually rebuilt, after the pattern of the normal subject. The principles involved are, primarily, the replacement and retention of the colon, by producing fusion at the back of the bowel, where fusion should originally have occurred.

Special attention to anatomic accuracy in the region of the flexures is necessary, as the position of the flexures is of vital importance to the re-establishment of visceral equilibrium. With the fundamental or primary defects thus repaired, attention is directed to the individual correction of various secondary results of malfusion.

Malfusion is encountered in two forms: (1) hypofusions, and (2) hyperfusions.

HYPOFUSION, AND THE HEPATIC FLEXURE  
SEQUENCE

Hypofusion, or laxity of attachment, permits prolapse of the colon, resulting in abnormalities in the position and relation of the viscera.

In our series of cases, ptosis of the hepatic flexure was found to be equally as frequent as that of the cecum and ascending colon (89 per cent. in each instance). It is my object here to show that the position of the hepatic flexure is the vital point, and constitutes the key to the situation.

If, primarily, the hepatic flexure is permitted to come downward, forward or inward, the transverse colon

will necessarily be carried with it and allowed to sag, so that ptosis of the hepatic flexure is always accompanied by ptosis of the transverse colon. Furthermore, a

elevated and brought further to the right, and the span of the transverse colon will be lengthened, and it will again hang as a festoon between the two upright fixed portions of the colon.

#### HYPERFUSION, AND TRACTION STRAINS

Hyperfusions are localized adhesion formations, usually having their origin in certain vestigial embryonic membranes. Fibrous hypertrophy, and later contraction, may occur as a result of the intermittent traction of a loose segment of the bowel. These formations will then produce constrictions and angulations of the colon, and traction strains at both ends of their attachment.

The finding by roentgen ray or otherwise, as in Figure 2, may mean much or little. The patient may enjoy perfect health, or may be an invalid. This depends on whether the malfusion is so formed as to afford easy, uniform and regular support, throughout the length of the colon, in its faulty position; or whether the support is irregular, holding under local tension at one point, with marked slackness at other points, thus producing local traction strains, as seen from the interior in Figure 3.

Here we see the cecum and part of the ascending colon in normal position. There are two small but firm bands of adhesion at the bend of the ascending colon, one passing beyond the longitudinal muscle bun-



Fig. 1.—Malfusion: hyperfusion with prolapse of hepatic flexure and transverse colon; hyperfusion, or adhesion formation, from hepatic flexure to gallbladder and liver; and from bend of ascending colon to flank, producing angulation and traction strains.

primary ptosis of the hepatic flexure will be followed by a definite sequence of secondary changes in the position of the other viscera, constituting general visceroptosis (Fig. 1).

The hepatic flexure sequence is as follows:

The hepatic flexure, coming out of its housing beneath the liver, produces a vacancy in the upper abdomen. As a consequence, the liver will rotate inward or forward to occupy this space, producing ptosis of the liver, and the costal margins will collapse. The axis of the liver now assumes an oblique direction. If the spleen also prolapses, the liver rotation is further exaggerated.

The forward rotation of the liver carries with it the greater end of the stomach, which now assumes a position near the median line at a much lower level than formerly, constituting ptosis of the stomach. The main axis of the stomach is now nearly vertical. If the splenic flexure also prolapses, this change in the stomach axis is exaggerated.

The transverse colon often loses its sacculations, owing to atrophy of the longitudinal muscle bands, and in addition to its ptosis is thereby actually elongated.

It is evident, thus, that if the ribs are lifted and the flexures are now replaced in the upper abdomen, deep in the flanks, under the liver and stomach, and retained there, the liver and stomach rotation will be prevented. The pyloric outlet of the stomach will be

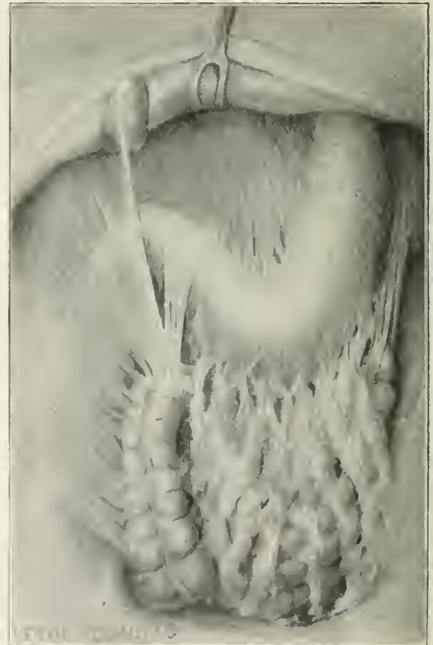


Fig. 4.—Malfusion: hyperfusion with prolapse of cecum, ascending colon, hepatic flexure and splenic flexure, with consequent prolapse of transverse colon; hyperfusion or adhesion formation from hepatic flexure to gallbladder and pylorus, and from splenic flexure to spleen and flank, producing angulations and traction strains.

de, and so placed as to produce an angulation, and to take the strain of bearing part of the weight of the upper half of the ascending colon. The hepatic flexure

is downward and inward, and rather evenly supported by a fairly uniform, but very long mesocolon. The end of the hepatic flexure, and beginning of the trans-

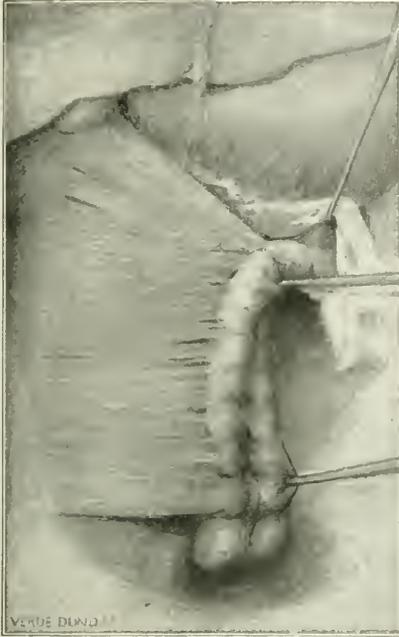


Fig. 5.—Operation: mesocolon of the hypofused ascending colon and hepatic flexure, held in position for the application of sutures, which are to obliterate it and fuse the bowel to the flank.

verse colon, is supported in an angulated position by a large, firm band, attached to the gallbladder and to the liver. The effects of physical exertion, producing traction strain, on the gallbladder and Lile ducts, as well as on the colon, in this case are evident.

Figure 4 shows the hypofusion and prolapse involving the cecum, ascending colon, hepatic flexure and splenic flexure, with consequent sag of the transverse colon. Hyperfusions are also well illustrated. Note the restraining bands, which, suspending the colon at the flexures, produce traction strains on the gallbladder and pylorus on the right side, and on the spleen and flank on the left.

In our series of patients operated on, we found irregular and abnormal adhesions of this type in the region of the hepatic flexure, in 67 per cent. of the cases, as compared with adhesions of the ascending colon in 53 per cent. of the cases. Harvey<sup>2</sup> found, on postmortem examination of 105 new-born children, thirty cases of adhesion in the upper region, and thirty cases in the lower region. It is evident, therefore, that the importance of the hepatic flexure, in relation to its hyperfusions, is equal to, if not greater than, that of the cecum and the ascending colon.

REPORT OF A CASE

CASE II.—Mrs. H. H. P., aged 39, had suffered for twenty-five years from fatigue, jolting, and dragging pains through-

out the right side of the abdomen, and occasionally in the splenic region. Moderate exertion would cause physical incapacity for several days at a time. For ten years she had been totally incapacitated for household work; for six years, attacks of persistent vomiting had followed any moderate exertion. During the previous year her condition had been deplorable. She was a woman of intelligence, and had consulted many physicians, and had received many diagnoses, and but little benefit. When she first consulted me, she had just completed a course in bed, with treatment for gastric ulcer. Her symptoms were better in bed, but returned as soon as she got up. She was thirty pounds below her best weight, and extremely anemic.

Under rest, postural and supporting treatment, for six months, she managed to retain enough nourishment to gain a few pounds in weight, and her hemoglobin increased from 55 to 70. She had not gained any during the past two months. As she had thus evidently reached her maximum improvement, an operation was performed for the cure of her visceroptosis. The following conditions were found:

Ptosis of the entire right side of the colon was present. The cecum was in the pelvis, being suspended by a band of adhesions, 1 inch wide, extending from the front of the ascending colon to the flank. The hepatic flexure was very movable and displaced downward and inward, and was supported by a span of adhesions, suspending it from the pylorus and duodenum. It was also kinked by a band of adhesions, uniting it to the transverse colon.

The splenic flexure was in normal position, but sharply angulated by a band of adhesions, attaching it to the spleen



Fig. 6.—Operation: sutures applied and the first two held in position; the location of the renal and gastroduodenal vessels.

and to the left flank. The transverse colon was markedly prolapsed, and exerted a pull on the adhesions at the flexures. On division of these restraining bands, the hepatic flexure and the ascending colon presented a mesocolon 6 inches in width, permitting a very free range of motion. The hepatic

2. Harvey, S. C.: Ann. Surg. 58:641 (June) 1918.

flexure could be displaced to the normal region of the splenic flexure, without traction. The technic described below was employed for the correction of the ptosis in this case.

This patient made an uneventful recovery, has not vomited since the operation, which was performed five years ago, and

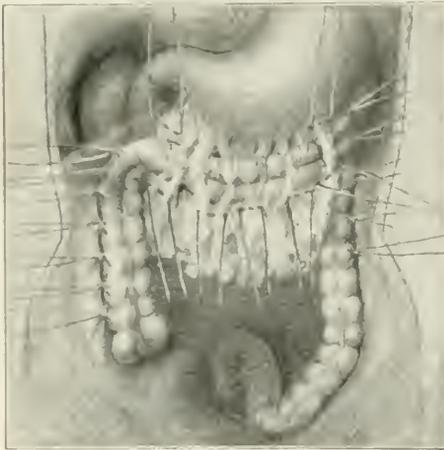


Fig. 7.—Operation: The posterior or fusion sutures are tied. Note the gastrocolic sutures and the location of the gastrocolic sutures. Omentum sutures for support of transverse colon are also shown.

gained 35 pounds in weight during the first seven months, and retains this weight now. She does all her housework and is 100 per cent. physically efficient. She enjoys better health than she had ever known before the operation (Figs. 14, 15 and 10).



Fig. 8.—Operation: repair of the transverse defect completed; normal flexure established; hepatic flexure well up and back, maintaining normal vascular circulation. Transverse colon, also, is here suspended.

#### TECHNIC OF THE OPERATION

1. *Repair of Primary Defects.*—The abdomen is opened in the median line, and a thorough inspection is made of the position of the viscera, and the location of

the adhesions. The colon is then lifted out, by intestinal forceps, which grasp the anterior longitudinal muscle bundle. Its posterior attachments are now systematically inspected for areas of loose attachments, for irregular formations of constricting or restraining adhesion bands, and also for the finer strands of fibrous fasciculi, which are found in the outer layer of the mesocolon, and most numerously at and below the flexures.

This inspection, which is assisted by the palpating finger, passing along the outer aspect of the colon attachments, includes the entire colon, starting at the cecum and proceeding up the right side and down the left, with particular attention to its attachments in the kidney, hepatic, pyloric and splenic regions.

Adhesion bands are divided, when found to be harmful, and the colon is always freed of any constricting bands that are found to pass over the anterior longitudinal muscle bundle, at any point.

Figure 5 shows the ascending colon and the hepatic flexure freed of adhesion bands, and its mesocolon, containing numerous fibrous fasciculi, held in position ready for the application of the sutures.

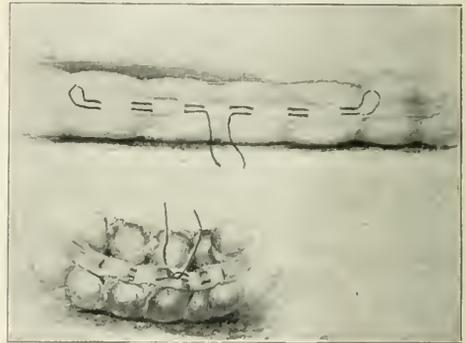


Fig. 9.—Operation: Secondary elongation of transverse colon; suture applied which, on tying, shortens the longitudinal muscle band, reproducing its sacculations.

Figure 6 shows a number of parallel sutures introduced into the mesocolon, beginning at the cecum. The needle at no place enters the bowel wall itself, but picks up the mesocolon close to the bowel. Thence, the needle is reintroduced several times, picking up all the fibrous fasciculi possible until the posterior wall of the flank is reached. At this point, a deep stitch is taken, which must include the firm iliac fascia below and the lumbar fascia above. The capsule of the kidney is included in the stitch coming from the beginning of the hepatic flexure. This stitch starts the forward curve of the flexure. When these sutures are tied, the mesocolon will be obliterated, the bowel will be replaced in its normal position, and firmly, evenly and uniformly attached to the flank.

In order to insure an easy, forward and inward curve to the hepatic flexure, a suture is now inserted in the edge of the gastrocolic omentum, and thence into the lateral abdominal wall, just beneath the liver. Similar sutures are placed at the splenic flexure, and descending colon, if needed.

It is an advantage, also, to take up any slackness of the transverse colon that may remain, either by plication of its mesocolon, or suspension by the hammock opera-

tion of Coffee. This guards against injury in the event of vomiting, and makes for better retention during the period of muscular adjustment, which follows, in the upper abdominal walls.

Figure 7 shows the position of the posterior stitches after tying, and of the gastrocolic and omental sutures, ready to be attached to the abdominal wall.

Figure 8 shows a side view after the stitches have been tied. This completes the repair of the primary and fundamental defects, by converting the malfusion into normal fusion, as it secures the uniform and even attachment of the portions of the bowel that normally should be fused to the back. Notice the posterior slant of the flank, and the colon lying firmly and evenly attached. The hepatic flexure now lies well back and high up under the liver, and curves smoothly and evenly over the lower pole of the kidney and duodenum as it passes forward and inward, to become the transverse colon, which is now seen in its normal position.

The static equilibrium of the abdominal viscera is now restored. Intra-abdominal pressure will exert its

obliterating the opening in its capsule, through which its lower pole must descend and turn inward as it comes down:

A deep suture on a large needle is passed backward, through the peritoneum, close to the inner side



Fig. 11.—One year after operation: good position of both flexures and transverse colon, with easy curve and absence of filling defects at flexures.

of the lower pole of the kidney, down to and including the lumbar fascia, then outward and forward, close to the outer side of the lower pole of the kidney, and emerging from the peritoneum. On tying this suture, the opening in the capsule of the kidney is obliterated and, the kidney having been well replaced before applying the suture, the strands of the nephrocolic ligament of Longyear are secured to the lumbar fascia. This also aids in maintaining the proper position of the ascending colon.



Fig. 12.—Marked ptosis of stomach, and rotation of pylorus to median line.



Fig. 10.—Ptosis of both flexures and transverse colon; filling defects at flexures.

force obliquely on the ascending colon, which tends to retain the hepatic flexure in this position. The flexure now acts as a wedge lying beneath the liver, and tends to prevent its prolapse with consequent prolapse of the pylorus.

**2. Repair of Secondary Defects.**—If the transverse colon is atonic and much elongated, with the obliteration of its sacculations (Fig. 9), fine silk intestinal sutures may be inserted at intervals in the longitudinal muscle band, in such a manner, that on tying them, this band will be shortened by 2 inches with each stitch, with a reproduction of the sacculations.

Forward and downward rotation of the liver is a vital menace to our results, and must be corrected to insure proper space for the hepatic flexure replacement. It is remedied by its replacement and retention by means of two mattress sutures passing through its lower border and suspending it to the anterior abdominal wall.

Undue relaxation of the stomach may call for suspension, preferably by the operation of Rovsing.

We have devised a procedure by which ptosis of the kidney can be repaired from within the abdomen, by

#### RESULTS OF OPERATION

The average final results are among the most striking we encounter in surgical practice. Not only are the active symptoms relieved, but these patients are virtually reconstructed, physically, mentally and func-

tionally. Physical inefficiency and invalidism are replaced by ability to do work; fatigue and neurasthenia, by sound mind and nerves; constipation is improved, and the sallow complexion is replaced by the pink glow of good health. Many report a vigor

The changes in bodily poise and outline following operation are well illustrated in the photographs of Case 11 (Figs. 14, 15 and 16). (See report of case above.)

QUESTIONNAIRE REPORTS

A questionnaire covering general improvement, as well as a detail report, was sent out to all patients whose operation had been performed more than a year ago, from which returns the deductions presented in Table 1 have been made.

Eighty-eight per cent. of the patients report a gain in weight since operation. While seven patients report

TABLE 3.—RESULTS IN THE CASE OF SEVENTY SEVEN PATIENTS ARRANGED IN GROUPS ACCORDING TO TIME SINCE OPERATION

Group	Years Since Op.	No. Cases	Results Satisfactory, %		Results not Satisfactory, %	
			Cured	Much Imp.	St. Imp.	Not Imp.
1.	.8½ to 3½	27	81.5	+ 15 = 96.5	3.5	+ 0 = 3.5
2.	.3½ to 2	25	60	+ 40 = 100	0	+ 0 = 0
3.	.2 to 1	25	28	+ 44 = 72	16	+ 12 = 28



FIG. 11.—One year after operation: stomach at good elevation, and pylorus correctly located to right.

and stamina which they never before had known, even in their earlier days.

The typical roentgen-ray findings, before and after operation, are well illustrated in a case as follows: Figure 10 shows the colon before operation, in which is seen a sharp angulation, ptosis, and filling defects, at both flexures, also marked ptosis of the transverse colon. Figure 11 shows the roentgen-ray examination

loss in weight, this loss was due chiefly to other illnesses. The net results of sixty patients who reported their weights show an average gain for the entire group of 15½ pounds per patient. One half of these patients gained an average of 14 pounds over their best former weight. This gain in weight is a striking evidence of the improvement that has occurred in this group, as a whole.

PHYSICAL EFFICIENCY

Before operation, the average degree of this incapacity, per patient, was 45.7 per cent. The questionnaire returns show an average incapacity, per patient, of 0.09 per cent. since operation. In other words, the physical efficiency of the entire group has been almost completely restored.

That the improvement in these patients is often slow, but that their ultimate cure is permanent, is demonstrated by Table 3, which divides the cases into three

TABLE 1—QUESTIONNAIRE REPORTS

	No. of Patients
Questionnaires returned	63
Which reports from family physician	14
Total number of patients heard from	77
Questionnaires not returned	6
Total number of operations since which over one year	85

TABLE 2—FINAL REPORTS IN SEVENTY-SEVEN CASES

	No. of Patients	Percentage
Weight increased	44	57
Weight decreased	15	32.5
Total (percentage correct)	69	89.5
Physical efficiency	5	6.5
Physical efficiency	3	4
Physical efficiency	10	10.5

of the colon one year after operation. The entire colon is seen to be in good position, with a free, smooth and easy turn at both flexures, absence of angulation and of filling defects, and good position of the transverse colon.

The stomach of this patient (Fig. 12) before operation is very low, and its outlet is in the median line. The examination of this stomach one year after operation (Fig. 13) shows it to be up in good position, and the pyloric outlet is located to the right, as it should be. This patient has enjoyed a complete symptomatic cure.

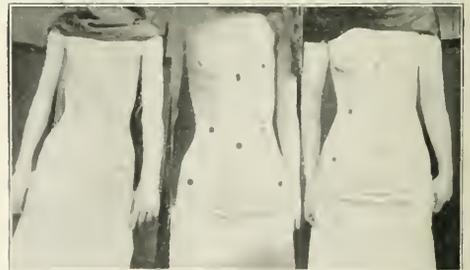


FIG. 14 (Case 11).—Before, three weeks after, and seven months after operation. Note improvement in weight, widening of costal angle, and collapse of right costal margin, after the malfusion has been corrected.

groups, of equal number, according to the time since operation, and compares the results in the different groups.

This table shows that practically all of the unsatisfactory results are found in the group of patients most recently operated on, being 28 per cent. in this group. After the two year period, however, the table shows that the unsatisfactory results amount to an average of only 1.75 per cent. Furthermore, the number of

absolute cures increases progressively with the increase in the time since operation, as seen by comparing the more recent with the older groups; the largest percentage of cures, 81.5, occurring in the oldest group of patients.

The questionnaire returns further show that 81.5 per cent. of the patients consider themselves as still improving; 18.5 per cent. consider themselves as sta-

operate as I did not believe I could do any good; however, I had a suspicion of an inclusion of the iliac hypogastric nerve within the scar of the kidney operation as causing the pain in the lower abdomen. The patient was a young woman and she and her aunt both persuaded me to operate on her. At operation I found the cause of the pain to be as I had anticipated, the inclusion of the nerve. She had complete relief. I put her on the treatment she should have had in the first place and a diet adapted to her gastrointestinal functions. She improved rapidly and in six months she had gained in weight so that she weighed 130 pounds.

Dr. J. SHELTON HORSLEY, Richmond: The results obtained by Dr. Hazen have been excellent. It seems to me the reason all these patients are not cured is that toxic substances are absorbed and in the course of years this has a degenerating effect on nerve tissue, possibly on the sympathetic ganglions. Even after you effect a cure in the bowel function the changes in the sympathetic ganglions may be so great that the patient still has some of the neurasthenic symptoms; just as late operation for lesions of the brain does not cure epilepsy. I take it for granted that every case of stasis should be treated by a good medical man for at least six months before any operation is done. Should the patient not be cured, operation may be necessary. Coffey has demonstrated that the peritoneum is the strongest support within the abdomen. I have been doing a simple operation in cases of gastroptosis, a modification of Beyea's method. I start the suture on the left side, near the stomach wall, carry it up on the left side and return on the right side in a reverse direction and tie. This makes a purse string suture in strong tissue and avoids the thin peritoneum in the center of the gastrohepatic omentum.

Dr. CHARLES P. NOBLE, Philadelphia: There is no question that practically all these patients with ptosis are instances of arrested development from environmental causes. They are a separate group in the human family, and unless we look at them from that standpoint we fail to meet the situation. In a certain percentage of them mechanical surgery may afford relief from certain symptoms, but it does not alter the constitutional nature, and in order to secure good results in general they must be treated along physiologic lines. The general method is medicinal treatment followed by physical cul-

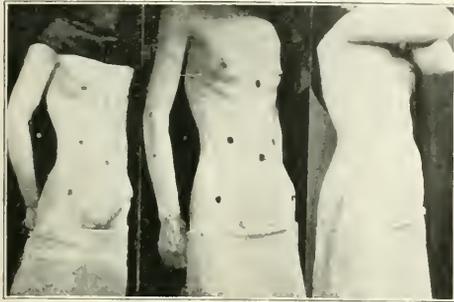


Fig. 15 (Case 11).—Before, three weeks after, and seven months after operation. Note improved vigor, posture and poise, and the filling out of the hollow upper abdomen. Visceral equilibrium is restored.

tionary in their improvement, and none of them consider themselves to have been made worse through having undergone the operation.

#### ABSTRACT OF DISCUSSION

Dr. ROBERT T. MORRIS, New York: In order to discuss intelligently the subject of visceroptosis we must divide it into its various categories and consider the features of each. We are dealing with a group of defective patients, those who present stigmata, objective signs of arrested development of structure. It is almost impossible to place these patients back in good position as a unit in the social system, no matter what we do for them surgically or medically. Such patients have eyestrain, nonerupted molars, nasal hypertrophies and other sources for peripheral irritation. Another group represents changes in the anatomy because of the circumstances brought to bear. Structures develop resembling the kinks which Lane described, for example. Disturbances of the sympathetic ganglions of the autonomic and sympathetic systems which conduct digestion constitute a fourth category, perhaps, cases of psychoneuroses, mental depression and insanity; in fact, various end-results of conditions which are anatomically and functionally wrong. If the work which has been done by Dr. Hazen relieves a certain percentage of these patients let us do that work. For instance, I often fix the loose kidney. These patients have the sagging colon because of loose kidney. It can be fixed in ten or fifteen minutes so that it will stay in place permanently but it must be done in the right way. If you do not do these various operations as well as Dr. Hazen has done them, you are simply adding to the patient's troubles.

Dr. J. J. GILBRIDE, Philadelphia: It would not be possible in Philadelphia to operate on so large a number of patients as reported by Dr. Hazen because we know how to treat them better. Occasionally, some of our professors are misled into operating in some of these cases with disastrous results. I recall a patient complaining of severe pain in the right lower abdomen. She weighed about 95 pounds. One professor had taken out her appendix, another professor fixed the kidney and another professor did a curetette, while still another operated on her nose. Later, she consulted another professor and, of course, he dodged and recommended electrotherapeutics. Of course, she was an invalid. I did not want to

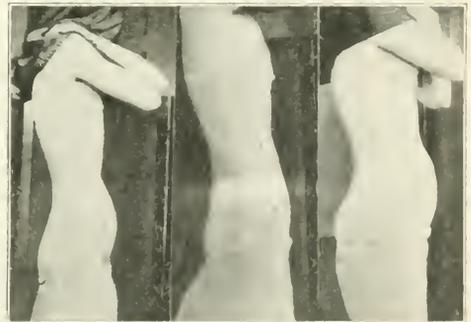


Fig. 16 (Case 11).—Before, three weeks after, and seven months after operation. Note improvement in construction of the upper abdomen and prominence of the lower abdomen.

operate as I did not believe I could do any good; however, I had a suspicion of an inclusion of the iliac hypogastric nerve within the scar of the kidney operation as causing the pain in the lower abdomen. The patient was a young woman and she and her aunt both persuaded me to operate on her. At operation I found the cause of the pain to be as I had anticipated, the inclusion of the nerve. She had complete relief. I put her on the treatment she should have had in the first place and a diet adapted to her gastrointestinal functions. She improved rapidly and in six months she had gained in weight so that she weighed 130 pounds.

Dr. ROBERT HAZEN, Paris, Ill.: I realize that visceroptosis is a complicated condition to handle. With the male in the

ture and outdoor life, and particularly the restriction of their activities within a much smaller amount of effort than is entirely physiologic for a normal individual. Unless that is done these people are always feeling sick. If the trouble is not in the intestine it is in the nervous system, and the varying symptoms simply show that they are expending more energy than they should. In other words, they are drawing on their potential nerve supply for ordinary use.

upright position there has been delay in the fastening of the ascending and descending colon to the back. It is a change due to our change of state. The female has not followed that quite as perfectly; first, because of the primary law that the female does not follow change of structure; and, second, that her pelvis is larger than that of the male and her symptoms do not usually appear until a certain time. All this time the colon has been loose. The condition is similar to that of a man with a broken arch; he may not have symptoms until he is on his feet. He may have been doing desk work and is without symptoms until he is required to be on his feet. The general psychic and peripheral symptoms referred to are important and I have thought of the relation of the sympathetic ganglions with a bowel that is down and pulling on the sympathetic nerves. The wonder is that we do not have more reflex symptoms. In treatment I did not intend to advocate operation for every patient whose colon is down. Almost all these patients are patients referred by physicians who have done their best. We do not advocate operation. In fact, I should not want to advocate operation for general use. It should be done only by men particularly interested in this field of work because the general conception of the whole abnormality of the anatomy is so complicated that we cannot make the repair with any one method of operation. As Dr. Gilbride told us there is too great a tendency to operate without study. Thirteen per cent. of the patients in our series had had operations before we saw them, without relief. To repair a gastropnoxis many factors have to be correlated to produce a satisfactory result.

## AMPUTATION ABOVE THE LEVEL OF ARTERIAL OBSTRUCTION

### IN ARTERIOSCLEROTIC GANGRENE

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AND

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The tendency of the majority of surgeons in selecting the level at which to amputate in arteriosclerotic gangrene is to be guided by the extent of the area of gangrene. Not infrequently, the amputation is followed by extensive sloughing of the flaps and either death follows from sepsis, or, as in a case recently observed by us, the opposite limb becomes involved as the result of the extension of the thrombosis from the femoral to the iliac artery and then across to the opposite iliac artery. We have felt that the ideal method of choosing the level at which to amputate would be to expose the femoral artery at the middle of the thigh and to follow it in an upward or downward direction until a level was reached at which the thrombotic occlusion of the artery ceased, and distinct pulsation could be observed in the vessel. We have reported this plan in a recent case with very gratifying results.

#### REPORT OF CASE

A man aged 56 was admitted to Michael Reese Hospital with marked evidence of arteriosclerosis and an area of gangrene involving the entire dorsum of the foot. There was an absence of pulsation in the arteries of the limb as high as the upper femoral region. An amputation through the lower third of the thigh by the Gritti-Stokes method was decided on. On exposure of the femoral vessels at the middle of the thigh for purposes of preliminary ligation, we were greatly surprised to find the femoral artery completely occluded by a thrombus. Following the vessel in an upward direction we were unable to find any pulsation until close to Poupard's ligament (Fig. 1). At this level, the artery was ligated just above the occlusion, that is, through the lower-

most pulsating portion. An amputation was performed at this level, and the patient, who had been extremely septic, made an uneventful recovery. In spite, however, of the high level at which the amputation was performed, there was moderate gangrene of the skin flaps. Dissection of the arteries of the limb revealed many calcareous areas in the femoral artery and a firm clot completely occluding its lumen (Fig. 2) up to a point close to the femoral canal. The clot was firmly adherent to the intima in many places and extended from the femoral into both tibial arteries. The veins were normal.

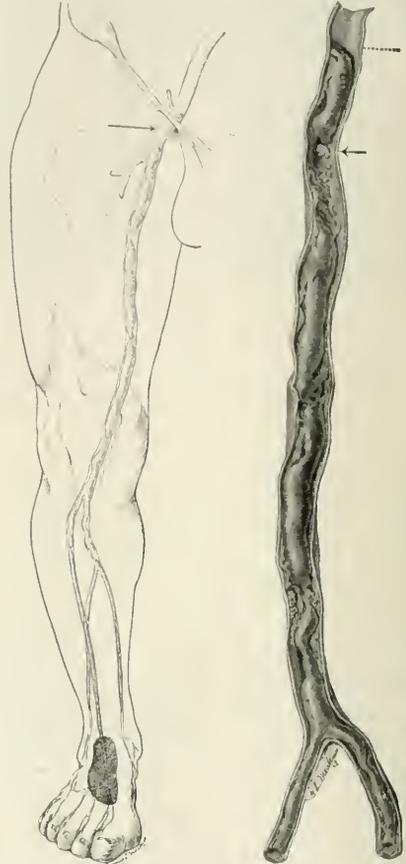


Fig. 1.—Extent of thrombosis in femoral and tibial arteries. Arrow points to level at which femoral artery was ligated proximal to upper level of thrombosis.

Fig. 2.—Femoral artery showing complete occlusion by thrombus, the upper level of which is at the dotted line. The thrombus extends into both tibial arteries. The arrow points to calcareous plaques on intima of artery.

#### COMMENT

We believe that exposure of the femoral artery in order to determine the upper limit of the occlusion is the simplest and most accurate method of deciding on the level at which amputation should be performed.

**The Child's Food.**—A growing child requires far more food than its weight would indicate. For, in the first place, its intake must exceed its expenditure, so that it may grow.—Julius H. Hess.

## THE COURSE OF THE BLOOD CHANGES IN A CASE OF APLASTIC ANEMIA\*

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Aplastic or aregeneratory anemia is the term applied to a well marked type of anemia due to decreased blood formation. Clinically it is marked by anemia, a pronounced tendency to hemorrhage, and a rapidly fatal course. Despite the severity of the anemia there are none of the evidences of bone marrow regeneration, such as megaloblasts, normoblasts, anisocytosis, and stippled or basophilic erythrocytes in the circulation. At necropsy the red marrow is found to be aplastic, showing an increase of fat and a diminution in megaloblasts and normoblasts.

The disease is not so rare. Musser<sup>1</sup> collected reports of fifty-nine cases, including twenty-four of Cabot, and added another, which is probably the best studied case that has been reported.

The case that we present is reported on account of the remarkable opportunity it afforded for observing the progressive changes in the blood during the disease.

### REPORT OF CASE

*History.*—L. H., man, aged 67, white, admitted to the hospital, July 15, complaining of weakness, had always enjoyed good general health except for constipation, for which he had taken cascara once or twice a week since youth. He had been a moderate drinker for many years. There had always been a tendency to bleed for long periods of time from cuts and scratches, but there had been no serious hemorrhage.

In 1910 he suffered from a "nervous breakdown." The systolic blood pressure was then 176. At that time exertion would occasionally bring on pain over the sternum which would run down the right arm, never down the left. During the illness he frequently took sulphonal. He made a perfect recovery.

Several years previous to his entrance into the hospital he suffered from glaucoma and the right eye was enucleated. Pilocarpin had been administered three times a day in the left eye since that time.

In March, 1919, four months before the present admission, the patient was in the hospital four weeks with "indigestion." The leukocyte count was 6,750. There was no marked pain. The roentgenogram was negative save for stasis in the large intestine. He apparently recovered from the indigestion, but became nervous and sleepless. He was still nervous and sleeping poorly at the onset of the present complaint. During the whole of this time, about four months, he took from 5 to 20 grains of barbital every night. His appetite was good. He urinated once at night; there was no obstruction.

*Present illness.*—For about three weeks before admission, the patient had noticed that he was more easily tired by walking and climbing steps than formerly. July 14, he walked three or four blocks to dinner. On returning, which was slightly up hill, he became exhausted and had to rest several times on the curb. He was admitted to the hospital on the following day.

*Physical Examination.*—The patient was a rather old man, lying quietly in bed with a definite appearance of weakness.

There was no emaciation. There was a very distinct pallor but no yellow tint to his skin. His musculature was extremely flabby. His speech was somewhat "thick." He was mentally active and alert.

Head: The right side of the face was distinctly smoother than the left, and his mouth was drawn to the left. However, he could whistle, and there appeared to be no weakness of the right side. The left pupil was small and did not react to light or accommodation (pilocarpin). The teeth, on which much dental work had been done, were in poor condition.

Glands: The posterior cervical and submaxillaries were palpable; the gland at the left angle of the jaw was enlarged. The axillaries were about the size of lima beans. The epitrochlears were not palpable, nor were the inguinals enlarged.

Chest: On percussion the lungs were found to be clear except at the right base, where the liver dullness was increased. The lower lung borders descended on inspiration, the left about 2½ fingerbreadths, the right somewhat less. The breath sounds were everywhere harsh. Crackling rales were present at both bases, more marked on the left. The cardiac dullness extended from the third rib above to just outside the midclavicular line. The point of maximal impulse was in the fifth interspace, a little outside the midclavicular line. At the apex the first sound was muffled and followed by a blowing murmur. The systolic murmur was present also at the base, but not transmitted. The pulmonic second sound was clear and not accentuated. The aortic second was clear and a bit accentuated. The pulse was good and could be felt equally at both wrists.

Abdomen: The abdominal wall, like that of the chest, was flabby, and the pressure of the bell of the stethoscope left a slight imprint.

Lower extremities: The musculature was flabby.

Rectal examination: The prostate was slightly enlarged. There was normal resiliency.

Nervous: There was lateral nystagmus; the eye movements were otherwise good. In other respects the examination was negative.

Blood: The blood was pale. At the prick of a needle the patient bled very freely. The red cell count was 2,240,000; the color was good; there was no anisocytosis or poikilocytosis. There was no stippling, polychromatophilia, or nucleated forms. Only four or five platelets were seen in a smear. The hemoglobin was 55 per cent (Tallqvist). The leukocyte count was 3,000; polymorphonuclears, 43 per cent; eosinophils, 2 per cent; lymphocytes, 53 per cent; large mononuclears and transitionals, 2 per cent.

Urine: The urine was pale; the specific gravity was 1.013. There was a faint trace of albumin. There were a few granular casts and cylindroids; there was a little mucus, and an occasional white cell.

*Clinical Course.*—The disease was rapidly progressive. The patient became weaker and weaker. He slept considerably and was irritable when awake. On the second day after admission, petechial hemorrhages appeared on the legs. They increased on the following day, but quickly cleared up after the first transfusion. Two transfusions of 600 c.c. and 550 c.c. respectively, were made by the citrate method, on the seventh and twelfth days after his admission. There was a febrile reaction after each of the transfusions; the temperature was 102.5 F. after the first transfusion and 101.5 F. after the second, but he had no chill. When the patient had recovered from the reaction, he said he felt better for about twenty-four hours, but there was no visible improvement. Five days after the second transfusion, petechial hemorrhages again appeared over the body as well as over the extremities. On the following day, the sixteenth day after admission, the temperature rose from normal to 101 F. and there was considerable bleeding from the gums. The temperature continued between 101 and 102 F., and bleeding from the gums continued until the patient's death. He was never ataxic and was rational almost to the last. On the day of his death there was a slight hemorrhage from the rectum. He died on the nineteenth day after his admission.

\* From the Naval Hospital and Medical School.

<sup>1</sup> Musser, J. H., Jr.: Study of a Case of Aplastic Anemia, *Arch. Int. Med.* 14: 275 (Aug.) 1914.

**Laboratory Examinations During Stay in Hospital.**—The blood culture and Noguchii reactions were negative. The sputum was constantly pale and contained no blood, fibrin, or hematosporin on repeated examination. There was usually a trace of albumin.

**Blood.** The duration of bleeding from a prick of the finger was longer than normal. After transfusion, this was not so. Toward the last, slight pinching of the toe of the foot resulted in a laceration.

Coagulation time, tested in capillary pipets, was within normal limits. From ear puncture it was two and two thirds minutes, from a vein it was nine minutes.

Hemoglobin estimations made with the Tallqvist and Sahli methods showed considerable variation, probably due to the low amount encountered. Two estimations were made by the Van Slyke method for determining the oxygen carrying capacity of the blood. The first, made the seventh day after admission, gave 30 per cent, estimating 14 gm. per hundred c.c. as normal, and a color index of 0.84. The second, made the

seventh day after admission and four days after the first transfusion, gave 30 per cent and a color index of 0.74.

The quality of the red corpuscles tested with hyperchrome estimations showed no decrease. With the patient's corpuscles, hemolysis began at 0.44 per cent, and was complete at 0.34 per cent; with the control's corpuscles, hemolysis began at 0.46 per cent and was complete at 0.34 per cent.

The results of the chemical examination of the blood on the twelfth day after admission per liter (c.c. were: total solids, 21 mg.; urea nitrogen, 50 mg.; urea carbon, 1.7 gm.; creatinin, 0.4 mg.; plasma carbon dioxide, 48.1 per cent (Van Slyke); plasma, no bilirubin, no indican.

The variation in the number of red cells is shown in Chart 1 (upper division).<sup>2</sup> It varied widely between 2,400,000 and 110,000. After each transfusion there was a marked increase which lasted about one day. Probably as a result of the transfusions there was no general trend downward. The day before death, the count was not so low as it had been in the earlier days of the disease.

There were never at any time abnormal forms of red cells present. There were no polikaryotes, and no anisocytes. Occasional cells had diameters of 6.5 microns in diameter and have contained 100 to 85 per cent, but no greater variations. There were never any reticulocytes, no stippling, and no nucleated forms observed. On the second day of admission, four of the leukocytes were seen in each blood smear. After that they were constantly present.

There was a marked leukopenia, the leukocyte count varying widely between 2,000 and 650. The leukocyte curve is shown in Chart 1 (lower division). It began with a count of 1,700,000 with a count of 1,250. Its abnormal form of white cells were present at all. Practically all fell into the general leukopenia. The course of the differential counts is shown in Chart 2 (upper division). At the beginning, the polymorphonuclear cells and the lymphocytes were present in about equal percentages. The percentage of lymphocytes

steadily increased, while that of the polymorphonuclear cells steadily decreased so that toward the last the lymphocytes reached 92 per cent, and the polymorphonuclear cells dropped to 6 per cent.

**Necropsy.**—Only a partial necropsy was obtained. The liver was enlarged and hard, and sections showed cloudy swelling with a slight increase of connective tissue. There was considerable bile pigment, but special staining failed to demonstrate hemosiderin. The rib, when cut across, showed a small area of light red marrow. Smears from this showed few cells, mainly small mononuclears and red cells. Sections showed large vacuoles, formerly occupied by fat, with narrow strands of marrow tissue between. The marrow tissue was composed mainly of small mononuclears (lymphocytes) with a few non-nucleated red cells and an occasional myelocyte. No mention is made of the predominance of the lymphocytes in most of the necropsy abstracts reported, but it was observed by Hirschfeld.<sup>3</sup> Compared with the marrow of a normal rib, there did not appear to be an increase of lymphocytes but rather a marked diminution of myelocytes and nucleated red forms with a tremendous increase of fat, while the lymphocytes were unaffected and remained in normal numbers.

#### COMMENT

The value of the case in the study of aplastic anemia may be briefly discussed.

**Etiology.**—In the fifty-nine instances that Musser<sup>1</sup> collected, the great majority of the patients were under 35 years of age; he doubts the authenticity of a case at 68. That aplastic anemia may occur at a more advanced age is verified by the present case at 67. There were no evidences of intestinal parasites, as in the case reported by Stitt,<sup>4</sup> nor of benzene poisoning, as in the cases reported by Selling,<sup>5</sup> nor of suppuration, as in the cases reported by Dalton.<sup>6</sup> Of other factors

present, sulphonal, barbital, alcohol and chronic constipation, none could be implicated in an etiologic rôle. As in the vast majority of cases of aplastic anemia, in this case no exciting cause could be found.

**Course and Complications.**—Four months before the patient's admission nothing in his general condition suggested anemia, but the leukocyte count was on the lower level of normal, 6,750. From the patient's history the duration of the disease was probably between five and six weeks. Certain it is that the disease was not very evident clinically for more than three weeks.

The significance of the fever is uncertain. Fever is given as quite a prominent symptom of the disease by

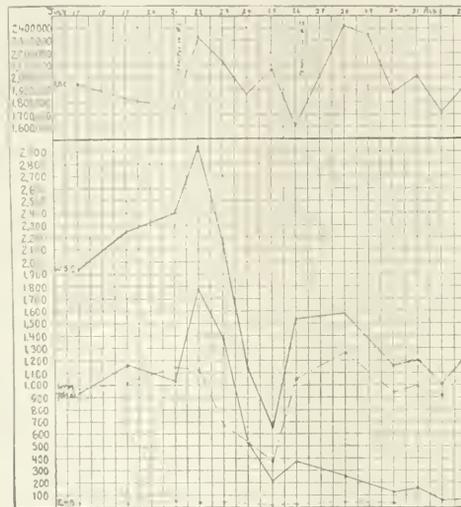


Chart 1.—Variations in the red cell count (upper division) and in the absolute numbers of the different leukocytes (lower division) in a case of aplastic anemia; parallel lines indicate total leukocytes; solid line, polymorphonuclears; line of dots and dashes, lymphocytes; broken line, eosinophils and basophils.

1. Hirschfeld, H.: *Folia haematol.* 12: 350, 1911.

2. Stitt, F. R.: *Aplastic Peritonitis Anemia Associated with Anchy-*

*lismatis*, U. S. *Navy Bull.* 5: 345, 1911.

3. Selling, L.: *A Preliminary Report of Some Cases of Purpura Hemorrhagica Due to Benzol Poisoning*, *Bull. Johns Hopkins Hosp.* 21: 1, 1910.

4. Dalton, N.: *Two Cases of Malignant Anemia, without Signs of Erythrocytosis and Associated with Suppuration About the Jaws*, *Tr. Clin. Soc. London*, 37: 101, 1904.

Musser,<sup>9</sup> while less stress is laid on its occurrence by Cabot<sup>7</sup> and Lavenson.<sup>8</sup> In the present case, fever was present only during the last four days of the disease, and the temperature was never above 102 F. The persistence of râles at the bases of the lungs during the latter part of the disease would suggest a terminal pulmonary infection. If the resistance to infection were reduced *pari passu* with reduction in the number of polymorphonuclear neutrophils, it must have been exceedingly low when they were present in less than 5 per cent. of their normal numbers. The fever had no effect in increasing the leukocyte count.

Subcutaneous hemorrhages and hemorrhages from the mucous membranes are characteristics of the disease rather than complications.<sup>9</sup> Both were evident in the present case, but were not so severe as to affect either the clinical course or the blood picture of the disease.

**Pathogenesis.**—The absence of immature red cells in the circulation and the absence of bile pigments in

the skin, urine, and blood plasma, and the absence of hemosiderin in the liver tend to confirm the prevalent conception that the anemia is due to failure in formation and not to abnormal destruction of red blood cells.<sup>10</sup> The persistence of the red cell count at about the same figure as on admission, despite the rapid progress to fatal termination, is not a constant feature of the disease. In the case of Stitt,<sup>4</sup> the red count fell to 490,000 on the day of death. In the present case, the red count was probably kept up by the transfusions. According to the work of Ashby,<sup>11</sup> transfused cells live and function, and are therefore of value to the general body economy. Such persistence of the red cell count raises doubt as to the anemia being the essential factor in the disease. Cabot<sup>12</sup> raises a similar query in regard to pernicious anemia. The other bacteriologic and chemical examinations, blood culture, blood sugar, nonprotein nitrogen, urea nitrogen, creatinin and carbon dioxide content of the blood plasma, gave no lead.

The estimations of hemoglobin were made on the oxygen carrying capacity of the blood and therefore approach accuracy. At the two estimations the hemoglobin was about the same, but the color index fell from 0.84 to 0.74. This was associated with quite definite progress in the disease and is of interest in

contrast to pernicious anemia, in which the color index rises as the disease progresses.<sup>13</sup>

The leukopenia in the present case is quite a constant feature of the disease. In Chart 1 (lower division) the course of the leukocytes, the lymphocytes and polymorphonuclears in actual numbers per cubic millimeter is shown. The total leukocyte curve shows marked variations that can be divided into those due to the transfusions and those due to the course of the disease. After the first transfusion there was an increase of about 600 cells per cubic millimeter, due mainly to an increase in polymorphonuclear neutrophils. But this increase was extremely transient, lasting only twenty-four hours. Possibly a similar increase occurred after the second transfusion but was not detected, as no count was made within forty-eight hours.

The downward course of the leukocyte curve is independent of the transfusions. This progressive decrease is in contrast to the red cell curve, as shown in Chart 1 (upper division) which, probably on account of the transfusions, maintained its height to the end. This feature of the leukocytes can be seen to be entirely due to a progressive reduction in the polymorphonuclear elements of myeloid origin, for, if the temporary drop which occurred between the transfusions is ignored, the lymphocytes maintained quite a constant level to the end. The drop in the leukocytes which occurred after the first transfusion and was partially recovered from before the second transfusion is likewise, in all probability, due to the disease and independent of the transfusions. It was due partly to a diminution in lymphocytes, but mainly to a diminution in polymorphonuclears. After it the polymorphonuclears continued to decrease rapidly and progressively, while the lymphocytes made a rapid and good recovery, which they maintained.

The course of the differential counts did not confirm the prevalent opinion that the cells of myeloid origin are the only ones to suffer.<sup>14</sup> To ascertain how each cell had suffered it was necessary to compare the actual number per cubic millimeter present in the disease with the actual number per cubic millimeter present in normal blood. The only previous count which we had of the patient was a leukocyte count of 6,750. If that is taken as normal, and the normal percentages as given by Sydney Miller<sup>15</sup> are assumed—polymorphonuclears 64.2 per cent.; eosinophils and basophils 3.4

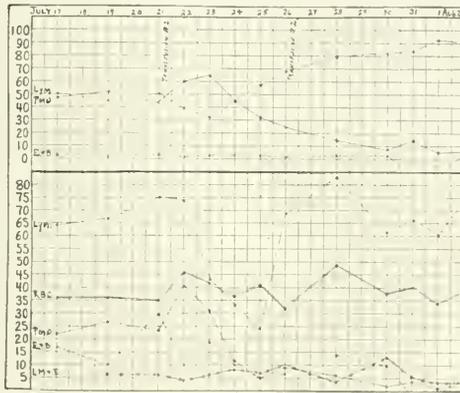


Chart 2.—Variations in the relative leukocyte counts (upper division): solid line, polymorphonuclear neutrophils; line of dots and dashes, lymphocytes; broken lines, eosinophils and basophils. Various blood cells in percentages of the normal (lower division): parallel lines, red blood cells; solid line, polymorphonuclear neutrophils; line of dots and dashes, lymphocytes; broken line, eosinophils and basophils; line of dashes and hollow dots, large mononuclears and transitionals.

7. Cabot, R. C.: Diseases of the Blood, in Osler and McCrae: Modern Medicine, Philadelphia, Lea and Febiger, 4: 640, 1915.

8. Lavenson, R. S.: The Nature of Aplastic Anemia and Its Relation to Other Anemias, Am. J. M. Sc. 133: 100, 1907.

9. Musser, J. H., Jr.: Study of a Case of Aplastic Anemia, Arch. Int. Med. 14: 276 (Aug.) 1914.

10. Barker, L. F., in Monographic Medicine, New York, D. Appleton & Co., 3: 200, 1916.

11. Ashby, W.: Determination of Length of Life of Transfused Corpuscles in Man, J. Exper. Med. 20: 267 (March) 1919.

12. Cabot, R. C.: Diseases of the Blood, in Osler and McCrae: Modern Medicine, Philadelphia, Lea and Febiger, 4: 627, 1908.

13. Cabot, R. C.: Diseases of the Blood, in Osler and McCrae: Modern Medicine, Philadelphia, Lea and Febiger, 4: 637, 1915.

14. Lavenson, R. S.: The Nature of Aplastic Anemia and Its Relation to Other Anemias, Am. J. M. Sc. 133: 100, 1907. Barker, L. F., in Monographic Medicine, New York, D. Appleton & Co., 3: 200, 1916.

15. Miller, Sydney, quoted by Barker, L. F., in Monographic Medicine, New York, D. Appleton & Co., 3: 7, 1916.

per cent.; lymphocytes 22.5 per cent., and large mononuclears and transitionals 10.8 per cent.—the following numbers represent 100 per cent. in Chart 2 (lower division): for polymorphonuclear neutrophils, 4,331; for eosinophils and basophils, 230; for large mononuclears and transitionals, 729; for lymphocytes, 1,518; and for red cells, 5,000,000. It will be seen that every type of cell suffered, but the lymphocytes suffered least. The polymorphonuclear cells, including the neutrophils, eosinophils and basophils, suffered markedly and progressively. The platelets were absent except at the earliest observation.

#### THERAPY

The patient was transfused twice. The petechial hemorrhages cleared up after the first transfusion, but there was no other benefit evident clinically. Each transfusion increased the red cell count, which did not return to its former level for five days. The transfusions probably account for the way in which the red counts maintained their level; but they were at no time followed by evidence of bone marrow stimulation. The effect of the transfusions on the white count was extremely transient. The effect on the downward course of the polymorphonuclear cells was of little consequence, an elevation after the first lasting forty-eight hours, but none after the second.

#### SUMMARY

In a case of aplastic anemia, the diagnosis was based on the anemia, the absence of abnormal red cells in the circulation, and the aplastic red marrow at necropsy. There was no evidence of increased hemolysis.

The red cells were reduced to about 1,800,000. They were only temporarily increased by transfusions, and they continued in about their original numbers to the end. The platelets were practically absent.

The color index was below 1, and dropped as the disease progressed.

There was an actual reduction in all the leukocytic elements of the blood, more marked in those of myeloid origin. Those of myeloid origin were the only elements to show progressive diminution in numbers.

**China Medical Board Report.**—The fourth annual report of the Board for Fundation, China Medical Board, for 1918 contains the report of the trustees of the Peking Union Medical College and the Shanghai Medical School of the Board's constituent institutions. During the year, construction work on the buildings of the Peking Union Medical College went forward, the total number of members of the faculty proper being increased to thirty-four, and contributions were paid to numerous hospitals, three medical schools, and sixty-five dispensaries. The two colleges at Shanghai have been incorporated into the year's activities of the Peking School, on account of the increased difficulty of the increased cost of building materials. A gift of \$500 is reported from the Chinese Medical School in China to be used toward the endowment of the Shanghai Medical School. Payment have been made to the various associations pertaining to the medical community of Yale, St. John's University, and Shanghai Christian University. The largest appropriation of the year amounted to \$21,148.88 to the Chinese Hospital at Nanking. Appropriations have also been made for the Foreign Christian Dispensary Society at London. The total expenditures of the board for the year amounted to \$2,131,588, distributed as follows: administration, \$48,676; Peking Union Medical College, \$1,735,983; Shanghai Medical School, \$114,261; apparatus for missionary hospitals, \$123,686; appropriation to various medical schools, \$67,549; fellowships at 10 medical schools, \$51,575; and miscellaneous, \$2,757.

## INFLUENCE OF PITUITARY EXTRACTS ON THE GENITAL TRACT\*

ROBERT T. FRANK, M.D.  
NEW YORK

During the course of an investigation of the physiologic properties of the lipid constituents of the various endocrine glands, a study of the effect of the anterior lobe of the pituitary body on the growth of the genital tract was undertaken. This work was completed in 1917, but for extraneous reasons has not been published until now.

Various investigators have obtained diverse results from the feeding of the anterior lobe extracts to different varieties of animals, such as rats, rabbits and dogs. Among these investigators may be mentioned Sandri, A. E. Schaefer, T. B. Robertson and E. Goetsch. Robertson and Goetsch, the former using a purified extract which he denominates tetelin, and the latter the dry extract of the anterior lobe, claim to have obtained increase in body growth and stimulation of the genital tract in animals. The growth-producing effect of hypophysis extract appears to have been generally accepted in the literature, and the extract has been applied in some instances to the treatment of human beings. It seems well worth while to publish the results obtained by a series of experiments conducted with all due precautions on white rats.

Considering it likely from the perusal of the literature that anterior lobe extracts actually cause increase in growth and stimulation of the genital tract, a series of experiments was conducted in order to determine what constituents of the pituitary extract produced these phenomena. Through the kindness of the laboratories of Parke, Davis & Co., four extracts were obtained. These consisted of the following portions of the gland: Extract No. 1 of anterior and posterior lobe in proportion of 1 to 6 desiccated; Extract No. 2 of pituitary free from fat soluble substances; Extract No. 3 of pituitary containing only fat soluble substances; Extract No. 4 of anterior lobe only desiccated and diluted with lactose to prevent decomposition.

Six litters of white rats raised in the laboratory were used in the course of these experiments. The rats were 3 weeks old when the experiments were begun. Litters 1 and 2 were composed of six sisters each; Litters 3 and 4 of five sisters each; Litter 5 of three sisters, and Litter 6 of four sisters. In each litter at least one animal was selected as control. For thirty-five consecutive days each animal (except the control) was fed with 0.05 gm. of pituitary, given in a bolus composed of meat, egg and cream cheese, which was eagerly taken. In order to round out the diet, the animals were also fed with milk, greens and oats. Throughout the experiments all the animals, except No. 4 of Litter 6, showed progressive increase in growth.

At the necropsy, it was found that no concordant increase in size or in general body weight, or in the genital organs ascribable to the glandular feeding was present. Irrespective of whether experimental animal or control, certain rats showed a greater increase of weight, the presence of corpora lutea in the ovaries, and enlargement of the other internal genitals.

\* From Columbia University, George Crocker Special Research Fund, G. C. Wood director.

According to Goetsch's report, animals of this age (56 days) should show no corpora lutea unless stimulated by the extracts. Possibly his results were accidental, as the individual series contained few animals; or possibly the season of the year may have had some influence, because in his experiments most of the animals were fed during the early months of spring; or, again, possibly individual breeds show premature maturity.

#### CONCLUSION

It may be said that more extended experiments along these lines will be necessary before stimulation of the sex organs, at least of the female sex organs, can be ascribed to the use of pituitary extracts. The practice of at once applying unconfirmed results obtained in the laboratory to clinical practice is pernicious. In no field has it been more abused than in that of "endocrinology." If this practice continues unchecked, organotherapy will fall into disrepute both in the opinion of the medical profession and in that of the public.

### THE SPINAL FLUID IN PRIMARY AND SECONDARY SYPHILIS

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Assistant Neurologist, Philadelphia General Hospital

PHILADELPHIA

This study was undertaken with the idea of determining so far as possible what percentage of cases of primary and secondary syphilis would show infection of the cerebrospinal fluid as might be demonstrated by the usual laboratory methods.

The tests made on each specimen of spinal fluid were the Wassermann reaction, protein determination and cell count. In every case, comparison of the blood Wassermann has been made with the findings in the spinal fluid. The duration of the disease, the present signs of syphilis and previous treatment have also been taken into consideration.

These studies were made in a series of ninety-one cases. The majority of the patients were either in the primary or the secondary stage of syphilis. The lesions manifested varied from early chancre to a fading secondary rash. A few of them, however, were well past the secondary stage. There was only one out of every four or five cases in which any previous treatment had been given, and that was usually a very small amount.

All of these cases gave a +++ Wassermann reaction of the blood serum, as this was one of the determining factors whether or not studies be made of the spinal fluid.

The cell count was made immediately on removal of the spinal fluid. The average number of cells per cubic millimeter was nine. No effort was made to classify them. The greatest number of cells per cubic millimeter for any one specimen was seventeen. One of these was a case presenting a chancre of the lip with marked glandular involvement but no secondary rash. The others were cases of well marked secondary syphilis. If a cell count of five per cubic millimeter is taken as the average in normal spinal fluids, practically all of these cases showed a slight abnormality. The percentage of cases of secondary syphilis showing changes in the spinal fluid has been given as from 10

to 90. If we may consider a slight increase in cells an abnormality, then undoubtedly a large number of the primary and secondary cases of syphilis would show abnormal spinal fluid. This, however, must be regarded as only of suggestive significance, as there are a number of conditions that may produce an increase in cells. Then, again, we have to admit that cell counting is subject to error.

Only two of these cases showed a slight excess of protein in the cerebrospinal fluid, and curiously enough one of these was in the chancre stage. The other was one of two years' duration. Very little treatment had been given in either case.

In performing the Wassermann reaction of the spinal fluid, 0.6 c.c. was used, 0.2 c.c. being the usual amount. The increased amount of fluid had no effect on the reaction.

I might say at this time that the vast majority of these patients suffered from lumbar puncture headache despite the fact that they remained in bed from three to four days following the operation. The amount of fluid withdrawn never exceeded from 3 to 4 c.c. The intensity and duration of the headache varied a great deal in different persons. Although this was troublesome and annoying, no serious complications followed.

It might have been more interesting if we had made more than one examination of the cerebrospinal fluid at different periods of the disease. However, I did not feel justified in doing this, considering the discomfort that it caused the patient and what it promised in return.

In making the lumbar puncture, 2 per cent. cocaine was used to anesthetize the skin. This was a great help in reducing the immediate discomfort of the puncture. The introduction of physiologic sodium chlorid solution into the spinal canal to replace the amount of spinal fluid removed was considered but was not done.

What percentage of those infected with syphilis will develop symptoms of the nervous system has been a field of much speculative theorizing and has been variously estimated at from 9 to 25. A great deal of time and energy have been spent trying to determine the class of cases that will develop neurosyphilis and at what time in life. The explanations that have been offered are familiar to us all.

It has been said by some that the papular variety of syphilis was more likely to give a positive Wassermann reaction of the spinal fluid. This has not been true in my series.

Others have thought that there must be a difference in the virulence of the spirochete flourishing in different parts of the world. In this series a number of countries were represented, namely, England, France, Ireland, Italy, Portugal, Wales, and all parts of the United States. Notwithstanding the number of places from which the infections came, there was no noticeable difference in them so far as the laboratory studies were concerned. Clinically, the cases from abroad usually presented more marked secondary manifestations, but as a rule they had gone longer untreated.

#### CONCLUSIONS

1. There is a slight increase of lymphocytes in the cerebrospinal fluid in the majority of cases of primary and secondary syphilis.
2. The increase in protein content does not appear as early as the increase in lymphocytes.

3. In this series not a single  $++$  or  $+$  was observed. A  $-$  reaction was obtained on the spiral fluid in primary and secondary syphilis.

4. It does not seem reasonable to conclude that we can determine by the examinations of the cerebrospinal fluid in cases of florid syphilis just who is going to develop symptoms of the central nervous system.

424 Chester Avenue

## Clinical Notes, Suggestions, and New Instruments

### A SIMPLIFIED METHOD FOR INDUCING THERAPEUTIC PNEUMOTHORAX\*

ROSENBLATT, M.D., BOSTON, MASS., N. Y.

The usual procedure employed in the induction of therapeutic pneumothorax consists of two steps: First, a local anesthetic is injected into the skin, subcutaneous tissue, and pleura second, a special needle is inserted through which the gas is introduced.

About four years ago, Dr. Alfred Meyer suggested that the operation could be much simplified by introducing the gas through the same needle with which the local anesthetic is injected. He accomplishes this by connecting the syringe from the needle and slipping the rubber tubing leading to the gas apparatus onto the hub of the needle, or by attaching the rubber tubing to the needle by means of an adapter. Following under the direction of Dr. Meyer we have been using this method for some time in primary operations as well as in refills, and it has seemed to be quite satisfactory. The only Gussoneys<sup>1</sup> and others have reported that they have been using this method in refills with satisfac-

tion. An objection that has been raised is that the method is that while the syringe is being detached from the needle and the rubber tubing attached to the hub of the needle is the short time exposed to the atmosphere such some air enters the pleural cavity. Another, and more serious, objection for forced ejection is that should the point of the needle happen to be in a pulmonary vein, where a retrograde, negative, some air may be aspirated into the vein, and the lower end of the needle is exposed to the atmosphere and air entering the entire

#### AUTHOR'S METHOD

In order to avoid the above objection and at the same time make the operation much simpler and easier I have devised a method by which the gas can be introduced through the same needle without removal of any thing opening the lumen of the needle to the atmosphere, or and without any difficult manipulation. The method consists in inserting between the syringe and needle this adapter for introducing the local anesthetic, a narrow, blunt, metal to the one sometimes used for aspiration and removal of pleural effusions. One end of

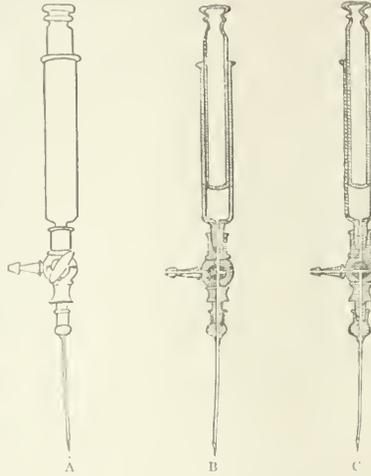
this stopcock has the point of the syringe and the other end fits the needle. A branch extends from the side of the stopcock to which can be attached the rubber tubing leading to the gas apparatus. The stopcock is also provided with a two-way valve so arranged that when the valve is turned one way, the needle communicates with the syringe for drawing up and injecting the local anesthetic, and when it is turned the other way, the needle is communicating with the side-branch leading to the gas apparatus. The stopcock can be made to fit any type of syringe and needle, but we found it best to use an all glass Luer syringe and a sharp steel needle, 1 1/4 inches long and from 21 to 22 gage.

The technic is very simple. First, the stopcock is set so that the needle is communicating with the syringe, and the local anesthetic is drawn up and injected in the usual manner. When the operator thinks he has pierced the parietal pleura, the rubber tubing leading to the gas apparatus is connected to the side-branch of the stopcock, and then a quarter turn of the stopcock valve puts the needle in communication with the rubber tubing leading to the manometer and gas bottle, so that the manometer can be read and the gas introduced.

The syringe may be left in place, but we found it advisable to withdraw partly the piston of the syringe as soon as the anesthetic is injected, so that the fluid that remains in the lumen of the needle is aspirated back into the barrel of the syringe, leaving the needle clear. Moreover, this simple procedure of partly withdrawing the piston of the syringe frequently gives us valuable information as to where the point of the needle is located. If the point of the needle is engaged in tissue, as soon as the piston is released it will be drawn back forcibly into the barrel of the syringe, as if the finger were held over the point of the syringe while the piston is withdrawn. This usually indicates that the needle is not deep enough. If the piston falls back by gravity, the point of the needle is in a free space, either in the pleural cavity or in the lung, and if satisfactory manometric oscillations cannot be obtained, the indications are that the needle is too deep, and it should be withdrawn somewhat. Should blood come up into the syringe when the piston is partly withdrawn, the point of the needle is in a blood vessel, and then it is best to withdraw the needle and insert it in another place.

We have been using this method for about two years in primary operations as well as in refills, having performed thirty-five primary operations and about 350 refills, and we have found it perfectly satisfactory. Among the primary cases, we had a number that were very unpromising from the standpoint of physical signs and roentgenographic findings; yet we have been successful in all but one case, and in the great majority we succeeded in inducing pneumothorax with the first attempt.

There are two objections that might possibly be raised to this method as well as to other methods in which a small, sharp needle is used. First, some claim that a sharp needle is more likely to penetrate and wound the lung than a large, blunt needle, secondly, this needle has no obturator and one may think that it is easily blocked up. As a matter of fact, however, even if a small needle should pierce the lung substance, it is very unlikely that lung tissue will be damaged or that spontaneous pneumothorax will result, while a dull, heavy needle is more likely to cause laceration if it pierces the lung. Furthermore, even those who use a large needle for introducing gas also use a small, sharp needle for injecting the anesthetic, and this is practically what the entire operation



Syringe for use in artificial pneumothorax. A, syringe, stopcock and needle ready for use. B, valve of stopcock arranged for injection of anesthetic. C, valve turned for introduction of gas.

\* From the Department of Surgery, Country Synagogue, Belford Hill, N. Y.  
1. Meyer, A. Tr. Nat. Anest. Study & Prev. Tuberc. 11: 702, 1917.  
2. Gussone, H. J. Tr. Exp. Med. 14: 1, Rebell in Artificial Pneumothorax, J. A. M. A. 72: 4 (March 20) 1919.

consists of with our method. As to the absence of an obturator, if the needle is small and sharp it is not likely to be blocked up with tissue, especially in this case in which the anesthetic fluid, being forced through the needle, acts like an obturator. Should the needle become blocked up with a drop of blood, it can easily be dislodged by moving the piston gently up and down, or a small amount of anesthetic fluid may be retained in the syringe and then forced through the needle whenever it becomes necessary to clear it. At any rate, we hardly ever had any trouble due to a blocked needle.

ADVANTAGES

The advantages of this method over the two-puncture method are obvious:

1. The operation is rendered much simpler and easier.
2. The amount of trauma to the pleura is greatly minimized, and so pleural shock is less likely to occur. Though the cause of pleural shock is not well known, yet judging from what is known about shock in general, it is reasonable to suppose that pleural shock is less likely to occur when the pleura is punctured with a small needle than when it is pierced with a dull trocar and cannula.
3. Subcutaneous emphysema is less frequent.
4. The patients do not dread the operation so much when this method is used, as they consider it of a minor character, and it is well known that the state of mind of the patient is an important factor in the success of the treatment.

INFLUENZA AND EPILEPTIFORM ATTACKS

L. PIERCE CLARK, M.D., NEW YORK

Since no case has yet been recorded in which epilepsy or epileptiform attacks have apparently been initiated by influenza, a case of this type may be worthy of brief mention. It is the only one of which I am aware.

REPORT OF CASE

A boy, aged 2 years, with an unimportant family and personal history, contracted a severe attack of influenza in January, 1919. He had a temperature as high as 104. The disorder was initiated by general convulsions which endured for several hours. The fever lasted four days. A week later, after a normal temperature for two days, he again had a fever of from 104 to 106 but without convulsions, and pneumonia developed. He was ill ten days, and two weeks after recovering he began having almost daily both grand mal and petit mal attacks. He had a persistent cough and was physically prostrated for several weeks. He slept poorly, was irritable, and did not gain in weight. The convulsions seemed to have been rendered worse by the advent of dentition. When this was completed, in July, however, the attacks began to appear daily (as many as fourteen a day) in spite of fair physical health, and without any other obvious cause. The whole mental development ceased at the onset of the influenza and pneumonia. Even some words already learned at that time, as well as his ability to creep and walk with slight support, were lost. Since the latter part of July, during which time this boy has been under my observation, he has had a decreasing number of petit mal attacks until now, when slight ones appear only at weekly intervals. The treatment has been hygienic, dietetic and moral. He is gaining in weight. Mental development is progressing normally although still somewhat retarded for a boy of 2 years, it being about equal to that of a child of 1 year.

COMMENT

While one may not say positively that the influenza and pneumonia caused the epileptic attacks in this child, the latter condition was certainly precipitated by this infectious disorder, and the sequential convulsions bear the earmarks of epilepsy in that there has been tongue-biting and voiding during attacks. The prognosis would seem to be favorable, although an entire arrest cannot be predicted from this short period of treatment.

20 West Forty-Eighth Street.

SIMPLIFIED APPARATUS FOR OBTAINING ARTERIOGRAMS\*

ARTHUR N. DONALDSON, A.B., M.D., LOMA LINDA, CALIF.

In the use of the polygraph we have found that unless plenty of hands are available, the application and operation of the sphygmograph is a trial to the patience of both patient and technician. Some time ago R. H. Halsey<sup>1</sup> described the use of an Erlanger capsule for obtaining a brachial arteriogram, which we tried with indifferent results. We were unable to obtain a bulb of just the right elasticity to transmit

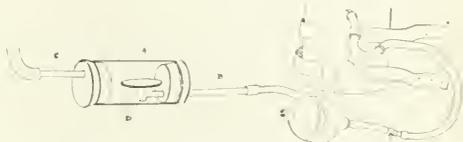


Fig. 1.—Capsule used for obtaining brachial arteriograms: A, cylinder, 5 cm. wide and 9 cm. long whose ends are plugged by rubber corks, each perforated by a single opening; B, Marey tambour glued in hole of one cork; C, short glass tube connecting capsule with recording tambour of polygraph; D, one thickness of ordinary dental dam on Marey tambour.

properly the pressure changes. We believe we have found a substitute for the Erlanger capsule that will serve all purposes admirably, and that can be inexpensively put together in any laboratory.

A graduate, about 5 cm. in diameter, may be used and cut so as to secure a cylinder, 9 cm. long. The two ends (Fig. 1 A) are plugged with rubber corks, each perforated

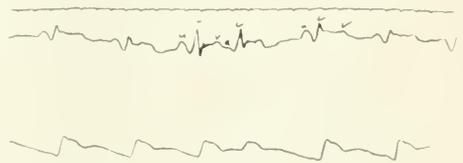


Fig. 2.—Polygraphic tracing; arteriogram produced by use of the apparatus described, showing extrasystole.

by a single opening. Glued in the hole in one cork is the stem of an ordinary Marey tambour (Fig. 1 B); in the other cork is a short glass tube (Fig. 1 C) to connect the capsule with the recording tambour of the polygraph. On Marey's tambour is used one thickness of ordinary dental dam (Fig. 1 D). This holds the pressure in the cuff and responds readily to brachial pulse changes.

With this arrangement and a pressure equal to the diastolic pulse in the cuff, the delicate recording tambour of the poly-

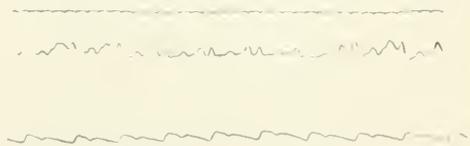


Fig. 3.—Tracing obtained with cuff over sleeve on woman.

graph responds with a gratifying amplitude; and we have no fears of any interruption in our tracing when dealing with a nervous patient who may find it hard to keep quiet.

\* From the Department of Physiology, College of Medical Evangelist.

<sup>1</sup> Halsey, R. H.—An Adaptation of the Erlanger Capsule to Any Polygraph for Obtaining Arterial Pulse Records, *Arch. Int. Med.* 17: 340 (April) 1916.

**Teeth and Their Care.**—Brushing the teeth should become a regular part of the child's daily life, just as putting on high-shoes in the morning and taking them off at night—*Minnesota Health J.*, Nov. 13, 1919.

### Therapeutics

A TREATISE DEDICATED TO THE IMPROVEMENT OF LITERATURE  
A SYSTEM FOR THE DISSEMINATION OF THE UP-TO-DATE  
AND EASILY REMEMBERED INFORMATION OF DISEASE

### USE AND ABUSE OF CATHARTICS \*

(Continued from page 1695)

#### BRAN

That constipation is a disease of civilized man and due to the use of too concentrated food is a bromide commonplace, the truth of which might, however, be challenged. If the food of savage man represents a more advanced stage of evolution than the bulky food of early man, then our still more concentrated diet must be considered a further step in advance. It is true that the progress of civilization has been accompanied by a refinement of food and elimination of indigestible residue, chiefly cellulose, as to lead to the production of a smaller quantity of fecal matter and to less frequent bowel evacuation. This tendency is not in itself bad. Most of us enjoy this concentrated and partly pre-digested food, and many of us thrive on it. It must, however, be admitted that the intestine of some may not have become adjusted to this ballast-poor diet, but the condition within the bowel of such persons may become pathologic, and that it is necessary for them to return more nearly to the diet of their ancestors by increasing the indigestible residue in their food.

The "back to nature" cry of the health faddist need not lead us to the habitual admixture of sawdust, bran or similar substances to our food. When, however, there is constipation, the question whether increase in cellulose is indicated is important. Unless the patient is of the type characterized by excessive digestion of cellulose and flatulence therefrom; and unless the patient suffers from gastric motor insufficiency or intestinal atony, we should favor cellulose in the diet. There are three forms in which cellulose may be added to the diet: in fruits, vegetables and bran. Of these, bran is the richest in cellulose and is one of the most effective purgatives of constipation.

If practicing physicians do not make more frequent use of bran, which its laxative properties have so long been recognized in the very general use of bran meals, to prevent a tendency to constipation in farm families, the evident reason for this is that bran is not a drug, and hence there is very little information regarding it to be found in the books ordinarily in the possession of medical practitioners.

Using, as we usually do, bran, the outer covering of wheat is exceedingly difficult to reduce to a fine powder. The trouble and expense of grinding it is so great that one of the first steps in the milling of flour is the removal of it. However, in rejecting the bran, the farmer discards some of the most useful constituents of wheat, and he loses from its composition:

Protein	1.6
Starch	1.6
Cellulose	6

The most important constituent of bran is its cellulose, of which it contains almost 20 per cent. This cellulose is in a dense, woody form, almost indigestible in the human digestive tract. As the nutritive con-

stituents of bran are enclosed within walls of this indigestible cellulose, much of them passes through unchanged. Bran is therefore chiefly to be looked on as a form of almost indigestible carbohydrate, which is endowed with considerable laxative value, not only because it adds by its bulk to the distention of the intestine, but also because of the spiculate shape of its particles. Excessive irritation does not result from these; for, when properly moistened and heated, bran becomes as soft and pliable as wet paper, and hence produces merely a gentle titillation and is usable even in patients with a tendency to colic. Some of the cellulose undergoes fermentation, giving rise to gas and acid, both of which are laxative. It is furthermore possible that there is a chemical laxative factor present in bran itself, for W. H. Jordan, E. B. Hart and A. J. Patten of the New York State Experimental Station found that the laxative action of bran for cattle was lost when the soluble phosphorus compound named phytin had been extracted. These experiments will have to be confirmed for man.

The dose of bran is a considerable amount; tablespoonfuls rather than teaspoonfuls; two of them rather than one; and taken several times, at least twice daily, best with meals, and indefinitely. We do not have here a cure for constipation in the sense that its use can, after a while, be discontinued. It is generally necessary to employ bran as a regular ingredient of the diet; hence the importance of making the patient enjoy its use, and the desirability of making it an integral part of the meals by means of cooking. Of course, the patient may take it, as is often recommended, stirred into a glassful of water after meals. Sooner or later, however, he will get tired of this uninviting pottage, and "forget" to use it. Let the bran enter the kitchen and have the cook see to it that the patient takes enough by making it up into dishes so palatable and diversified that one will never tire of taking it. It is only when used in this way that bran really "cures" or takes care of constipation.

The subjoined cooking recipes<sup>1</sup> might furnish some suggestions for the palatable administration of bran. There are, of course, many other ways, among which may be mentioned; graham or whole meal bread and crackers; bran with cream and sugar; bran mixed, up to one third, with breakfast cereal; bran added to vegetable purées and to fruit sauces; bran incorporated in fish cakes, minced meat, etc. Perhaps the best way to serve it is in bakery products, in which bran may replace white flour up to the extent of 50 per cent. Even pie crust may thus be made with bran.

#### BRAN RECIPES

##### BRAN POTATO SOUP

Make potatoes, add water, milk or cream to make a thick cream, and add bran. To every cup of the thin cream add

- 1/2 cup bran
- 1/2 cup soft butter
- Salt, celery salt and paprika

Bring mixture to the boiling point and serve.

##### BRAN MUSH

- 2 cups bran
- 1 cup boiling water
- 1 tea spoonful salt
- 1 cu. cl. figs or dates

Add bran to boiling salted water and boil from three to five minutes. Cook one hour in a double boiler, adding the figs or dates ten minutes before the mush is done.

<sup>1</sup> Adapted chiefly from Frances E. Stewart's "Cookery for Invalids" (Rand McNally & Co., to be published) and Abba Francis Patton's "Practical Dietetics" (McGraw-Hill, N. Y., published by the author, 1919).

\* This is the first of a series of articles in the pharmacology and practical application of the common laxatives and emetics. The first article appeared October 18.

BRAN MASHED POTATOES

2 cups hot mashed potatoes, 1 to 3 tablespoons butter  
freshly prepared  
¼ teaspoonful pepper ½ to ¾ cup hot milk or cream  
¼ teaspoonful salt ¼ cup bran

Add one-fourth seasonings to the potatoes and whip mixture until light. Stir in the bran and serve.

BRAN GRIDDLE CAKES

1 cup bran ½ teaspoonful salt  
1 cup flour 1 teaspoonful baking powder  
1 tablespoon sugar 1 cup milk  
½ teaspoonful butter or shortening 1 egg

Mix dry materials, add egg slightly beaten and milk and butter as substitute. Beat thoroughly and bake on a hot griddle. Serve with butter and syrup. This will make twenty cakes.

SWEET MILK BRAN BREAD OR MUFFINS

3 cups bran ¼ cup sugar  
3 cups white flour 2 cups milk or water  
2½ tablespoonfuls baking powder 2 eggs, beaten very light  
2 teaspoonfuls salt ¼ cup fat, melted and cooled

Mix the dry ingredients together thoroughly. Mix the liquid ingredients (including the fat, melted and cooled somewhat). Add the dry to the liquid ingredients, and mix only enough to blend them well. Bake in either of these forms:

As bread: Fill a greased bread tin two-thirds full of mixture and bake it forty-five minutes in a slow oven.  
As muffins: Fill greased muffin tins two-thirds full of mixture and bake from twenty to thirty-five minutes in a moderate oven, 342 F. or 190 C.

SOUR MILK BRAN BREAD OR MUFFINS

2 cups bran 2 cups thick sour milk or butter  
4 cups Graham flour milk  
1 teaspoonful soda 2 teaspoonfuls fat, melted and cooled  
2 teaspoonfuls salt  
1 cup molasses (not black)

Directions same as in preceding recipe excepting that the baking time for bread should be one and one-fourth hours.

This bread is almost as sweet as gingerbread. Children usually like it. When desired less sweet, reduce the molasses and increase the sour milk accordingly.

YEAST BRAN BREAD OR MUFFINS

1½ cups milk ½ cup lukewarm water  
3 teaspoonfuls molasses (avoid 2¼ cups white flour  
black) 1¼ cups Graham flour  
1 tablespoonful fat 1 tablespoonful salt  
2¼ cakes compressed yeast (size 2 cups bran  
1½ by 1½ by ¾ inch)

Salt the milk, then cool it to blood temperature. Blend the molasses, fat and yeast with the lukewarm water to make a smooth paste. Add the molasses mixture to the lukewarm milk. Add flour to make a sponge, or thick batter. Beat the sponge from three to five minutes, cover, and put in a warm place until it is double in bulk.

Add salt and bran, and beat dough to hard from three to five minutes in a bowl, using a wooden spoon. The dough should be of the consistency of soft baking-powder by cut dough.

Half fill with dough a well-greased bread tin or muffin tin, then lightly rub the top of dough with fat.

Let dough stand in a warm place until it is double in size, then bake. Do not put the dough while putting it into the oven, and it is only to fall. Bake in a cup.

Raisins, from one-half to 1 cup, soaked from one to two minutes in boiling water and then dried, or one-half cup of large raisins, cut in shies, or both, may be added if desired.

BRAN BISCUIT

1 cup wheat bran 1 teaspoonful melted butter  
¼ cup improve Graham flour 1 tablespoonful salt  
1 teaspoonful baking powder Milk

Sift dry ingredients, rub in the butter, and add milk to make a stiff dough. Roll it out and bake in hot oven.

BRAN COOKIES

1 cup bran 1 cup milk  
1 cup white flour ¼ cup molasses  
½ cup Graham flour ¼ cup milk  
2 tablespoonfuls butter or lard ½ teaspoonful salt  
2 teaspoonfuls baking powder 1 egg

Beat together butter and sugar, egg and milk. Add dry materials. Drop the mixed batter with spoon in well-greased tin. Bake about twenty-five minutes in hot oven. This makes three dozen cookies.

Raisins may be added as follows: Wash the raisins, let drain in warm water to cover and then boil them in the water until they are plump. Drain, dry and chop them.

Cinnamon, nutmeg and chopped nut may be added to the list of ingredients, if desired.

To vary the recipe the cookies may be covered with cooled and chopped figs or dates, and dusted with powdered sugar.

BRAN MACAROONS

1 egg 1 cup almonds (tooth-chippin)  
1 cup granulated sugar 2½ tablespoonfuls bran  
2½ tablespoonfuls flour

Beat egg and sugar until very light. Add nuts and then flour. Drop on buttered tin, and bake in a moderate hot oven ten minutes.

MAKING CASTOR OIL TASTEFUL OR TASTELESS

DR. GEORGE F. KEPER LaHaye, Ind., writes: "There are the excellent articles appearing in THE JOURNAL on the Use and Abuse of Cathartics," especially the one in last week's issue on "Castor Oil," may I make a suggestion as to a way in which it may be made tasteless?

"Take a glass of ice water. Pour on the water the dose of the oil. The oil will congeal into a bolus, as it were, which will pass the lips, teeth and tongue as one mass, untrasted."

"This suggestion I obtained years ago from one of our elders in the profession."

COMMENT.—Numerous formulas have been suggested for making castor oil tasteful or tasteless. The "Pharmacology of Useful Drugs," by Hatcher and Wilbert, suggests that because of its disagreeable taste, castor oil is given preferably with pungent, freely frothing beverages, or enclosed in soft gelatin capsules, holding about 1 teaspoonful. It may also be administered in the form of a mixture or emulsion and the latter type of administration is becoming popular. The following may be used as a type formula.

	Gm. or Cc.
R Benzosulphimid (saccharin).....	0.65 1 grain
Oil of cloves.....	0.2 3 drops
Oil of cinnamon.....	0.3 5 drops
Alcohol.....	4.0 1 fl. dram
Castor oil, a sufficient quantity to make.....	100 3 fl. ounces

In making this mixture, the benzosulphimid, oil of cloves and oil of cinnamon should be dissolved in the alcohol and this in turn added to the castor oil.

BURNS OF THE EYE BY LIME

The increase in the use of chlorinated lime for household purposes has resulted in a somewhat greater prevalence of burns of the eye by this substance. During July and August some twenty cases were brought to the attention of the National Committee for the Prevention of Blindness. The circumstances in each case were that a sudden explosion of gas from the inside of the can followed the opening of the container, the shower of lime dust usually striking the eyes and face of the victim. In most cases, complete recovery followed, as medical care was usually provided immediately after the accident. The care of such a case usually includes anesthetization with a few drops of 1 per cent. solution of holocain or a 4 per cent. solution of cocaine and then the removal of the remaining particles of the lime. The irrigating fluid should be a weak solution of vinegar to neutralize the caustic effect of the lime. Subsequently, cell applications may be applied to the closed lids, and a mild anesthetic used as a home and solution. Irrigate into the eye every two or three hours. If the burn is at all extensive, the conjunctival sac may be filled with an antiseptic ointment, which not only relieves the pain but also prevents the adhesion of opposing surfaces. The most important and important sequel is the adherence of the lid to the globe (symblepharon) when there are two opposing raw surfaces. In an endeavor to prevent these accidents, the national committee took up the matter with manufacturers and distributors. The latter report that chlorinated lime decomposes when exposed to high temperature or to dampness. To avoid smoking, it is recommended that a small hole be punched in the container to allow the gas pressure to be released before the top is taken off the can.

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SATURDAY, DECEMBER 6, 1919

## DOES SILICON HAVE A PHYSIOLOGIC SIGNIFICANCE?

The occurrence of the element silicon as a constituent of animal tissues has often been reported. For the most part, however, it has been regarded as an adventitious component that has accidentally found its way into the organism and been deposited somewhere because of the insolubility of many of the compounds of silicon. Accumulations have been discovered in the lungs as the result of inhaled dust containing siliceous particles. Among gold miners, silicosis thus arises just as anthracosis results from the inhalation of coal dust, siderosis from iron-containing dusts, and aluminosis from clay dusts.

The late Professor Kobert of Rostock and his pupils have been inclined in recent years to ascribe great importance to silicon, which they regard as a normal rather than an accidental constituent of certain tissues. Ever since the discovery of the unique physiologic rôle of minute quantities of iodine in the body there has been a temptation to search for traces of many other elements not hitherto regarded as essential to the normal functions, and to discover a possible unexpected significance in their biologic occurrence. Manganese, arsenic and zinc have thus received consideration because they are quite commonly present at times in the living tissues. Silicon has likewise had its claims for recognition from the standpoint advanced. Thus Kunkel<sup>1</sup> of Würzburg, having discovered it in numerous analyses of the pancreas, actually arrived at the conclusion that silicon is stored in this organ much as iodine is deposited in the thyroid and iron in the liver. As the result of his numerous extensive investigations, Schulz<sup>2</sup> maintained that silicon is an accompaniment of all connective tissue, the content of the latter therein being greater in the less developed stages.

An occasional connection between silicosis and tuberculosis of the lung has been recorded in the past. In such cases, however, the tuberculosis has been regarded as a secondary factor to which all dust dis-

cases of the lung predispose. There is no doubt that silicosis may occur without any symptom of tubercles. Kobert and his pupils<sup>1</sup> have approached the relation of silicon to the lungs from a different point of view. Having observed that the connective tissue of the lungs contains silicon and that in the fibrous type of phthisis this tissue is further enriched in respect to the element, they assume that the latter plays a part in the successful development of that tissue which is responsible for the healing or circumscription of the tuberculous lesions. Consequently they have suggested the use of soluble silicates in the therapy of pulmonary tuberculosis.

Gonnermann<sup>3</sup> has revived the view that silicates may contribute to the induration of tissues which might, without silica, fail to heal satisfactorily in the neighborhood of lesions such as those described. He points out that many of the popular folk remedies for tuberculosis of the lung are comparatively rich in silica, thus suggesting an unsuspected possibility to explain their use. It would be unjustified to create any enthusiasm for a therapeutic suggestion that has comparatively so little to commend it. Even if the silicates are devoid of any real significance whatever in relation to the objects discussed, it is worthy of note not only that they are nontoxic in ordinary doses but also that silica is more widely distributed than is suspected in products that may serve as foods. Under these circumstances it need not be surprising if silica is distributed by chance rather than physiologic purposefulness in the body, just as its deposition in true silicosis is the result of accidental circumstances.

## THE CONSERVATION OF ANTISCORBUTIC FOODS

Reports which are accumulating from various regions of war-stricken central and eastern Europe indicate that dietary deficiency diseases, notably scurvy, are rife among the unfortunate populations, which are unable as yet to secure their usual quota of food in its normal variety. The possibility of relief is hampered by the difficulty in providing and transporting those foods which are recognized as having conspicuous protective value. Fresh vegetables and fruits, on which reliance is commonly placed to combat or avert scurvy, are scarce or unavailable. Fresh milk, which is usually depended on to safeguard the nutritive welfare of infants, is obtainable not at all or only with great difficulty in some of the afflicted regions. The dairy situation and the outlook for immediate relief are anything but promising.

In this predicament the agencies for relief have first of all considered the possibility of supplying vegetables,

<sup>1</sup> Kunkel, A. J. Sitzungsber. d. phys.-med. Gesellsch. zu Würzburg, Jahrg. 1899, p. 78.  
<sup>2</sup> Schulz, H. Arch. f. d. ges. Physiol. 84: 67, 1901; 89: 112, 1902.

<sup>3</sup> Siegfried, A. Ein Beitrag zur Kenntnis des physiologischen und pharmakologischen Verhaltens des kohlensauren Natriums, etc., Arch. internat. de pharmacol. et de ther. 9: 285, 1901.

<sup>4</sup> Gonnermann, M. Beiträge zur Kenntnis der Biochemie der Kieselsäure, Ztschr. f. physiol. Chem. 99: 255, 1917.

fruits and milk—the foods seemingly most essential in the crisis—preserved in some way which would permit of sanitary and economic transport, as well as represent modest costs within the range of trade limitations. As has been indicated on previous occasions in THE JOURNAL, an unexpected obstacle was encountered in the more recent discoveries that various foods of this character lose their antiscorbutic potency in great measure or entirely as the result of the modes of preservation. This has been demonstrated for the current methods of desiccation with the aid of heat. The factors primarily responsible for the destruction of the antiscorbutic property are by no means understood as yet. Mere cooking in the usual culinary fashion does not necessarily destroy all the antiscorbutic potency of vegetables. Hess and Unger<sup>1</sup> have reached the conclusion that the method of preparing dehydrated vegetables may yet be perfected so that a product can be furnished that will be comparable in nutritional value to the fresh vegetable. They add that the problem seems to be one that is open to solution. The question of the degree of heating, which is generally regarded as of prime importance, appears to be merely one of several factors. Ideal conditions for furnishing dehydrated vegetables include the use of young vegetables, dehydrated shortly after they are plucked, and kept well sealed until they are to be eaten, and probably numerous other details which must be carefully observed if deterioration is to be prevented. Meanwhile no dependence can be placed on dehydrated vegetables as antiscorbutics.

The Committee on Accessory Food Factors, appointed jointly by the Medical Research Committee of England and the Lister Institute, has recently issued a statement that "canned vegetables are useless for prevention of scurvy." This dictum is probably the outcome of recent investigations conducted by Chick and her collaborators at the Lister Institute in London.<sup>2</sup> Experiments with cabbage and beans indicated that in the process of canning the greater part of the original antiscorbutic value of the raw vegetable is destroyed. In the case of runner bean pods, the loss is estimated at about 90 per cent. of the original value; in the case of cabbage, at about 70 per cent. of the original value. The process of canning cabbage included heating in water for about one hour at from 90 to 100 C., and for beans the process was repeated on the day following. This loss is primarily due to the destruction of antiscorbutic material occurring during the heating involved in the process of canning. A further loss may be expected to take place during the period of storage.

Before condemning canned foods in general as the result of such somewhat limited experience, we must recall the observations of American investigators on

the antiscorbutic value of canned tomatoes. Hess and Unger<sup>3</sup> have tested them with successful results both in the experimental scurvy of the guinea-pig and in infantile scorbutus. Tomatoes have also been desiccated without loss of all their antiscorbutic power.<sup>4</sup> Here, again, sweeping generalizations should be avoided.

We feel constrained to utter a similar warning in the case of dried milks. It is generally conceded that if milk is heated sufficiently, for example to 120 C. for an hour, its antiscorbutic power, at best not pronounced in the fresh fluid, is entirely lost. According to Barnes and Hume,<sup>5</sup> dried milk also is decidedly inferior. The specimen tested by these English investigators was desiccated by the Just Hatmaker process. Hess and Unger<sup>1</sup> have emphasized, however, that milk does not necessarily lose its antiscorbutic value in the course of drying. If it is dried rapidly, even at a temperature of about 240 F., it retains sufficient of the protective factor to have curative value, provided, naturally, that it was fresh at the time of drying. In considering the question of destruction of this vitamin by heat or by alkali, the duration of exposure to the detrimental influence is of the greatest importance. Let us hope that the manufacturers of dried milks, which seem destined to play an important part in the nutrition of the young in case fresh milk is not available, will devote their energies to the perfection of methods that shall in greater measure conserve the antiscorbutic potency of the mammary secretion. Barnes and Hume maintain as the result of their studies at the Lister Institute that "scalded" milk, that is, milk brought rapidly to a boil and then immediately cooled, is distinctly superior, as an antiscorbutic, to dried milk. They also venture to suggest, on the basis of what we regard as rather slender evidence, that winter milk is inferior to summer milk in antiscorbutic properties, corresponding to the differences in the cow's diet at these different seasons.

The recent investigations here and abroad have increased the list of products demonstrated to exert antiscorbutic potency, and have likewise helped to eradicate some erroneous beliefs. Orange juice no longer is the sole help in times of scorbutic distress. The latest addenda are the dry tamarind, cocum and mango, which possess, according to Chick, Hume, and Skelton<sup>6</sup> of London, a definite, if small, antiscorbutic value. The experimental demonstration of this fact accords with the esteem in which these fruits are held as antiscorbutics among some of the natives of India. Their value is now reported to be greatly inferior to

1. Hess, A. F., and Unger, L. J. Scurvy. VIII, Factors Affecting the Antiscorbutic Value of Foods, *Am. J. Div. Ch.M.* **17**:421 (Apr.) 1919.

2. Campbell, Mabel E. D., and Chick, Harriette. The Antiscorbutic and Growth-Promoting Value of Canned Vegetables, *Lancet* **2**:1320 (Aug. 23) 1919.

3. Hess, A. F., and Unger, L. J. (Continued). Part 8. Food. *Boh. & M.I.* **15**:196, 1918.

4. Givens, M. H., and McCann, H. B. The Antiscorbutic Property of Vegetable. I. An Experimental Study of Raw and Dried Tomatoes, *J. Biol. Chem.* **37**:233 (Feb.) 1919.

5. Barnes, Raymond L., and Hume, F. Margaret. A Comparison Between the Antiscorbutic Properties of Fresh, Homogenized, and Dried Cow's Milk, *Lancet* **2**:1311 (Aug. 23) 1919.

6. Chick, Harriette, Hume, F. Margaret, and Skelton, Ruth E. The Antiscorbutic Value of Some Indian Dried Fruits, *Lancet* **9**:136 (Aug. 23) 1919.

that of raw cabbages, swedes, germinated pulses, and orange or lemon juice, but equal or superior to that of carrots, beetroots, cooked potatoes or raw meat juice, compared weight for weight in the natural condition.

#### THE NEW BACCHUS

No longer should artists—at least American artists—represent Bacchus astride a wine barrel; the little god should be depicted astraddle a "patent medicine" bottle. While no statistics are at hand—largely because those who could collect such statistics are not going to publish them—on the increase in the consumption of the numerous highly alcoholized "patent medicines" since the advent of national prohibition, there is no question that the sales of these products have been mightily augmented. As every physician and pharmacist knows, there are on the American market a number of widely advertised and extensively sold "patent medicines" whose most potent ingredient is alcohol. All such preparations, of course, contain, in addition to the alcohol, certain drugs on which the manufacturers base their therapeutic claims. These drugs, in nearly every instance, are either harmless or, if potent, are present in such small quantities as to have a negligible physiologic effect.

The problem of controlling the sale of these alcoholic medicines can be satisfactorily solved in only one way and that way is to prohibit the use of alcohol in preparations of the "home remedy" type, that is, in those products which are sold indiscriminately to the public for the self-treatment of disease. Such action has already been taken with reference to a drug like cocaine, for instance, and in a modified form with reference to opium and its derivatives. Alcohol is a powerful drug. It is likely to be misused; so likely, in fact, that the United States has decided it is too dangerous to be used for beverage purposes. If alcohol is to be used for medicinal purposes it should be under medical supervision and the medical profession should be held as strictly accountable for any misuse of the drug as it is now held responsible for the misuse of the drugs covered by the Harrison Narcotic Law.

The manufacturers of "patent medicines" of the alcohol type all deny that the alcohol is present for its drug action; it is used as a "solvent" or as a "preservative" or "to prevent freezing" or for some other reason. They argue that certain drugs can be extracted only by means of alcohol. This is true. It is equally true that after these substances have been so extracted, the alcohol can be evaporated and the drug principles that are left can be put up in the form of tablets or capsules. In many instances glycerin can be used as a solvent where a liquid medicine is desired.

One of the chief arguments put forth by the manufacturers of alcoholic "patent medicines" is of the *ad hominem* type. They declare that physicians prescribe

tinctures, fluidextracts, etc., which contain alcohol in varying amounts. Very true. Physicians also prescribe such dangerous drugs as cocaine, morphin, strychnin and arsenic, when in their judgment such drugs are indicated. This is no reason, however, why dangerous drugs should be sold indiscriminately to every Tom, Dick or Harry who has a pain or who, by reading nostrum advertisements, has been made to think he has a pain.

The nub of the whole thing is that none of these alcoholized "patent medicines" would have any vogue were the alcohol removed; neither would such removal affect the therapeutic value—real or supposititious—claimed for such products.

#### THE MEDICAL CURRICULUM, THE LABORATORY AND MEDICAL PRACTICE

Tradition is potent in medical practice, as in other fields of human activity. We cling to the old so long as it is not positively harmful. Bloodletting as a routine procedure was as reluctantly abandoned as was the use of the magical rod. Likewise many remnants of the *materia medica* of bygone days are retained as a supposedly precious heritage, although the justification for their application in therapy would put a severe strain on the scientific logic of devotees. Rational therapy must be justified by demonstrable clinical results. This does not mean that drugs and pharmaceutical products are necessarily of limited value because the secret of their beneficial effects has not been unraveled by the scientific investigator. Science may be late in furnishing an explanation of unquestionable potency in long used agents.

Our criticism is leveled at those types of pseudo-therapy which retain procedures and products that may placate the patient while they leave the physician, like the medieval medicine man, a mere prescriber of a traditional something. Cushny,<sup>1</sup> in a lecture to the students of medicine at the University of Edinburgh, has well remarked that although we must not dispraise the ancient physicians, the fathers of medicine to whom we owe so much, too much veneration for our ancestors hardly makes for progress, and may be a burden to our young men. The division of medical teaching into a dozen or more departments, Cushny adds, had not for its object that the student should be taught twelve times as much, but that he should be taught more accurately. We must scrap our obsolete weapons, and send out young physicians adequately armed with the best, and not burdened with the superfluous. The teaching in *materia medica* should be limited to drugs of real importance in therapeutics or in the principles they illustrate.

Another criticism that is directed against the present day trend in scientific medicine intimates that it tends

1. Cushny, A. R.: *Progress in Materia Medica*. Edinburgh M. J. 2:1-317 (Dec.) 1918.

to develop an aloofness from the human being because of its devotion to the laboratory. It is assumed that the latter is essentially a factor either for devising methods of diagnosis or for exposing the worthlessness of many supposed remedies. Undoubtedly laboratory investigation has done much to relegate certain drugs and devices to the rubbish heap; but it has also furnished an intelligible explanation for the worth of many others. In this connection we cannot forbear quoting Cushny's reminder of the debt to the laboratory. It is a fact, he says, that is not always remembered, that in the last half century no drug of the first importance has entered by any other portal than that of the experimental laboratory. Without it, Cushny adds, we should have to depend on opium and morphin for soporifics; chloral and its allies would be unknown. Cocain and the local anesthetics and analgesics would not be available, nor the antitoxins and arsphenamin. If it were possible to estimate the value of the life saved and the suffering relieved by even two or three of the remedies introduced by the laboratory route, and put it against the expense of all the laboratory investigations throughout the world, the dividend would be found so enormous that the cry would be, not for economy, but for lavish expenditure in such a paying investment.

## Current Comment

### STANDARDIZATION OF LABORATORY TESTS

So long as laboratory tests employed by practitioners of medicine are simple, there is little opportunity for confusion in their interpretation. However, errors of interpretation are likely to occur in the use of complex reactions or when uniform standards are not adopted. Several years ago the writer of a paper on scabies asserted that all persons with scabies had albuminuria; subsequent investigation showed that the test for albumin which was used was so delicate that it showed the presence of albumin even in normal urines. Many of the modern laboratory tests, such as the Widal and Wassermann reactions, are extremely complicated. The technic of these tests has been gradually modified by different observers so that now many systems of performing the tests are in use. In a recent article by Kolmer and Flick,<sup>1</sup> eight different methods of performing the Wassermann test are compared, and it is demonstrated that each gives different results. The same thing is true of the Widal reaction, as has been pointed out by Dreyer. Obviously, it is desirable that every one who discusses the results of the Widal reaction or of the Wassermann reaction should refer to the same thing. When this is not the case, the figures regarding the validity of a given test presented by different observers are not comparable, and confusion rather than enlightenment results. The time has come when these tests should be standardized throughout the world. Such standardization need not exclude further

experimentation on any of the tests in question, and provision should be made for the reconsideration of the standards at stated intervals. As a step in this direction the U. S. Pharmacopoeia already has a section on Diagnostic Reagents and Clinical Tests which, thus far however, is chiefly concerned with the strength and purity of reagents. The United States government maintains a Bureau of Standards, and it is possible that through this organization or some similar one the important work of standardizing laboratory tests can be accomplished. In any event, the work needs to be done.

### THE ACTION OF THE PYLORIC SPHINCTER

The current teaching regarding the control of the pyloric sphincter and the emptying of the stomach is largely due to the writings of Cannon and his associates at the Harvard Medical School. They have suggested that it is under chemical rather than purely mechanical control. Acid on the stomach side is regarded as a cause of the relaxation of the pyloric sphincter, whereas on the duodenal side the same reaction tends to produce a closure of the sphincter and an inhibition of gastric evacuation. Among the evidences of the first proposition is the fact that carbohydrate meals with a low acid absorbing power leave the stomach rapidly; but if an alkali, like sodium bicarbonate, is added, the exit from the stomach is delayed. Proteins which combine with acids leave the stomach slowly as a rule, whereas acid proteins are discharged into the duodenum more promptly. This hypothesis fails to explain certain admitted facts, such as the emptying of the stomach in achylia gastrica and the rapid exit of water from the stomach. In extensive roentgen-ray studies on the movements of this organ in man, Cole<sup>2</sup> has pointed out that in health, as well as in disease, the first portions of the food ingested by the fasting stomach may leave it promptly. As acidity can scarcely be assumed to develop so early as a relaxing stimulus, Cole correlated the opening of the pylorus with the passage of peristaltic waves and an increased tonicity of the stomach. Investigations of the gastric functions, both in man and in animals, at the physiologic laboratories of the University of Chicago have brought Luckhardt, Phillips and Carlson<sup>3</sup> similarly to the conclusion that certain motor activities of the stomach are intimately associated with the relaxation of the pyloric sphincter, thus correlating this with mechanical as well as more purely chemical developments in the organ. Marked motor activities, either as tonus changes or peristalsis, as well as the presence of free acid may lead to inhibition in the tone of the sphincter at the pylorus and to its consequent opening. This explains why water alone may issue neutral from the stomach, as Ivy<sup>4</sup> has reported. According to the Chicago physiologists there is a more intimate relation between the muscular activity and the opening of the pylorus than between the latter and the reaction of the intra-

1. *Cole*, I. G. *Am. J. Physiol.* **42**:611, 1911. *Physiology of the Digestive System*, Ventnor, and Descriptive and Observed Entomology, J. A. M. A. **61**:769 (87), 611 (88).

2. *Engelmann*, A. B. *Philosophy of Food and Nutrition*, A. L. C. Co., 1911. *Ann. N. Y. Acad. Sci.* **11**: 1-10, 1912. *The Control of the Pylorus*, *Am. J. Physiol.* **50**:7, 1919.

3. *Ivy*, *Am. J. Physiol.* **40**:13, 1918.

4. *Kolmer and Flick*, *Am. J. Syphilis* **3**:541, 1919.

gastric contents. Thus they record that very quickly after ingestion of food, fluoroscopic examination of the stomach of man, while indicating the motor activity of the stomach, shows that the pylorus opens for the ejection of chyme with arrival at the sphincter of powerful advancing rings of constriction, perhaps aided, as has been suggested, by a general increase in the tone of the stomach musculature as a whole.

#### TEST FIGHT ON SOCIAL INSURANCE IN NEW YORK

The governor of New York has announced that, as a part of his administration program, an effort will be made at the coming session of the state legislature to pass a bill providing for compulsory state health insurance. In this policy, he has the support of the New York State Federation of Labor. The Medical Society of the State of New York, as previously reported,<sup>1</sup> at a special meeting of its house of delegates, unanimously adopted the report of its special committee on this subject, unqualifiedly opposing the passage of any law instituting a system of compulsory health insurance. This brings the question to a clear cut and definite issue in New York. As New York is one of the oldest and most highly developed states industrially, commercially and socially, it is an ideal state in which to discuss and test out this important subject. The limitation of the discussion to the legislature of one typical state will enable the opponents and advocates of health insurance to concentrate their energies to the best advantage.

#### ALLEGED PLACENTAL FUNCTIONS

The peculiar anatomic relations of the placenta have long lent an unusual interest to the study of its functions. There is no direct communication between the maternal and fetal circulations. The placenta represents the fetal organ for respiration, nutrition and excretion; but physiologists have not been content to limit the functions of the placenta to these more obvious necessities. Recognizing that simultaneously with the development of this structure there occur changes in the maternal organs that are not observed at other periods in the life of the female, efforts have been made to correlate or connect the concurrent phenomena. The placenta has been considered as having an internal secretion—as elaborating hormones that affect the maternal organism. For example, it has been suggested that the placenta is the specific source of a substance that causes the hyperplasia of the mammary gland during pregnancy. The evidence for this contention has been furnished primarily by experiments in which placental tissue was fed to virgin animals. A critical estimate of the results makes the hypothesis unlikely. Recently Hammett<sup>2</sup> has attempted a brief success at the Boston Lying-In Hospital to detect by bedside observation an increased growth of mammary tissue when desiccated placenta was fed

postpartum to lactating women, as compared with a series of patients not receiving the placental material. From the evidence at hand he concludes that it is reasonably certain that the placenta has little if any direct influence on the mammary development during pregnancy, the source of the stimulus being presumably elsewhere in the genital or fetal structures. Nor, according to the preponderance of evidence, is any influence exerted by the placenta on the flow of milk. Hammett and McNeill<sup>3</sup> fed 10 grains of desiccated placenta three times a day to more than 300 women without detecting any galactagogic activity in comparison with the secretion of mothers who did not receive the material. Hammett<sup>2</sup> has lately reached the conclusion, however, that there is produced in the placenta some substance capable of acting as a stimulus to growth, when ingested by the mother and passed on to the infant in the mammary secretion. Observations by Cornell<sup>4</sup> have been given a similar interpretation. Hammett makes the further deduction that it is not illogical to suppose that the placenta in utero also produces a substance that acts as a stimulus to fetal growth. However, the familiar shortcomings of arguments based on such indirect evidence must make us hesitate to give the placenta a place in endocrinology.

#### PIGMENTATION OF THE ORAL MUCOUS MEMBRANE

Although blackish pigmentation of the skin has been noted—aside from the coloration of the epidermal covering of the dark races—in freckles and in Addison's disease, it is not common as a purely pathologic manifestation. So far as the color in the various instances just referred to is due to that as yet poorly defined substance termed melanin, there is an impression among investigators that cells which do not normally form this pigment probably do not acquire the capacity to do so under pathologic conditions. Thus, the coloring matter of the so-called "melanosis" of the large intestine is said to be neither true melanin nor ordinary "waste" pigment.<sup>5</sup> The pigment deposited in the skin in Addison's disease is generally assumed to represent merely an exaggerated quantity of that normally produced there.<sup>6</sup> Parkes Weber<sup>7</sup> of London has recently referred anew to rare cases of black pigmentation of the mucous membranes of the cheeks, lips and mouth proper that are occasionally encountered and cannot be ascribed to disease of the suprarenal structures. It is associated with pigmentation of the skin of the face, especially about the mouth, and possibly of other parts of the body. Since the phenomenon has been observed by Rolleston<sup>8</sup> in persons

3. Hammett, F. S., and McNeill, L. G.: The Effect of the Ingestion of Desiccated Placenta on the Variations in the Chemical Composition of Human Milk During the First Eleven Days after Parturition, *J. Biol. Chem.* **30**: 145 (May) 1917.

4. Cornell, E. L.: Placental Tissue as a Galactagogue, *Surg., Gynec. & Obst.* **27**: 535 (Nov.) 1918.

5. Henschel and Bergstrand: Beitr. z. path. Anat. u. z. allg. Path. **56**: 103, 1913; cited by Wells, H. G.: *Chemical Pathology*, Ed. 3, p. 467.

6. Pflüger: *Centralbl. f. Pathol.* **11**: 1, 1900.

7. Weber, F. Parkes: Patches of Deep Pigmentation of the Oral Mucous Membrane not Connected with Addison's Disease, *Quart. J. Med.* **12**: 404 (July) 1919.

8. Rolleston, H. D.: Pigmentation of the Circumoral Skin and of the Buccal Mucosa in Pernicious Anemia, *Proc. Roy. Soc. Med., Clinical Section* **3**: 9, 216, 1909-1910.

1. New York State Society Condemns Health Insurance, *New York Medical News*, J. A. M. A. **74**: 1746 (Nov. 29) 1919.  
2. Hammett, F. S.: The Functions of the Internal Secretion of the Placenta, *Endocrinology*, **2**: 307 (July-Sept.) 1919.

suffering from demonstrated pernicious anemia, it may be debated whether there is some intimate connection between the pathology of this disease and the pigmentation of the oral mucous membrane. It occurs in persons of dark complexion and notably in certain races. Hence Weber<sup>1</sup> is inclined to regard it as physiologic in character and perhaps atavistic in origin. Black patches are very common in the oral mucous membranes of dogs and other animals. Perhaps, now that attention is being directed more specifically to it, this form of pigmentation will be found more common in man, in whom it may represent a racial or ethnic feature rather than a purely pathologic manifestation.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Anesthetists Organize.**—An organization to be known as the Southern California Anesthetists was formed at a meeting held in Los Angeles, last month.

**Personal.**—Drs. Anders Peterson and Charles E. Zerfing, formerly police surgeons of Los Angeles, have applied for passports to go abroad to make a study of leprosy and influenza. They expect to go first to China and to be gone for two years.—Drs. Laura T. Myers, Etta G. Gray and Lulu H. Peters, Los Angeles, are working together in Serbia.

**Arrested Fourth Time.**—Three times acquitted on a charge of practicing medicine without a license, Armonda Dominguez, the "Miracle Man," of San Bernardino, is reported to be again facing a jury on the same charge. Dominguez claims to have obtained his skill from his father who was a druggist and chemist and from studying botany and chemistry. He denies ever having attempted to commercialize his skill.

**Smallpox Prospects.**—At the eleventh annual conference of state, county and city health officials held in connection with the league of municipalities at Riverside, recently, a special mention was made of the rapid increase in smallpox throughout the state during the last year. It was stated by Dr. Allen F. Gilliland, Berkeley, state district health officer, that about 75 per cent. of the children in the state have not been vaccinated.

**Osteopathic College Seeks Mandamus.**—The College of Osteopathic Physicians and Surgeons of Los Angeles, according to report, has recently filed mandamus proceedings to compel the California State Board of Medical Examiners to approve the institution as a medical school. The institution had been so recognized a year or two ago but, it is alleged, recognition was withdrawn owing to the failure of the college to meet the requirements of the board.

**Lane Medical Lectures.**—The Lane medical lectures to be given by Dr. Alonzo E. Taylor, professor of physiologic chemistry at the University of Pennsylvania, are to be on the general topic of "The Feeding of the Nations at War." The following are to be the dates and titles of the lectures.

Dec. 8, 1919, The Problem of Feeding a Nation; December 9, The Feeding of the United Kingdom; December 10, The Feeding of France and Italy; December 11, The Feeding of the Enemy State; and December 12, The Food Problem of Europe After the War.

**New Memorial Laboratory to Open.**—The directors of the Santa Barbara Hospital have issued invitations to the formal opening of the new Memorial Laboratory and Clinic Building. This building was founded by the late Dr. Nathaniel Bowditch Potter, formerly of New York City, for a study and research of metabolic diseases and represents, in its building equipment and staff, the first completely organized metabolic unit in the country. It is receiving support from the Carnegie Foundation for the Advancement of Teaching. On the death of Dr. Potter, July 5, Dr. Nelson W. Janney, New York City, was appointed director.

**Changes in Emergency Hospital Department.**—The following changes were made in the Emergency Hospital Department of San Francisco by the city board of health: Dr. Edmund W. Butler, emergency surgeon, was raised to the post of chief surgeon, in charge of the Emergency Hospital Service, succeeding Dr. Alanson Weeks, resigned. Dr. Maurice Heppner, formerly resident surgeon of the San Francisco Hospital, was appointed emergency surgeon, relieving Dr. Albert H. Taylor from active duty. Dr. Henry J. Kreutzmann was appointed emergency surgeon and Dr. Gertrude A. Spriggs was also appointed emergency surgeon, relieving Dr. Charles J. Peterson from active duty.

### CONNECTICUT

**Medical Guilds in Italy.**—Dr. Edward C. Streeter, Boston, delivered an address, November 17, before the Yale Medical Society, New Haven, on "Early Medical Guilds in Italy."

**Personal.**—Dr. William M. Stockwell, New Britain, superintendent of the New Britain Sanitarium, has resigned, to take effect, Jan. 1, 1920. He has accepted a similar appointment at the State Sanatorium, Newington.

**Returned Service Men Welcomed.**—Middlesex County Medical Society celebrated the return of its military men at a banquet held in Middletown, October 9. Twelve of the seven-teen members of the society who were in military service were present and were the guests of honor, and Dr. Frank K. Hallock, Cromwell, acted as toastmaster.

**Mental Hygiene Conference.**—The annual meeting of the Connecticut Society for Mental Hygiene will be held Monday, December 15, at 3 p. m., in the building of the New Haven County Medical Society. Bishop Edward C. Achenas, Suffragan Bishop of Connecticut, will preside. The society will be addressed by the medical director, Dr. William B. Terhune, New Haven.

**Portrait Presented.**—At the meeting of the New Haven County Medical Association, November 5, a portrait of the late Dr. Henry Fleischer was presented to the association by his widow. Dr. Frank H. Wheeler, New Haven, made the presentation for Mrs. Fleischer, and the gift was accepted in behalf of the association by the president, Dr. Louis M. Gompertz, New Haven.

### ILLINOIS

**Building for Physicians.**—A building for the exclusive use of physicians is to be erected by Mr. J. Frank Donald at Rockford. The building will cost \$150,000 and will be equipped with a laboratory, drug and medical supply room, clinic suites, and garages.

**Smallpox in Monmouth.**—Dr. Charles E. Crawford of the state board of health went to Monmouth, November 20, for a conference with the mayor and other officials regarding the measures to be taken to prevent an epidemic of smallpox in the city. There are at present about twenty five cases reported, all of mild type.

**Personal.**—Dr. Alice Barlow Brown, Winnetka, who spent a year in Belgium, supervising relief work, left Chicago, November 29, on a relief mission to Serbia. She was accompanied by Miss Lucy M. Morehouse, acting superintendent of the Evanston Hospital.—Harold Swarberg, Captain M. C., U. S. Army, Quincy, who has been in charge for more than two years of the roentgen-ray laboratories of the U. S. Army general hospitals at Fort McDowell, Ga. and Fort Sheridan, Ill., has been discharged from the service.

**Tuberculosis Association Meeting.**—At the annual meeting of the Illinois Tuberculosis Association, Dr. George T. Palmer, Springfield, was elected president; Drs. Herbert C. Jones, Decatur, and Moss Maxey Albright, Vandalia, vice presidents, and the following physicians members of the executive committee. Drs. J. W. Pettit, Ottawa; E. W. Figgelman, Edwardsville; W. M. Hartman, Mazoni; N. C. Iknyan, Charleston, and Samuel L. Galea, Elm. The association passed a resolution adopting the standard of sanatorium operation of the National Sanitarium Association and the National Tuberculosis Association, and recommending the rating and scoring of all public sanatoriums in Illinois on these standards by the state department of public health.

### Chicago

**Nurses to Graduate.**—The annual graduation exercises of the Chicago Training School for Home and Public Nurses were held at Meinhart Temple, December 2, when a class of 1,300 received diplomas.

**Illegal Practitioner Fined.**—According to report, George W. Butler of 2601 Calumet Avenue, was arrested by the Illinois Department of Registration and Education for violating the medical practice act and was fined \$25 and costs.

**Personal.**—Dr. Edward I. Moorhead, clinical professor of surgery in Northwestern University Medical School, has been appointed chief of the staff of Mercy Hospital.—Dr. Louis D. Moorhead has been appointed dean of the Medical School of Loyola University.

**Historical Society Meeting.**—There will be a meeting of the Society of Medical History of Chicago, at the City Club, December 9 at 6:30 p. m. at which a paper in memory of Dr. M. R. Frank will be read by Dr. Charles B. Reed. Dr. Harlow N. Moyer will speak on the "First Neurologist."

**Hospital Items.**—Jackson Park Hospital is to be erected at Seventy-Fifth Street and Stony Island Avenue, with a frontage of 143 feet. The building will be T-shaped and will contain sixty-eight rooms and will cost \$150,000.—An open meeting is to be held, December 10, at the home of Mrs. Julius Rosenwald, in connection with the urgent appeal received from the hospitals in Palestine where a serious shortage of supplies has occurred, particularly as regard towels, soap and washcloths.

**School Physicians and Nurses Needed.**—In consequence of the failure of the city council to supply funds to pay physicians and nurses to supervise the health and life of school children, Drs. Frank Billings, James B. Herrick, Joseph L. Mayer, Joseph A. Capps and William Allen Pusey have addressed a letter to the newspapers of the city calling on the city council to make provision at once for this most important work, and in the event of their failure to do this, calling on the public to subscribe to a fund, which will enable the health department to carry on this most important work.—Of the 127 school nurses who were laid off owing to lack of funds 110 returned to work, November 25. The city council finance committee voted on that day, to transfer \$4,825 from health department salvage funds to the nurses' salary account. In addition, the committee agreed that the November and December salaries of 150 school physicians who give half their time to the schoolchildren, shall be paid when the 1920 appropriation bill is passed.

#### MARYLAND

**Personal.**—Dr. Ralph B. Seem, Baltimore, for several years assistant superintendent of the Johns Hopkins Hospital and for nearly two years, during the absence of Dr. Winford H. Smith, acting superintendent of the hospital, has accepted the position of superintendent of the Billings Memorial Hospital, Chicago. He will leave the Johns Hopkins Hospital on July 1, 1920, and, after spending several months in Europe, will assume his duties in Chicago.—Dr. Karl H. Van Niman, who, prior to service in the Canadian army, was assistant superintendent of the Johns Hopkins Hospital, has accepted the position of second superintendent of the Johns Hopkins Hospital and will assume his duties shortly after January 1. He will have charge of the administration of the laboratory and, according to present plans, will probably succeed Dr. Seem as assistant superintendent.—Dr. Carlisle S. Leitch, who is now in charge of the dispensary at the Johns Hopkins Hospital, will assume charge of the admission office after January 1.—Harry B. Gantt, Capt., M. C. U. S. Army, Marine Corps, was returned after an absence of more than two months, and is now stationed at Camp Dix, N. J., where he will be in charge. Dr. Gantt was for some time on the staff of the Tower Hospital in London, and then acted as medical officer of the Army of Occupation in an infirmary near the city of Rome.—Dr. George F. Sargent, for the last twelve years medical officer of the staff of the Shepherd and Enoch Pratt Hospital, Towson, Md., has been appointed surgeon in the reserve corps of the United States Public Health Service. Dr. Sargent will be assigned to a post as superintendent of the local U. S. Public Health District, which includes Maryland and the District of Columbia.

#### MASSACHUSETTS

**Personal.**—Dr. Frederic K. T. Clark, Major, M. C. U. S. Army, Westfield, who, up to the time of his discharge from the service, was chief of the ophthalmologic and otolaryngologic service of U. S. Army General Hospital No. 1, New York City, has returned to his home.

**Tuberculosis Association Meeting.**—The Boston Association for the Relief and Control of Tuberculosis held its sixteenth annual meeting, November 20. It was voted to

change the name of the organization to the Boston Tuberculosis Association. Dr. George S. C. Badger was elected president, and an executive committee was elected consisting of the president, Dr. Vincent V. Bowditch, Mr. James N. Clark, Miss Isabel F. Hyams, Mr. P. J. McCormack, Dr. James J. Minto, Mr. George S. Mumford, Dr. Edward O. Otis, Miss Lillian V. Robinson, Dr. Arthur K. Stone, Mrs. Frederick M. Stone, Dr. William C. Woodward and Mr. Arthur V. Woodworth.

**Lowell and Cutter Lectures.**—Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, is giving the Lowell-Cutter lectures in preventive medicine this year. The lectures are given under the auspices of the School of Public Health of Harvard University, the Massachusetts Institute of Technology and the Division of Industrial Hygiene.

**Lowell Lectures** (Huntington Hall, 491 Boylston Street, 8 p. m.)—November 24, Industrial Diseases under the Medieval Trade Guilds; November 26, The Spirit of Work under the Medieval Trade Guild; December 1, Modern Industry and Art; December 4, The Edward Medal and Gassing Accidents; December 8, Industrial Poisons and their Prevention; Dec. 11, Ambras.

**Cutter Lectures on Preventive Medicine and Hygiene** (Harvard Medical School, Amphitheater Building E, 240 Longwood Avenue, 5 p. m.)—December 8, Twenty Years' Experience of the Notification of Industrial Diseases under the Workmen's Compensation Act; December 9, Industrial Diseases under the Workmen's Compensation Act; December 10, Medical Supervision in Factories.

#### MINNESOTA

**Veneral Disease Clinics in Minnesota.**—At the present time six distinct clinics are being carried on and financed in large part by the Minnesota State Board of Health. These clinics are: one for men and one for women in St. Paul, at the St. Paul Dispensary; this is backed jointly by the United Charities, the Wilder Charities and the state department. A clinic for men in cooperation with the University of Minnesota. A clinic for women operated by the state department and the city board of health at the City Hospital, Minneapolis. In Duluth, in rooms and with nurses furnished by the St. Mary's Hospital, a clinic for men and one for women is operated by the state department and the city board of health.

#### MISSOURI

**Reunion of Base Hospital Personnel.**—A reunion banquet of the officers and enlisted personnel of Base Hospital Unit No. 28 was held in Kansas City, November 6. Dr. John F. Binnie, Kansas City, presided as toastmaster.

**Maternity Home Closed.**—The maternity home conducted by Dr. A. L. Gray at St. Joseph has been closed. The St. Joseph Hospital will establish a maternity ward and Dr. Gray has been invited to take charge of that division of the hospital work.

**Municipal Venereal Disease Clinics.**—Dr. R. L. Russell, Hannansville, director of the venereal disease division of the state board of health, has established three municipal disease clinics in which 3,184 patients had been treated up to the middle of November.

**Personal.**—Dr. Harry M. Moore, St. Louis, has been appointed surgeon in charge of the Frisco Railway Hospital, Springfield.—Dr. Joseph McNearney, Florissant, physician to the state penitentiary, Jefferson City, has resigned and Dr. William A. Clark, Jefferson City, has been appointed to fill the position temporarily.

**Hospital Items.**—Edina has announced a campaign for funds to establish a hospital for that city and Knox County.

The Johnson Sanitarium, Springfield, which was recently purchased by the Springfield Hospital, has been renamed the Ozark Sanitarium and will be conducted as a mental and nervous disease department of the hospital. Dr. W. R. Summers, Springfield, will be in charge of the sanatorium.

A clinic was conducted by the welfare board staff at Noyes Hospital, St. Joseph, November 28.

#### NEW YORK

**Diphtheria Increased.**—During October, 575 more cases of diphtheria were reported in the state, exclusive of New York City, than were reported for September, and 945 more than for October, 1918. One third of the new cases were reported from Buffalo.

**Personal.**—Dr. Eugene N. Nesbitt, Brockport, has been appointed tuberculosis specialist for Grand Rapids, Mich.—Dr. Edward H. Coddling, health officer of New Rochelle, has been appointed chairman of the health center committee.—

Dr. Hermann M. Biggs, state commissioner of health, has been elected a life member of the New York State Organization of Public Health Nursing.

**Central District Physicians Meet.**—The annual meeting of the Medical Association of Central New York was held in Syracuse, October 30. Rochester was selected as the next place of meeting and the following officers were elected: president, Dr. Owen E. Jones, Rochester; vice presidents, Drs. Nelson G. Russell, Buffalo, and Howard L. Davenport, A. burn; secretary, Dr. Robert Burns, Syracuse, and treasurer, Dr. Thomas F. Laurie, Syracuse.

**Laboratory Directors Organize.**—At the meeting of directors of public health laboratories of New York state, held in Albany, November 12, it was voted to form a permanent organization to be known as the New York State Directors of Public Health Laboratories. Dr. Warren B. Stone, Schenectady, was elected president; Dr. Joseph S. Lawrence, Albany, vice president, and Miss M. B. Kirkbride, state laboratories, Albany, secretary-treasurer.

#### New York City

**Harvey Society Lecture.**—The fourth lecture of the Harvey Society by Dr. E. C. Kendall of the Mayo Clinic, Rochester, Minn., on "The Chemistry of the Thyroid Secretion," will be delivered at the New York Academy of Medicine at 8:30 p. m., December 13.

**"Live Longer Week."**—Health Commissioner Royal S. Copeland announces that the department of health has set apart the week beginning January 2 as "Live Longer Week." Elaborate plans are being made for a health campaign that will reach every inhabitant in the greater city.

**Personal.**—Dr. Harold W. Lyall, formerly with the New York City Research and Antitoxin Laboratory, Otisville, has been appointed bacteriologist in the division of laboratories and research, New York State Department of Health at Albany.—Dr. Jacob Sobel has been appointed professor of hygiene in the Fordham University Medical School.

**Medical Society of the County of New York Elects.**—At its annual meeting, held November 24, the Medical Society of the County of New York elected the following officers for the ensuing year: president, Dr. Charles H. Chetwood; vice presidents, Drs. George Gray Ward and Orrin S. Wightman; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. J. Milton Mabbott; treasurer, Dr. James Pedersen.

**Two Anthrax Victims.**—During the second and third weeks of November, Bellevue Hospital has had two cases of anthrax. The first patient, a man from the Bronx, died, while the second, a girl employed in a shaving brush factory, who was taken to the hospital, November 1, was discharged cured, November 21. This makes twelve cases of anthrax treated at Bellevue Hospital during the past four years, six of whom have been treated by the use of the Eichhorn serum and have recovered.

**Birth Control Act Constitutional.**—The supreme court, November 17, dismissed without an opinion, for lack of jurisdiction, the appeal of Margaret Sanger, on the constitutionality of the New York State Birth Control Act. Mrs. Sanger was sentenced to thirty days' imprisonment for conducting a birth control clinic in Brooklyn. She appealed from this sentence to the appellate division of the supreme court, claiming that the law prohibiting the dissemination of birth control information was unconstitutional.

**Association of Cardiac Clinics.**—The first postwar meeting of the thirteen clinics which make up the Association of Cardiac Clinics was held at the New York Academy of Medicine, December 2. Dr. Joseph C. Roper gave his experiences with special charts for cardiac clinics; Dr. Heribert S. Carter presented his ideas on districting of the city for cardiac patients; Drs. Charles Hendee Smith and Frederic L. Brush, White Plains, spoke on the relations between cardiac clinics and convalescent homes, and Dr. William P. St. Lawrence discussed the relations between the cardiac clinics and the public schools.

**Lectures on Psychology.**—Several courses of lectures on psychology as applied to medicine have been instituted at Columbia University by the Students Pre-Medical Association. The course consists of six lectures dealing with the various phases of psychology which are of use to the physician, and the ways in which he can apply them. The abstract principles of psychology will also be presented. The opening address will be delivered by Prof. A. T. Poffenberger. There will be other speakers, and lectures will also be delivered by Professors Woodward and Hollingsworth of the

department of psychology. Each lecture will be followed by a general discussion.

**Hospital Drives.**—The campaign to raise \$1,000,000 for the United Hospital Fund, which began, November 23, and continued for ten days, at the end of the first six days had only three-fourths of the needed million in sight. Many of the forty-six hospitals belonging to the fund will be compelled to make individual campaigns to enable them to meet their annual deficits. One of the features of the campaign was a parade of the ambulances belonging to each of the forty-six hospitals from Harlem to the Battery.—The drive to raise \$100,000 for the Bronx Hospital, which was to have been held during the week of November 23 was postponed until the following week. The medical board of the Bronx Hospital at a recent meeting adopted resolutions which will make the institution an open hospital, so that physicians may enter private patients there and treat them without interference. According to statements made at the meeting, there are only three hospitals in this city where this can be done.

#### PENNSYLVANIA

**Hospital Memorial at Chester.**—Prominent citizens of Chester and vicinity were present at Chester Hospital, October 23, to witness the acceptance of a new building, which was constructed as a memorial to the late Mrs. Margaret A. Houston, the gift being made by her sons.

**Twenty-Fifth Anniversary Meeting.**—A buffet luncheon of the Harrisburg Academy of Medicine was held, November 20, to celebrate the twenty-fifth anniversary of the society. The principal address of the meeting was made by Dr. Lewellyn F. Barker, Baltimore, on "Group Study by Internists."

**Service Men Honored.**—Members of the Cambria County Medical Society who served in the world war were honored by their fellow members at a banquet, held November 13, at Johnstown. The society sent forty-six of its men to the various services and all returned safely. Dr. H. F. Tomb, Johnstown, acted as toastmaster.

**Priestley Home Bought.**—Graduate chemists of the Pennsylvania State College have purchased the original home and laboratory of Dr. Joseph Priestley, the discoverer of oxygen. The house is located on the banks of the Susquehanna River, at North Umberland, and it is planned to move it to the campus at State College and make it a memorial to the great scientist.

**Personal.**—Dr. D. F. Unger, Mercersburg, the oldest member of the Franklin County Medical Society, was the guest of honor at the November meeting of the organization.—Dr. George A. Deitrick, Sunbury, has been appointed local surgeon of the Philadelphia and Reading System, succeeding Dr. William L. Shindler, deceased.—Dr. Charles Roland resigned as health officer of Reading, October 29.—Dr. Harry E. Clark, Pittsburg, has been appointed superintendent and medical director of the City Poor Farm, Mayview.—Dr. J. Bruce McCreary, Shippensburg, has been appointed supervising medical director in charge of health supervisory work in a district composed of Perry, Franklin, Adams and Cumberland counties.—Col. T. Lyle Hazlett, Pittsburg, who was a surgeon of the Keystone Division in France, has been appointed medical director at the Mont Alto Sanatorium, succeeding Dr. F. C. Johnson, who has been granted a leave of absence.

#### Philadelphia

**Industrial Physicians and Nurses Organize.**—The Philadelphia Association of Medicine for physicians and nurses in industrial work was organized at the City Club, November 28. Dr. C. Taylor, physician for the Bell Telephone Company, was elected president; Dr. L. E. Hastings of the J. G. Brill Company, vice president; Dr. J. Gay of the New York Shipbuilding Company, secretary, and Dr. F. Cummings of the Curtis Publishing Company, treasurer. There are twenty-six charter members. The organization is to include the entire Philadelphia industrial district.

**Personal.**—Dr. Charles Lincoln Furlush, a former surgeon in the U. S. Army, and at one time director of the charities and hospitals in Havana, Cuba, has been named director of public health and charities by the mayor elect, J. Hampton Moore, as successor to Dr. Wilmer Krusen. Dr. Furlush was decorated as Companion of the Order of St. Michael and St. George by the Prince of Wales during his visit to Philadelphia, November 22.—Drs. J. M. Sterling, Norman S. Rothschild and John D. Donnelly have been appointed to positions in the Henry Phipps Institute by Dr. Edward Martin, state health commissioner.

## CANADA

**Epidemic Encephalitis.**—The death of a dentist from encephalitis le'targica has been reported from Calgary, Alta. Several deaths have been reported from Winnipeg, and one case has been diagnosed in Toronto.

**Hospital News.**—Orpington Military Hospital in England, an institution founded by the Ontario government, has recently been sold for \$400,000. It will be used as a central depot for crippled and permanently wounded men of the imperial army.—The Toronto General Hospital has been ordered closed to visitors on account of the smallpox epidemic in that city. The cases now number more than 700.

**Public Health News.**—The new farmer-labor government of Ontario has placed the health department under the minister of labor, who is now recognized as the minister of labor and public health. By this arrangement, Dr. J. W. S. McCullough, Toronto, chief officer of health for Ontario, will be required to serve under two ministers of the crown, as he occupies the office of deputy-registrar general under the department of the attorney-general of the province.

**Personal.**—Sir Thomas G. Roddick, Montreal, will spend the winter in Florida.—Dr. J. W. Brien, Essex, Ont., member of parliament, has been appointed medical officer to conduct a colony of Chinese to their own land, after overseas service.—Dr. James Third, Kingston, Ont., professor of practice of medicine in Queen's Medical College, has resigned.—Dr. C. W. Service, who has been in China for thirteen years, is spending a furlough in Toronto.—Dr. G. B. Archer, Toronto, who has been in France since 1916, is returning to his old work at Ranghat, Bengal, sailing from Victoria, December 16.—Dr. Davidson D. Black, Toronto, has been appointed to the anatomical department of the Medical University, Peking, and has arrived in China.—Dr. H. P. Rogers, after four years' service in Mesopotamia and Syria, has returned to Toronto.

**Baby Saving Week for Halifax.** Halifax, N. S., had a "Baby Saving Week" from November 4 to 13, inclusive, under the auspices of all the welfare organizations of the city. There were three sessions daily, the first mainly for schoolchildren, at which they witnessed moving pictures and then had the exhibits explained to them. The afternoon and evening sessions were devoted to discussions on various health activities for babies. Among the principal topics discussed were "Nova Scotia's Baby Problems, Past and Present"; "Better Babies for Nova Scotia"; "Why Halifax Needs Plans for Babies"; and "The Value of a Baby Life." At subsequent sessions the protection of babies from disease and the care of babies were discussed. The loaned exhibits occupied six booths, containing a mental and social hygiene exhibit lent by the public welfare bureau of Montreal, and there were also eight booths carrying graphic exhibits, and three booths used in measuring, weighing and judging the development of babies for six months, under the care of the Vancouver Order of Nurses.

## GENERAL

**Academy Election.**—At the annual meeting of the International Academy of Medicine, whose membership is composed of physicians of the twin ports of Superior, Wis., and Duluth, Minn., held in Superior, November 19, Dr. Richard C. Smith, Superior, Wis., was elected president; Dr. Carl A. Scherer, Superior, Minn., vice president; Dr. Herbert J. Orchard, Superior, Wis., secretary and Dr. Alex. J. Braden, Duluth, Minn., treasurer.

**Bequests and Donations.** The following bequests and donations have recently been announced:

Dr. Y. G. G. Hospital, \$1,000; Jewish Orphan School, \$1,000; St. Joseph's Hospital, \$1,000, by the will of Carrie D. Eiten.

Dr. H. A. Draper, Louisville, Ky., \$2,000, by the will of his wife, Mrs. H. A. Draper, Louisville, Ky., 1918.

Dr. J. H. Draper, Louisville, Ky., \$1,000, by the will of his wife, Mrs. J. H. Draper, Louisville, Ky., 1918.

Dr. J. H. Draper, Louisville, Ky., \$1,000, by the will of his wife, Mrs. J. H. Draper, Louisville, Ky., 1918.

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**New Medical Society.**—A new medical society has been organized at Sharon, Conn., known as the Harlan-Dally Medical Association, whose membership includes physicians from East Dutchess County, N. Y., and West Litchfield County, Conn. The following officers were elected: president, Dr. L. E. Rockwell, Amenia, N. Y.; vice president, Dr. A. F. H. M. Horton, N. Y.; secretary, Dr. C. W. Bassett,

Sharon, Conn., and treasurer, Dr. A. I. Tuttle, Salisbury, Conn.

**National Committee for the Prevention of Blindness Meets.**

The National Committee for the Prevention of Blindness held a meeting in New York, November 21. Edward M. VanCleve, managing director, outlined the accomplishments of the society. Starting in 1915 with sixty-five charter members, it has now enrolled nearly 2,300 members in forty-seven states, in Cuba, the Philippines, Porto Rico, Mexico, China and Canada. It has pushed laws for the prevention of blindness and had them passed in eighteen states. Among those who addressed the meeting was Dr. Thomas D. Wood, New York, chairman on health problems in education of the National Council of Education. He stated that from 25 to 35 per cent. of the schoolchildren in this country have eye defects. At least 75 per cent. have something the matter with their health which lowers their efficiency. All but a small proportion of these eye defects can be remedied, but unfortunately so far only a few of the five or seven millions of children so handicapped have had the attention they need. The speaker advocated the periodical examination of the eyes of schoolchildren.

**Food and Nutrition.**—The National Research Council has formed a special committee on food and nutrition problems, composed of a group of physiologic chemists and nutrition experts. This committee will devote its attention and activities to the solution of important problems connected with the nutritional values and most effective grouping and preparation of foods, both for human and animal use. Special attention will be given to national food conditions and to comprehensive problems involving the coordinated services of numerous investigators and laboratories. The committee, with the support of the council, is arranging to obtain funds for the support of its researches, and will get under way, just as soon as possible, certain specific investigations already formulated by individual committee members and subcommittees. These include studies of the comparative food values of meat and milk and of the conditions of production of these foods in the United States, together with the whole problem of animal nutrition; the food conditions in hospitals, asylums and similar institutions; the nutritional standards of infancy and adolescence; the formation of a national institute of nutrition, and other problems of similarly large and nationally important character.

**Deaths Following Toxin-Antitoxin.**—On recommendation of the city board of health of Dallas that toxin-antitoxin be given as an immunizing agent against diphtheria, several hundred doses were administered by private and municipal physicians. Forty severe reactions followed the administration of a particular series issued by one manufacturer. The children who received this series manifested a severe reaction characterized by high fever, vomiting and pain at the site of injection, which occurred a few hours after administration. Within forty-eight hours the skin over the site of injection became intensely inflamed; the area extending over the forearm, shoulder and hand, and in some cases across the chest. Large vesicles filled with clear fluid appeared. General reaction subsided within four to six days and the local reaction within eight to ten days. Five deaths occurred in this series from twelve to sixteen days following the administration of the toxin-antitoxin, death being ascribed to acute myocarditis. The local reaction had disappeared a few days previous to death. No postmortem examinations were made, but the symptoms and physical signs which occurred were due to excessive amounts of toxin. All other series of toxin-antitoxin issued by this manufacturer and all ordinary antitoxin used were found to be harmless and not followed by reaction.

**Smallpox Quarantine Established at Canadian Border.**—More than 4,000 cases of smallpox have recently occurred in the province of Ontario, and four cases have been found in Buffalo, according to New York State Department of Health officials, who have investigated conditions at the border under instructions from Dr. Hermann M. Biggs, state commissioner of health. In response to a telegram from Surgeon-General Blue of the U. S. Public Health Service to Commissioner Biggs, requesting advice as to the necessity for establishing a quarantine at the border, the commissioner replied that conditions warrant such action. A quarantine is to be established immediately at all bridges and ferries leading into the United States from the infected territory and all persons who cannot give proof of recent vaccination or of having had the disease will be turned back. Health officials of border cities have been notified in regard to the conditions to be imposed, and railroad ticket offices in the Canadian

district where the disease exists have been requested not to issue tickets to points in the United States except on the presentation of a certificate of vaccination from U. S. Public Health Service representatives. About seven eighths of the 40,000 schoolchildren of Toronto have been vaccinated and the remainder will not be permitted to attend school until they have complied with this requirement. All travelers into New York and Michigan must show certificates that they have been vaccinated within one month. At Black Rock, November 26, forty-seven persons were held on one train until they could be vaccinated.

**Hookworm a Blight in the Draft Army.**—Part I of the annual report of the Rockefeller Foundation, made public, November 26, summarizes the results of investigations on hookworm in the Southern states. The report points out that the examinations for hookworm disease made among United States soldiers confirm in a striking way the board's experience of the last few years. "Judged by the Binet-Simon and other tests, many full-grown soldiers who harbored comparatively few hookworms had the mentality of persons only 12 years of age. The mentality of 10,000 men at Camp Travis who harbored these parasites was about 33 per cent. below normal." Mental tests of a similar nature among 340 schoolchildren in Queensland, Australia, showed that there was an average retardation of approximately two years among heavily infected children. The longer the infection persisted the greater was the retardation. Statistics are cited showing that the efficiency of laborers in various localities in Costa Rica, India and other localities has been increased 50 per cent. after hookworm treatment was put into operation. Encouraging reports of campaigns against hookworm are related, and the report reiterates the great service they have done to communities by demonstrating to the public its responsibility for general health, and stimulating it to a willingness to finance and carry on public health work of its own. A part of the report is devoted to the work that the Yellow Fever Commission of the Rockefeller Foundation has done during the past year and speaks encouragingly of the prospect of demonstrating that the true etiologic agent of yellow fever has been discovered by Dr. Hideyo Noguchi, which he has designated as *Leptospira icteroides*. The report tells of the demonstration, through the fight on yellow fever conducted by the board in Guatemala, that this scourge could be controlled with the personnel and facilities available in Central American countries and at a cost well within their financial ability. The report concludes with an account of the progress made in public health training through the establishment of a department of hygiene in the Faculdade de Medicina e Cirurgia at São Paulo, Brazil.

## FOREIGN

**Influenza in Spain.**—More than 2,000 cases of influenza have been reported at Lenares, about 50 miles northeast of Granada, Spain.

**Hospital Ship Disabled.**—A torpedo boat has towed the British hospital ship *King Edward* into Christiansand, Norway. The *King Edward*, which was sailing from Murmansk to London, was caught in a storm and disabled.

**Motor Cars Needed.**—The great scarcity of motor cars in England is reported to be a severe handicap to physicians. The British Medical Association has made an appeal to manufacturers to give priority to those who require automobiles for use in their practice.

**Physicians Elected to Italian Senate.**—Five professors in the Italian medical faculties were elected to the senate at the recent elections. The list includes Drs. Queirolo, Bianchi, Pascale, Rampoldi and Rattone, representing Pisa, Naples, Pavia and Parma. The president of the Italian Red Cross, a lawyer, was also elected to the senate.

**Cinema in Obstetric Teaching.**—November 6, Dr. G. Drummond Robinson, obstetric physician to the Westminster Hospital, demonstrated to the Royal Society of Medicine a cinematograph film illustrating the processes of normal labor, which is intended to improve the teaching of midwifery to medical students and midwives. The film comprised some 25,000 photographs from life and diagrams.

**Bubonic Plague in Constantinople.** Major Davis G. Arnold, director of the Near East Relief, addressed newspaper men of Constantinople—Greeks, Armenians, Jews, and French Levantines—at a meeting in Constantinople, asking them to aid the Near East Relief in its fight against the bubonic plague. More than \$40,000 worth of soap, linen and medicines are being distributed by the committee in Constantinople every month.

**Deaths in the Profession Abroad.**—Dr. E. Bonardi, chief of the large public hospital at Milan, professor of social medicine at the graduate school there, and author of works on various fields of medicine and geology.—Dr. H. Aronson, a Berlin bacteriologist who introduced certain serums and culture methods, aged 54.—Dr. L. Brieger, professor of internal medicine and hydrotherapy at the University of Berlin, aged 70.—Dr. J. A. Amann, a gynecologist of Munich, aged 53.

**Cambridge Institute of Parasitology.**—Mr. and Mrs. P. A. Molteno have announced their intention to provide funds for the erection and maintenance of an institute for parasitologic research in the University of Cambridge. They have offered a sum of £20,000 to provide a suitable building, with its fittings, for this work, and a further sum of £10,000 to form a fund to provide an income for the upkeep and maintenance of the institution, any surplus being used to further research carried on in the institute at the discretion of the director.

**The Plague of Venereal Diseases.**—The *Nederlandsch Tijdschrift* quotes the *Medicinsche Kliniek* of Berlin to the effect that the spread of venereal diseases there since the war has surpassed even the extreme prognostications. Enlightenment, warnings and penalties are proving futile to check the plague, although there have been provided ample opportunities for treatment under specialists (*Salvarsan-uitzate* they have been called). The only way to stem the flood is to keep the contagious in the hospitals. But the hospitals are crowded, and the medical journal suggests the advisability of putting up a large number of barracks at once for the purpose of housing the contagious cases of venereal disease. The great difficulty with this is said to be the lack of lumber for building the barracks.

**Typhus in Europe.**—A cable despatch states that typhus is sweeping Russia, an alarming increase of cases having set in during October. The *Public Health Reports* of Oct. 17, 1919, list 2,835 cases at Archangel and Riga during May and June. The same issue states that 3,125 cases of typhus were recorded at Cairo, January 1 to July 1. Typhus has been also present in fourteen provinces in Italy, and in the first week in June 3,470 cases were reported, but 3,321 of these were in Austrian prisoners. In the second week in July fourteen cases were recorded, and in the first week in August only six cases. The *Medicina Contemporanea* relates that a few small epidemic foci have developed at various points in Portugal and Spain, and as the first cases were mistaken for typhoid—even antityphoid vaccine being given at some points—the disease got good headway before it was recognized.

**Heat for Physicians in Berlin.**—The coal controller at Berlin is said to have relented from his former denial of special coal privileges to physicians, and the *Nederlandsch Tijdschrift* states that now elevators in doctors' residences can be run during office hours, and elevators can be run also for the sick who present a medical certificate to the effect that they are unable to climb stairs. The central water heating plant may also be operated when more than one physician is in the residence. Gas stoves can also be used by physicians who have a card from the medical chamber, and gas water heaters can be used by the sick who have a medical certificate to the effect that they need baths. It is further stated that efforts will be made to supply physicians with fuel alcohol (*Braundspiritus*) for sterilizing instruments and for illuminating purposes during the hours the gas is turned off. Fuel alcohol is said to give an illuminating flame when mixed with some substance with much carbon content, such as xylol.

**Spanish Physicians Win Strike.**—As already mentioned in THE JOURNAL, the municipal physicians of Jerez, Spain, decided some time ago to discontinue discharging their official duties, in view of the fact that the municipality owed them 135,000 pesetas (about \$27,000) and the refusal of the authorities to give satisfaction about the matter. The situation became so serious that the national government had to interfere finally, and dismiss the offending municipal council. A new council was appointed, one of the first steps of which was to pay on account 75,000 pesetas (about \$15,000) to the physicians, promising to pay the balance in a very short time. The attitude of the Jerez physicians had met with the general approval and support of the physicians from other parts of Spain. The Association of Physicians of Catalonia offered to the Jerez physicians the sum of 50,000 pesetas (about \$10,000), but this was declined with thank. This is probably the first time that physicians have in a body actually gone on a strike in defence of their rights.



organization of a national public health and public charities department of the government, and the teaching of ethics in the medical schools. One resolution asked for the appointment of commissions to study the fauna and flora of the country, and the foundation of traveling scholarships to enable young physicians to study laboratory and public health and sanitation methods in other countries.

## Government Services

### Personnel of the Medical Department

For the week ending November 28, there were in the Medical Corps 2,318 medical officers from a total of 30,591 on duty, Nov. 15, 1918. The Medical Reserve Corps contained 3,917, an increase of fifty-eight over the previous week.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

- |                         |                             |
|-------------------------|-----------------------------|
| <b>CALIFORNIA</b>       | <b>NORTH CAROLINA</b>       |
| Berkeley—Cohn, M. L.    | Winston-Salem—Conrad, H. B. |
| <b>CONNECTICUT</b>      | <b>WASHINGTON</b>           |
| Bridgeport—Smith, E. S. | Seattle—Richardson, W.      |
| <b>NEW YORK</b>         |                             |
| Brooklyn—Joseph, D.     |                             |

### HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant colonel, and Col., colonel.

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|------------------------------------|--------------------------------|
| <b>ALABAMA</b>                     | Stanford—Herrmann, E. R. (L.)  |
| Cardiff—Barker, H. O. (C.)         | Sterling—Perry, W. H. (C.)     |
| Montgomery—Lay, H. T. (M.)         | Vermion Grove—Ryan, J. G. (C.) |
| <b>ARIZONA</b>                     | Winchester—O'Reilly, W. (L.)   |
| Douglas—Christensen, W. A. (M.)    |                                |
| <b>ARKANSAS</b>                    |                                |
| Fort Smith—Wilson, C. P., Jr. (C.) |                                |
| Monicello—Best, J. M. (L.)         |                                |
| <b>CALIFORNIA</b>                  |                                |
| Los Angeles—Bailey, L. H. (C.)     |                                |
| Shurtleff, C. L. (M.)              |                                |
| Marshall—Dienst, R. C. (C.)        |                                |
| Marysville—Tapley, F. B. (L.)      |                                |
| Oakland—Fine, H. M. (C.)           |                                |
| San Francisco—Shiels, G. F. (M.)   |                                |
| San Quentin—Paulson, J. F. (L.)    |                                |
| <b>COLORADO</b>                    |                                |
| Denver—Sedwick, W. A. (C.)         |                                |
| <b>DISTRICT OF COLUMBIA</b>        |                                |
| Washington—Hough, J. S. (M.)       |                                |
| <b>FLORIDA</b>                     |                                |
| Palm Beach—Kenan, O. H. (L. C.)    |                                |
| Scott, H. (C.)                     |                                |
| St. Petersburg—McClane, J. W. (C.) |                                |
| <b>GEORGIA</b>                     |                                |
| Atlanta—Harrington, F. V. (L.)     |                                |
| Augusta—Michel, H. M. (C.)         |                                |
| Macon—Webb, E. L. (M.)             |                                |
| Oak Park—Durdin, J. W. (L.)        |                                |
| <b>ILLINOIS</b>                    |                                |
| Belleville—Hanson, W. L. (C.)      |                                |
| Bushnell—Griffith, J. C. (C.)      |                                |
| Carbondale—Hughes, L. D. (L.)      |                                |
| Chicago—Arsenault, E. A. (C.)      |                                |
| Barnes, C. L. (M.)                 |                                |
| Cinton, L. B. (L.)                 |                                |
| Courtney, C. H. (C.)               |                                |
| Hansen, O. A. (M.)                 |                                |
| Hermann, C. B. (L.)                |                                |
| Huler, J. M. (C.)                  |                                |
| Hundertmark, A. H. (C.)            |                                |
| Langford, E. K. (C.)               |                                |
| Matt, R. B. (L.)                   |                                |
| Scott, H. (C.)                     |                                |
| Stanton, S. C. (M.)                |                                |
| Steffenson, O. M. (C.)             |                                |
| Madine—Wahlberg, K. W. (L.)        |                                |
| Morrison—Bradley, C. H. (L.)       |                                |
| Rockford—Christensen, A. W. (L.)   |                                |

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|---|--------------------------------|
| Wollaston—Erkenbeck, W. J. (C.)         | Syracuse—Goldstein, A. T. (L.) |
| Worcester—Stevens, C. B. (M.)           | Westfield—Busck, G. J. (C.)    |
|   | Yonkers—West, T. S. (C.)       |
| <b>MICHIGAN</b>                         |                                |
| Byron—Boice, H. E. (M.)                 |                                |
| Detroit—Newberry, F. H. (L. C.)         |                                |
| Rosen, E. (L.)                          |                                |
| Turner, A. (L.)                         |                                |
| Grand Rapids—Chamberlin, L. H. (M.)     |                                |
| Kalamazoo—Potter, F. C. (L.)            |                                |
| Rudyard—Bandy, F. C. (L.)               |                                |
| <b>MINNESOTA</b>                        |                                |
| Duluth—Spicer, F. W. (C.)               |                                |
| Litchfield—Donovan, J. J. (C.)          |                                |
| Rochester—Peterson, A. (C.)             |                                |
| St. Peter—Blakely, A. C. (C.)           |                                |
| Stillwater—Stebbins, E. B. (M.)         |                                |
| <b>MISSISSIPPI</b>                      |                                |
| Ocean Springs—Powell, H. B. (C.)        |                                |
| <b>MISSOURI</b>                         |                                |
| Bloodland—Malette, C. (C.)              |                                |
| Bynumville—Billette, W. J. (L.)         |                                |
| Carthage—McAlaster, B. R. (M.)          |                                |
| Chamos—Scherrer, H. (C.)                |                                |
| Hannibal—Hardesty, J. W. (C.)           |                                |
| Koch—Robinson, G. F. (C.)               |                                |
| Monroe City—Malley, J. A. (L.)          |                                |
| Neuada—Haggard, D. (C.)                 |                                |
| Parkville—Willis, J. B. (L.)            |                                |
| Sedalia—Trader, C. B. (M.)              |                                |
| St. Joseph—Lynch, T. J. (M.)            |                                |
| St. Louis—Epstein, J. M. (C.)           |                                |
| Fritchett, A. B. (L.)                   |                                |
| Telfer, G. A. (L.)                      |                                |
| Zachritz, G. F. (L.)                    |                                |
| Wyaconda—Swearingin, J. A. (L.)         |                                |
| <b>MONTANA</b>                          |                                |
| Richey—Androp, S. (C.)                  |                                |
| <b>NEBRASKA</b>                         |                                |
| Bennett—DeWolfe, W. W. (C.)             |                                |
| Lincoln—Robinson, L. S. (C.)            |                                |
| Omaha—Bleick, L. C. (C.)                |                                |
| Gilbert, G. R. (C.)                     |                                |
| McCarthy, J. D. (L.)                    |                                |
| Russum, B. C. (C.)                      |                                |
| <b>NEVADA</b>                           |                                |
| Owyhee—Russell, R. D. (L.)              |                                |
| <b>NEW HAMPSHIRE</b>                    |                                |
| Concord—Sprague, F. A. (C.)             |                                |
| Fort Constitution—Harris, H. I. (L. C.) |                                |
| Pittsfield—Sargent, A. F. (L.)          |                                |
| <b>NEW JERSEY</b>                       |                                |
| Camden—Shoemaker, J. L. (L.)            |                                |
| Greystone Park—Fisher, F. M. (C.)       |                                |
| Hoboken—Pinto, N. W. (L.)               |                                |
| Lakewood—Schauffer, W. G. (Col.)        |                                |
| Newark—Young, J. J. L. (L. C.)          |                                |
| Paterson—Grabant, A. F. (C.)            |                                |
| Pennington—Cook, G. L. (C.)             |                                |
| Pompton Lakes—Vreeland, C. L. (M.)      |                                |
| Woodbury—Campbell, S. (L.)              |                                |
| <b>NEW MEXICO</b>                       |                                |
| Ingleville—Washburn, W. R. (L.)         |                                |
| <b>NEW YORK</b>                         |                                |
| Bayonne—Kresch, P. (L.)                 |                                |
| Brooklyn—Brennard, E. C. (C.)           |                                |
| Dorian, J. S. (C.)                      |                                |
| Haskell, I. D. (L.)                     |                                |
| Shack, I. E. (M.)                       |                                |
| Traynor, H. A. (L.)                     |                                |
| Wynn, R. S. (C.)                        |                                |
| Gloversville—Pannae, C. F. (C.)         |                                |
| Goshen—Hamann, B. C. (L.)               |                                |
| Irvington—O'Conne, E. T. (C.)           |                                |
| Morton—Richman, R. D. (C.)              |                                |
| New York—Gable, L. M. (M.)              |                                |
| Goodman, M. (L.)                        |                                |
| Harrison, M. (L.)                       |                                |
| Hastelute, S. L. (L.)                   |                                |
| Haynes, C. E. (C.)                      |                                |
| Jacques, W. A. (C.)                     |                                |
| Mullolland, M. (C.)                     |                                |
| Ryan, T. J. (L.)                        |                                |
| Smith, H. M. (L.)                       |                                |
| Terrberry, W. S. (M.)                   |                                |
| Oncida—Flamm, G. (L.)                   |                                |
| Pelliam—Simonsen, I. M. (M.)            |                                |
| Poughkeepsie—Cromwell, C. D. (M.)       |                                |
| McNeil, C. L. (L.)                      |                                |
| Tubb, C. E. (L.)                        |                                |
| Rochester—Baehmann, G. W. (M.)          |                                |
| Groundy, T. J. (C.)                     |                                |
| Rockville Center—Seaman, B. W. (C.)     |                                |
| Saratoga Springs—Houghton, J. T. (C.)   |                                |

### NORTH CAROLINA

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| Franklington—Winston, A. R. (L.) |
| Sylva—Wilkes, G. (C.)            |
| Win-ton-Salem—Chaney, T. M. (M.) |

### NORTH DAKOTA

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| Beach—McNab, A. B. (C.) |
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### OHIO

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| Ashtabula—Stewart, N. E. (C.)    |
| Bloomington—McDonald, E. H. (L.) |
| Cleveland—Crow, A. G. (L.)       |
| Wolf, E. E. (L.)                 |
| Columbus—Dysart, N. C. (C.)      |
| Findlay—Pennington, P. C. (C.)   |
| Marysville—MacIver, A. (M.)      |
| Newark—Turner, V. R. (L.)        |
| New Vienna—Brown, H. M. (C.)     |
| Van Wert—Leake, N. E. (C.)       |

### OKLAHOMA

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| Milay—Murray, L. P. (C.)      |
| Ochelata—Sherwood, E. G. (C.) |

### PENNSYLVANIA

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| Aspinwall—Ross, W. F. (C.)         |
| Canonsburg—Wilson, J. E. (L.)      |
| Centerport—Tryon, L. R. (C.)       |
| Hollidaysburg—Shaw, B. E. (L.)     |
| Lancaster—Jones, W. H. (L.)        |
| Lattrobe—Eiseman, H. M. (C.)       |
| New Castle—Schuck, F. (L.)         |
| New Holland—Hendrixson, L. H. (L.) |
| Philadelphia—Armstrong, T. M. (C.) |
| Burge, F. W. (C.)                  |
| Case, C. E. (L.)                   |
| Cole, A. N. (C.)                   |
| Crowley, W. H. (C.)                |
| Kemper, E. W. (L.)                 |
| MacKay, W. H. G. (L.)              |
| Melver, R. B. (C.)                 |
| Sharpe, A. M. (L.)                 |
| Smith, L. G. (L.)                  |
| Walp, G. (L.)                      |
| Wilderman, H. (L.)                 |
| Woomer, L. E. (L.)                 |
| Pittsburgh—Baird, J. S. (C.)       |
| Chehane, A. (C.)                   |
| Giles, H. J., Jr. (L.)             |
| Mann, J. W. (L.)                   |
| Pottsville—Shultz, L. M. (C.)      |
| Simpson—Gryzel, F. B. (L.)         |
| Tohyanna—Rhoads, A. L. (L.)        |
| Wayne—Fallon, L. F. (C.)           |
| Wenersville—Massey, F. F. (L.)     |
| West Chester—Grauten, V. J. (L.)   |

### RHODE ISLAND

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| Providence—Healey, J. J. (L.) |
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### SOUTH CAROLINA

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| Chester—Ross, H. M., Jr. (C.) |
| Pinewood—Harvin, F. M. (C.)   |
| Rideland—Grimball, I. H. (L.) |

### SOUTH DAKOTA

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| Sioux Falls—Nessa, N. J. (L.) |
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### TENNESSEE

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| Chattanooga—Hillas, W. J. (M.)  |
| Elkton—Bathel, W. P. (C.)       |
| Greenebrier—Winters, W. W. (C.) |
| Maynardville—Skaggs, J. S. (L.) |
| Memphis—Conley, H. P. (L.)      |
| Nashville—Lauer, I. M. (L.)     |
| Union City—Chandler, O. B. (L.) |

### TEXAS

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|----------------------------------|
| Aspermont—Wylie, D. C. (C.)      |
| Austin—Fowler, C. F. (L.)        |
| Big Spring—Jurgens, W. C. (L.)   |
| Blanco—Barron, W. M. (L.)        |
| Balls—Moursund, W. H. (M.)       |
| El Campo—Gray, C. W. (L.)        |
| Houston—Wilcox, R. B. (M.)       |
| Hulbard—Lowry, R. K. (C.)        |
| Knox City—Masters, W. J. (L.)    |
| Mineral—McMahon, J. W. (C.)      |
| San Antonio—Crawford, C. C. (C.) |
| McAdon, I. F. (C.)               |
| Santo Tomas—Keller, H. S. (M.)   |
| Smithville—Jones, G. M. (M.)     |
| Spickett—Grimm, R. M. (L.)       |
| Temple—Gough, H. W. (L.)         |
| Victoria—Borden, J. L. (L.)      |

### VIRGINIA

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| Clear Brook—Dovell, C. F. (C.) |
| Hampton—Wood, T. M. (L.)       |

### WEST VIRGINIA

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| Charleston—Parsons, A. I. (L.) |
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### WISCONSIN

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| Beloit—Hecker, W. (C.) |
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## Foreign Correspondence

PARIS

Nov. 6, 1919.

### Congress of Urologists

Among the subjects discussed at the nineteenth Congrès français d'urologie, held in Paris, October 8-11, was treatment of nontuberculous pyelonephritis.

#### NONTUBERCULOUS PYLEONEPHRITIS

Dr. Paul Fritschsch, formerly chief of the clinic for diseases of the urinary tract at the Faculty of Medicine of Paris, presented an interesting report on this subject. He pointed out the various causes of pyelonephritis and the different lesions that characterize it, and then drew the conclusion that a uniform method of treatment was impossible, but that the method used would necessarily vary with the case. Thus, while we are virtually powerless to prevent the development of ascending ureteropyelonephritis, therapeutic means are available, up to a certain point, to prevent ascending ureteropyelonephritis by a rational treatment of disorders of the ureter, the prostate and the bladder. All who are suffering from urinary or general contagious diseases should avoid chilling or any cause capable of producing a renal congestion. By an appropriate diet intestinal fermentation should be decreased and constipation should be guarded against. Also undue use of diuretics, balsamics and other irritants should be avoided.

Once the diagnosis of pyelonephritis has been made, the treatment will vary according as the condition presented is acute or chronic pyelonephritis. In the former case medical treatment should always be instituted unless there are urgent reasons for surgical intervention. Absolute rest should be prescribed. In the lumbar region a cupping glass or mustard rubefacient should be applied to effect revulsion. The pain should be relieved by hot compresses. To bring about the evacuation of pus and microbes, diuretics and urinary antiseptics will be prescribed. In certain cases more active intervention will be required, and it may be necessary to reestablish diuresis by means of subcutaneous or intravenous injections of artificial serum. The glucose serums are especially indicated, either in isotonic or in hypertonic solution.

In the majority of cases the acute symptoms subside under the influence of medical treatment. But things may turn out differently, and in that case we should have recourse to local treatment. Distention of the bladder, as recommended by Pasteau, should be done, and if that does not relieve the cystoscopic catheterization of the ureter and lavage of the pelvis of the kidney with a weak, tepid antiseptic solution is indicated (boric acid or borax solution, potassium permanganate and especially silver nitrate). Immediately after this lavage several cubic centimeters of a 3, 4 or 5 per cent silver nitrate solution, of a 1, 2 or 3 per cent protargol solution or a 5 per cent collargol solution should be instilled into the renal pelvis. Lavage of the renal pelvis is contraindicated in patients suffering from acute urethritis or an untreated form of cystitis; also if the general condition of the patient is bad.

If in course of treatment, the patient does not improve; if one of the ureters is sound, while the other is in frankly advanced condition, nephrectomy should be done at once, unless the general health of the patient is precarious, in which case the operation is indicated, this operation to be followed by nephrectomy of the other kidney.

In chronic pyelonephritis we should endeavor to treat and attempt to relieve the causal lesion (cystitis, urethral infection, renal tumor, etc.). Vasculotherapy and serotherapy may be employed concurrently with the customary antiseptics, but they are of great worth, but they must under no circumstances be allowed to supplant the latter.

Dr. Fritschsch, professor in the clinic for diseases of the urinary tract at the Faculty of Medicine of Bordeaux, expressed his opinion to the effect that in acute nephritis he preferred to have recourse to nephrectomy rather than to medical treatment. Nephrectomy, he contends, has the advantage of relieving the affected kidney during the period that the position of the other kidney is unknown, and fulfills perfectly the requirements for treatment of all infected organs—adequate bleeding, antiseptic drainage and lavage. As for the treatment of ureteropyelonephritis, Posson thinks that the choice of method of treatment is, after all, a question that is determined largely by the location of the lesions. If these

occupy only the inferior segment of the ureter, lavage and ureteral catheterization are sufficient. If, however, the lesions extend the whole length of the ureter and invade the renal pelvis and the calyces, antiseptic ureteral lavage may suffice, provided there are no diverticula or tortuosities, in which case nephrectomy must be resorted to. The same thing is true if there is renal suppuration or if the abscesses are disseminated through the parenchyma.

Dr. Kidd of London stated that since 1911 he has been treating nontuberculous pyelonephritis by lavage of the renal pelvis, ordinarily. He injects into the pelvis 4 c.c. of a 5 per cent colloidal silver solution and repeats this injection only twice (three injections in all). In forty-five cases of old pyelonephritis with retention of from 5 to 40 c.c. he has given lavage 121 times without anesthesia, a complete cure resulting in thirty-six cases.

### Antisyphilitic Treatment of Rebellious Incontinence of Urine

Dr. André Boeckel of Strasbourg related the case of a soldier who had suffered for a year and a half from incontinence of the urine that had proved rebellious to all forms of treatment instituted in various urologic centers. Boeckel decided to take the Wassermann reaction, which proved to be positive. He accordingly prescribed antisyphilitic treatment, and at the end of eighteen days the patient was completely cured of his weakness. It was apparently an early manifestation of tabes.

### Death of Dr. Robert Wurtz

The death of Dr. Robert Wurtz (physician of the Hôpitaux de Paris and agrégé professor on the Faculty of Medicine of Paris) has been reported. He was known mainly as a hygienist. He had published works on hygiene as pertaining to our colonies, on exotic diseases, on industrial poisoning, etc. He occupied the office of director general of the Institut supérieur de vaccine à l'Académie de médecine. Robert Wurtz was the son of the famous chemist, Adolphe Wurtz.

### Visit of Spanish Physicians

A mission composed of forty Spanish physicians, organized and conducted by Dr. José de Bleizguiz, director of the *España médica*, has arrived in Paris. The reeducation center at Saint-Maurice, the Pasteur Institute, the War Museum and various hospital services will be visited.

### Personal

At one of its recent meetings the Academy of Medicine elected three correspondents (in national matters) for the fourth section (therapeutics and natural history as pertaining to medicine). Those chosen were: Dr. Sigalas, professor of pharmaceutical physics on the Faculty of Medicine of Lille; Dr. Guibert, professor of parasitology, and natural history as pertaining to medicine, on the Faculty of Medicine of Lyons.

Dr. Michéleau, agrégé on the Faculty of Medicine of Bordeaux, has been appointed professor of legal medicine on the Faculty of Medicine of Algiers.

### The Use of Saccharin

With the purpose in view of guarding against the threatened sugar famine during the war, the government in 1917 passed a law authorizing the use of saccharin in the preparation of certain products of consumption, especially certain beverages (THE JOURNAL, May 12, 1917, p. 1422). It was expressly stipulated that this special privilege should end with the issuing of the proclamation declaring the cessation of hostilities, but, since the reasons for the granting of the privilege still persist at the present time, the government has recently introduced a bill providing for an extension of time.

### Hygienic Exhibit Organized by the Rockefeller Mission

A hygienic exhibit organized by the Rockefeller mission has been installed in one of the town halls (*mairies*) of Paris. It aims to educate the people by means of pictures. Banners with colored figures and inscriptions develop a series of hygienic maxims, for example: "Your child has only two eyes, they must serve him his whole life through"; "the health of your wife and your children depends on you; help them to keep it"; "the intelligent employer provides ventilation and healthful surroundings in his workshops," etc. The pictures serve to show how these results can be attained. A collection of postal cards for the children affords them a great deal of amusement. On one card is represented a child

sneezing, while another nearby calls out to him "Keep your microbes for yourself, old boy." On another card is seen a group of children scarcely out of their swaddling clothes starting off to war, brandishing banners on which are printed their peremptory hygienic demands.

**The Next Congress of French Orthopedists**

The Société française d'orthopédie has fixed the date of its next congress, Oct. 8, 1920, and has put the following questions on the order of the day: (1) modern treatment of scoliosis. Essayist, Dr. Estor, professor of clinical pediatrics and orthopedic surgery on the Faculty of Medicine of Montpellier; (2) traumatic retraction of tendons (Volkmann's disease). Essayist, Dr. Denucé, surgeon of the Hôpitaux de Bordeaux and agrégé professor on the Faculty of Medicine; and (3) anastomosis of tendons in traumatic paralysis. Essayist, Dr. Mauclair, surgeon of the Hôpitaux de Paris and agrégé professor on the Faculty of Medicine.

**RIO DE JANEIRO**

Oct. 20, 1919.

**Federal Ministry of Public Health**

President Pessoa recently communicated to the house his desire to create a federal ministry of public health. The bill presented to congress advises the taking over by the new ministry of all departments dealing with health matters, public sanitation, water supply and sewerage. In this way the secretaries of the interior and of public works will be relieved of excessive work.

**Hospital for Mental Diseases**

The secretary of the interior visited the asylum for mental and nervous diseases and found it overcrowded, there being 1,460 patients, although only 800 can be housed comfortably; he therefore resolved to found a colony for these unfortunates in one of the suburbs of Rio, and also to have an asylum built for criminal lunatics, both to have all modern improvements.

**Influenza Number of the Archivos Brasileiros de Medicina**

A special number of the *Archivos Brasileiros de Medicina* has been devoted to influenza. The articles of Prof. Juliano Moreira on psychical disturbances determined by influenza and on influenza in the lunatic asylum during last November and its influence on mental diseases are worthy of special notice. Dr. Moreira's opinion is that the mental disturbances he noted, most or them benign were due to the influenza virus or its toxin. Among other manifestations, the grip provoked meningitis, pseudomeningitis and encephalitis. No case of paralytic dementia resulting from influenza was observed, although latent cases manifested themselves following influenza. Sixty per cent. of influenza psychoses resulted in recovery. Out of 1,470 patients of the asylum, 1,314 were stricken with the disease during the second half of October, and ninety-two, or 6.3 per cent., succumbed. During the same period, 160 new patients suffering with mental diseases due to the pandemic were interned, and in the first days of November, 114. Dr. Moreira did not observe any instance of remission in cases of paralytic dementia; on the contrary, he observed the exacerbation of the symptoms of patients suffering with diffuse latent meningo-encephalitis. Besides other interesting articles, Dr. Waldemar de Almeida publishes a complete bibliography of Brazilian publications on influenza. (See also page 1479.)

**The New Director of Public Health**

Dr. Carlos Chagas of the Instituto Oswaldo Cruz has superseded Dr. Theophilo Torres as director of public health. Dr. Torres did valiant service during the epidemic of influenza in 1918, and appointed commissions to visit the different states to extinguish foci of yellow fever. Dr. Chagas will continue as director of the Oswaldo Cruz Institute.

**Memoirs of the Instituto de Butantan**

The S. Paulo Instituto de Butantan for medical research has initiated the publication of a new scientific journal. The first number contains articles on atriolaria of Rio de Janeiro and its neighborhood, by F. C. Hoehne and J. G. Kuhlmann; a histologic study of the gland of Brazilian snake heads, by Dorival C. Pentado; antiscorpionic serum, by Dr. Vital Brasil, and a contribution to the knowledge of Brazilian snakes, by Dr. J. Florencio Gomes.

The second number treats of Bancroft filariasis; the classification of *Hemosporida*; a contribution to the parasitic mycology of Brazil, and a contribution to the treatment of the atonic and phagedenic ulcers. Dr. Afranio do Amaral, the author of the first paper, calls attention to the histologic characters of filariasis, which may serve as a basis for the diagnosis: inconsistency of globular alterations; reduction of the polymorphonuclear neutrophil leukocytes; with increase of the microlymphocytes during the night, and constant increases of the eosinophils, more accentuated during the apyretic periods; absence of globular alterations; absolute increase of the leukocytes; increase of the polymorphonuclear neutrophil leukocytes with reduction of the microlymphocytes, and diminution or absence of the eosinophils, which return before the paroxysm has passed. In the second paper, Henrique Aragão, using as a basis not only morphologic characters of the different hematozoa but particularly the knowledge which is possessed respecting their evolutionary cycle, proposes a new systematic grouping for the suborder of *Hemocystozoa*, dividing it into the four superfamilies: *Haemogregarinoidea*, *Achromaticoidae*, new superfl., *Plasmodioidae*, new superfl., and *Toxoplasmoidea*, new superfl.

The first one is divided into families, *Hemogregarinidae*, with the genera *Haemogregarina*, *Lahl*, *stercorala*, *Karyolytas* and *Hepatoozon*. The second one includes two families, *Achromaticidae*, with the genera *Achromaticus*, *Smithia*, *Elleipsisoma*, *Rosicella* and *Rungiella*, and *Thileridae*, n. n., with the genus *Thileria*. The third one is subdivided into two families, *Haemoprofitidae* with the genus *Haemoprofitus*, and *Plasmodiidae*, with the genera *Plasmodium* and *Hemocystidium* and the subgenus *Laverania*. The fourth includes one family only, *Toxoplasmiidae*, and the only genus, *Toxoplasma*.

In the third article, Prof. Pirajá da Silva relates two interesting cases of Madura foot observed in Bahia. In the first case he isolated *Discomyces*, which he considers a new species and calls *bahiensis*; in the second one he isolated *Madurella romiroi*, n. sp.

In the fourth paper, Dr. Afranio do Amaral describes the treatment of atonic ulcers and phagedenic ulcers by means of local applications of normal dried serum, without the concomitant use of any antiseptic substance. On the first application of the serum, the ulcers begin to change in appearance, becoming clean and regular, and the tissues recover their activity. The sore heals rapidly and completely. In cases of phagedenic ulcers, a complete destruction of the fusospirochete association is observed.

**Consanguineous Marriages**

There is a bill pending in congress to repeal an article of the civil law code prohibiting consanguineous marriages which have not received the approval of the profession.

**LONDON**

Nov. 13, 1919.

**Death of the Middle Classes**

Under this title the *Times* emphasizes what is perhaps the most important result of the declining birth rate. The most recent report on this subject, that of the health officer for Chester, states that in 1918 there were 132 fewer births in Cheshire than in 1917. The rate for the county is now 15.9 per thousand of estimated population. That for England and Wales is 17.7, and for London, 16.1. Comparing these figures with the birth rate for the decennium 1901-1910 shows that the latter was 27.2. Going further back, the subjoined table may be constructed.

**BIRTH RATE PER THOUSAND LIVING AT ALL AGES**

1851	1860	1861	1870	1871	1880	1881	1890	1891	1900	1901	1910	1918
34.1		35.2		35.4		32.4		29.9		27.2		17.7

In the same period (1851-1910) it is true that the death rate fell by 30 per cent. A large proportion of the fall is to be ascribed to the reduction of the infant death rate and to measures of public hygiene. The result has been that the falling birth rate has been to some extent compensated for by the falling death rate among the working and industrial classes, in which the annual gain and loss were very high thirty years ago. But that is not true of the middle classes. Their birth rate is falling rapidly; their death rate, never very high, is not falling. Thus the middle classes are suffering in the matter of population. We are witnessing what can be described without exaggeration as the death of the middle classes. Especially during the past three years, the middle class births have been rapidly diminishing. The

family of four or five has become the family of two or three and is in process of becoming the family of one. A great number of young couples now openly declare that they do not intend to have more than one child, and many decide to have no children at all. Every physician is able to corroborate these facts, and many physicians are consulted on the question of birth prevention. With the present cost of living, taxation, and the price of houses, a "family," as that term used to be understood, is impossible. It means no ascertainment but privation. It is therefore felt to be better to bring up one healthy child and afford it a reasonable education than to attempt to bring up three children on insufficient food and without being able to afford them a training for their life's work. But the mischief does not stop there. The marriage rate has also fallen. In 1917 it was 138 per cent. of the population at all ages. This rate was the lowest to that time recorded, being 11 below that of 1916 and 24 below the average rate of the quinquennium 1911-1915. Early in the war (which, as explained in previous letters, was at first an incentive to marriage), 1915, a maximum was reached at 194 per thousand. Marriages, and especially middle class marriages, are being postponed at present on account of housing and food difficulties, and there can be no doubt that many men are avoiding marriage altogether because of the severe financial strain which it imposes. The world is in a gay mood, and the attractions of domestic life are a salary barely enough for two are not conspicuous. As a bachelor a man may indulge in his tastes, preserve his freedom of action, and can afford to amuse himself with his friends. He shrinks from the alternative of stern, hard work, frugal living, a minimum of pleasure as that word is understood in our cities, and a maximum of anxiety. Moreover, the age question has to be considered. The proportion of bachelors marrying during 1911-1914 was about 39 per cent. In 1880-1890 it was 50 per cent. It was 37.6 in 1917. The proportion of bachelors marrying at ages over 35 has also increased markedly during 1916 and 1917. Of spinsters marrying during the later eighties, about 63 per cent. were under 25 years of age; of those marrying during the last five years, only 55 per cent. were under 25. The war, of course, has proved a disturbing factor in all statistics; but it is not to be doubted that among the middle classes, marriages are becoming not only fewer in number but also later in respect of the age of the contracting parties.

#### The Lancet on Its Defense

A correspondent has asked the *Lancet* whether all the present talk consists of bacteriologists. Our contemporary says that the answer is in the negative; but the implied criticism of the reports of recent issues is justifiable, and deserves a satisfactory rejoinder as it can supply. For many years there has been a progressive increase in the space allotted to bacteriology in its wider sense. The volumes from 1880 to 1900 show that while the balance was then held, as well as the balance between the various systems of the body, disease was regarded almost exclusively from the clinical standpoint. However, the balance has shifted, it is due to the alteration in the attitude of what has to be said in a medical journal. The clinical and therapeutic aspect must always remain the primary and important. Readers whose interests are primarily centered round the personal element in medicine, and who are busy with the minute enemies of human existence, will find in a new method crisp and practical, and they will find in it a final men and women may expect to be cured, the physician will find in it a practical and a list of apparently unimportant details, as a preparation for daily medical practice. This is not to be taken to do justice to both sides, but to show the nature of their interrelations.

For example, to take an example a circular on prophylactic measures against influenza recently addressed to the parents of the students in one of the leading women's colleges by a bacteriologist. The circular stated by the college physician on the subject of influenza, "The attacks will be milder and rarely followed by pneumonia. As a consequence of this milder character of pneumonia will be asked to give a decision on the subject of pneumonia will be subject to intellectual criticism. Does it mean that the probability of Pfeiffer's bacillus being the cause of influenza is against a filtrable virus, and to estimate the ability of a vaccine for a disease the cause of which is unknown. The assertion that pneumonia is less liable to follow influenza in inoculated persons may have to be examined in the light of its bacterial causation

and the composition of the vaccine to be used. The problems arising out of this letter therefore suggest that in opening its columns generously to bacteriology, the *Lancet* is acting with appreciation of the needs of those not specially interested in the subject. It agrees, however, with its correspondent that communications have appeared in its columns that would have been, as it happens, more suitable for a purely technical publication. But it adds that it is not easy to foresee when any piece of work may not become of real clinical importance.

#### The Welfare of the Blind

A committee on the welfare of the blind, appointed by the government, has issued its report. The deficiency of the census of 1911 in the enumeration of the blind has been met by an inquiry through public bodies. A register formed on the replies shows a total of 25,840 blind persons in England and Wales. It is thought that, when omissions are made up, the total will be 30,000. Inquiry was made into the work of the blind, and it was found that the unemployable group (11,895) is the largest, being 46 per cent. of the total enumerated. This class represents the real crux of the problem of dealing with the blind. Of blind persons in occupations, the largest proportion are engaged in basket and cane work; there are relatively few in outdoor occupations. A large number of blind children are not attending school, and of these, 40.6 per cent. were returned as mentally defective. A table of the age of onset of blindness shows that 21.4 per cent. were blinded within the first year of life, the majority of them within the first few months. After the first year the incidence is, roughly, 10 per cent. for each decade up to 70 years. The inquiry did not elicit useful information as to the causes of blindness so far as disease was concerned, owing to the absence of medical opinion. But accidents were found to account for 12.3 per cent. of the total. It is believed that a considerable proportion of these cases of blindness would be prevented if better protection by goggles and the like were provided in certain industries. An analysis of 6,000 returns of eye accidents showed that 51 per cent. were due to chips of metal or grit striking the eye. Trade union wages do not allow the slow-working blind to gain a living; a scheme for the augmentation of wages has been framed which, it is believed, will provide an incentive to work and offer no inducement to malingering. During the war there has been ample work for the blind, and measures are to be taken to secure a sufficient diversion of work to keep them employed in normal times.

#### The Red Cross to Help Combat Tuberculosis

It has been decided that the British Red Cross, now relieved from its gigantic labors during the war, shall direct its activities against tuberculosis. At the conference of the national association for the prevention of tuberculosis, Sir Arthur Stanley, chairman of the British Red Cross, said that tuberculosis offered a field in which the society might be of the greatest assistance. It was hoped to form an organization by means of which every man, woman and child in the country might receive just that amount of skilled attention which is necessary in the early stages of any accident or disease, and so work on to the further stage when trained assistance could be given in the great hospitals of the country. The Red Cross had a very large army of motor ambulances in France and elsewhere which might be used for the benefit of civilians as they were for the benefit of soldiers. The whole country would be mapped out in such a way that no town or village should be more than 15 miles from an ambulance station. There was also scope for the cooperation of voluntary workers with the trained nurses in districts. More than half the time of district nurses in villages and other centers was taken up in work that might just as well be done by other people. It was therefore proposed to link up the ambulance system with another system under which, in every village and small town, the trained nurses would cooperate with the voluntary workers in such a way that the latter might be able to attend to the minor accidents and the initial stages of disease in their respective districts. The voluntary workers would be connected with a nursing center which should be in every considerable county town, together with a well equipped and well staffed hospital.

Broadly speaking, the whole matter resolved itself into three stages: In the first stage, the early period of the disease, the voluntary workers could be of practical assistance. In the second stage, when the disease was well established and sanatorium treatment was probably required, the matter should be left to the state. No organization, however big, could meet the cost of the management of

sanatoriums. The third stage related to cases which had gone practically beyond help—the stage in which the sufferer naturally pined to get back to his own home at the time when it was the very thing that he should not do. In that stage such organizations could do good work by insuring for the sufferers the provision of homes so situated that they were easily available to the sufferer's family and friends, where he could be frequently visited and where he would be surrounded by homelike conditions, such as no state institution could insure.

**Flies as Carriers of Dysentery**

A report on bacillary dysentery in Macedonia, just presented to the Medical Research Committee, tends to show that flies carry the disease. The report is based on careful experiments, which were carried out by Capt. J. F. Taylor, under three heads: (1) a comparison of the number of flies present at different seasons in a certain area with the proportional incidence of bacillary dysentery arising in that area; (2) experiments to show that a fly, when deliberately infected with a bacillus of the dysentery group, is able to carry that bacillus and to infect suitable mediums with it, and (3) experiments to show that flies in their natural state were carrying dysentery bacilli. The first line of research resulted in a remarkable graph showing that in April, May and June, when the fly prevalence was at its height, the dysentery prevalence rose also to a height. This occurred again in September and October, both fly and dysentery prevalence rising steeply. The experiments proved that the insect can become the vehicle of both Flexner and Shiga bacilli. The flies were caught in sterile dishes and put into specially constructed cages. Food was passed in to them in a watch glass. It was found that they tended to die unless the atmosphere was kept moist. The food consisted of milk cultures of dysentery bacilli (Flexner and Shiga), or other material known to contain these organisms. The flies so fed were examined in various ways. Some were allowed to walk over the culture plate, others were killed and their legs alone used, and in some excreta were examined. A total of 382 flies were examined, and of these seventy-nine gave positive results. It is concluded that the fly is capable of carrying both types of dysentery bacilli and that the prospect of recovering the infecting organism from the fly diminishes very markedly after twenty-four hours from the time of infection. The latter point is new. Finally, it was found that flies living under natural conditions were carrying dysentery bacilli. These flies were caught in various parts of the hospitals, wards, kitchens and latrines. These experiments have great value at a moment when bacillary dysentery carriers are known to be present in this country. They suggest, too, that the assertion often made that infantile diarrhœa is a fly-borne disease may be well founded.

**Indians in the Indian Medical Service**

The Indian Medical Service has for many years contained a large number of Indians in its lower grades who have worked very well under British officers. The government is now bringing in a bill which will transfer a good deal of power to Indian representative bodies and possibly alter the predominant position of British officials in India. Important evidence has been given before a select committee on the government of India bill by Col. R. H. Elliot, who was a member of the Indian Medical Service for fifteen years and superintendent of the Madras Hospital. He said that Europeans do not like serving under Indians. They do not feel that they would receive the same support and make the same progress as under British superiors. Handing over the medical service to Indians would not have a good effect on the public health. It is not a racial question. There are many Indians under whom Europeans would be glad to serve, but they would not be willing to serve under the majority of Indians. Asked if in his opinion Indians should be excluded from the Indian Medical Service, he said he would rather not make any comment on that point, as it was too difficult. In his opinion the Indian people as a mass take no notice of or interest in sanitation. If the British interfered with water supplies such as wells and tried to bring sanitation about, they would provoke a great deal of ill feeling. At the present time to substitute Indian medical officers for British would be setting back the clock and stop the progress now being made. He agreed that a gradual substitution was quite a different matter, and this would no doubt come eventually. He himself had the greatest sympathy with the Indians. Their physicians had done really splendid work, and he looked forward with confidence to their doing still much better and more work in the future.

**Marriages**

- AARON LEIDY RUTH, Conshohocken, Pa., to Miss Jean Hodgott of Paisley, Scotland, in New York City, October 1.
- FRED ANDREW JOHNSON to Miss Reba Milburn Rouff, both of Greenville, Mich., at Grand Rapids, Mich., November 13.
- SAMUEL JONES BANFIELD, Omar, W. Va., to Miss Ethel Blanche Spriggs of Institute, W. Va., November 19.
- SAMUEL I. YARNELL, Chattanooga, Tenn., to Miss Nancy Myra Leeper of Lenoir City, Tenn., November 5.
- AMOS REGINALD SHIRLEY, New York City, to Miss Harriet Pauline Eastin of Chattanooga, Tenn., October 25.
- JOHN LESTER WEBB, Carbon Hill, Ohio, to Miss Dorothy Sweazy of Columbus, Ohio, October 29.
- CLARENCE BANCROFT INGRAHAM, JR., to Mrs. Agnes Reed, both of Denver, recently.
- AUSTIN MILLARD GROVE to Miss Maude M. PeTRY, both in New York, Pa., September 30.
- REA PARKEB, Smithfield, Va., to Miss Leslie Nalle of Culpeper, Va., November 19.

**Deaths**

- James Dudley Morgan \* Asst. Surg., Lieut. (j. g.), U. S. Navy, Washington, D. C.; Georgetown University, Washington, D. C., 1885; aged 57; demonstrator of anatomy from 1888 to 1899 and lecturer on differential diagnosis from 1897 to 1898 in his alma mater; associate and clinical professor of medicine in George Washington University, Washington, D. C., from 1910 to 1917; physician to Garfield Hospital since 1899 and chief of the medical service of Emergency Hospital since 1904; a member of the American Climatological Association; president of the Medical Society of the District of Columbia in 1906; president of the Columbia Historical Society from 1909 to 1916; died at his summer home, Chevy Chase, Md., November 21.
- Xavier Oswald Werder \* Pittsburgh; University of the City of New York, 1879; aged 61; professor of gynecology in the Western Pennsylvania Medical College and University of Pittsburgh; since 1889 a member of the American Association of Obstetricians and Gynecologists; treasurer of the association for eight years and its president in 1914; gynecologist to Mercy and Charity Hospital; consulting gynecologist to St. Francis, Allegheny General and Southside hospitals, Pittsburgh; an extensive contributor to the literature of gynecology; died, November 20.
- David Henry Dougan, Richmond, Ind.; Bellevue Hospital Medical College, 1874; aged 74; formerly president of the Denver Medical Society and a member of the Colorado State Board of Health, and surgeon-general of the National Guard of Colorado, with the rank of colonel; for one term mayor of Leadville, and president of the Carbonate National Bank, Leadville in 1891, and for twenty years president of the Commercial National Bank, Denver; died October 31 from carcinoma.
- Thomas F. Fonnannon, Emporia, Kan.; Louisville (Ky.) Medical College, 1879; aged (63); a local surgeon to the Missouri, Kansas and Texas Railroad; formerly president of the Emporia Board of Health, and member of the Kansas Medical Society; once first vice president of the Kansas Medical Society, and president of the Lynn County Medical Society, one of the founders of St. Mary's Hospital, Emporia; died November 20.
- Isaac Lafayette Watkins \* Montgomery, Ala.; Bellevue Hospital Medical College, 1878; aged (55); president of the Medical Association of the State of Alabama, and once president of the Montgomery County Medical Society; founder and physician to Highland Park Sanatorium, Montgomery; a member of the Southern Surgical and Gynecological Association, died, November 18.
- Douglas Luce, Tracy, Calif.; Starling Medical College, Columbus, Ohio, 1854; aged 89; a member of the Medical Society of the State of California, local surgeon to the Southern Pacific system until his retirement in 1905; assistant surgeon of the Forty-Fourth Ohio Volunteer Infantry during the Civil War; died in the Veterans' Home, Nassau County, November 4.

\* Indicates "Fellow" of the American Medical Association.

**Joseph Harry Collins** ★ Pittsburgh; Georgetown University, Washington, D. C., 1906; aged 36; assistant secretary of the Allegheny County Medical Society; a specialist in surgery, major, M. C. U. S. Army, and honorably discharged, June 24, 1919, died in the Union Protestant Infirmary, Baltimore, November 11, from strangulation of bowel after a gastro-enterostomy for duodenal ulcer after a surgical operation.

**John Myers Swan**, Canton, Ohio, University of the City of New York, 1885, aged 59, for twenty-nine years a medical missionary under the Presbyterian Board of Foreign Missions, for the last five years owner and operator of the Hillcrest Hospital, Canton, was struck by an automobile truck in Pittsburgh, November 11, fracturing his skull, and died two hours later in the West Penn Hospital.

**George Andrew Hettler**, Toledo, Ohio, University of Cincinnati, 1911, aged 34, formerly surgeon of the Third Infantry, Ohio National Guard; later major, M. C. U. S. Army, and on duty overseas with the 147th U. S. Infantry; awarded the Distinguished Service Medal, and honorably discharged, August 3; died, November 15, from scarlet fever.

**Edwin John Carpenter**, Corning, N. Y., University of Buffalo, 1891, aged 55, for many years a member of the board of education, and at one time president; once an alderman and for two terms coroner of Steuben County; a member of the medical staff of the Corning Hospital; died, November 14, from cerebral embolism.

**John Ross** ★ Pontiac, Ill.; Rush Medical College, 1894; aged 52; for twenty years and until the time of his death, secretary of the Livingston County Medical Society; died in St. James Hospital, Pontiac, November 18, from injuries sustained by being struck by a train, while driving in his automobile across the railway tracks.

**Arminius F. Bock**, St. Louis; University of Würzburg, Germany 1868, aged 73; a member of the Missouri State Medical Association, and a practitioner of St. Louis for half a century; one of the founders and first surgeon on the staff of the Deaconess Hospital; died, November 14, from heart disease.

**Henry Larned Sidebotham**, Philadelphia; Jefferson Medical College, 1880; aged 54, for two terms coroner's physician, and later resident physician at the Norristown State Hospital, medical inspector of the bureau of health; died in St. Mary's Hospital, November 16, from cerebral hemorrhage.

**William Hiller Richardson**, Vernon, Ind.; Medical College of Ohio, Cincinnati, 1875; Bellevue Hospital Medical College, 1878, aged 66, a member of the Indiana State Medical Association, president of the Jennings County (Ind.) Medical Society in 1917; died, November 3, from angina pectoris.

**Hamilton P. Franks**, Muncie, Ind.; Medical College of Indiana, Indianapolis, 1882; University of the City of New York, 1888, aged 70; a member of the Indiana State Medical Association, and formerly president of the Delaware County Medical Association; died, November 13.

**James K. Graham**, St. Joseph, Mo.; College of Physicians and Surgeons of St. Joseph, Mo., 1882; aged 60; a member of the Missouri State Medical Association, for two terms coroner of Buchanan County, and from 1898 to 1900 secretary of the St. Joseph; died, November 10.

**Ernest J. C. Sward**, Lincoln, Neb.; University of Nebraska, Omaha, 1880, aged 46, elected secretary of the Nebraska State Board of Health in 1907; once president of the Burke County Medical Association, and coroner of Burke County; died in Ash Grove, Mo., November 19.

**James Marshall Jamison**, Bowling Green, Ky.; University of Kentucky, Lexington, 1870, aged 71, for several years president of the Kentucky State Penitentiary, Nashville but since 1862 in the insurance business; died in St. Joseph's Hospital, Lexington, November 18.

**Leon Thompson Burgess**, Chicago; Jenner Medical College, Chicago, 1897, aged 46; whose license was revoked, Feb. 7, 1918, by the Department of Registration for violation of the medical practice act; died, November 15, from pneumonia following an automobile accident.

**Herbert Leonard Strong**, Portland, Ore.; University of Oregon, Portland, 1918, aged 30, lieutenant (junior grade), U. S. N. R. F., on duty at the U. S. Naval Hospital, Mare Island, Calif., and relieved from active duty, August 27, died in the hospital, October 21.

**Albert Lee McGough**, Detroit, Detroit College of Medicine and Surgery, 1894, aged 49; a member of the Michigan

State Medical Society, and a member of the staff of the Harper Hospital; died in that institution, November 16, from heart disease.

**Sylvan Graham Bushey**, Camden, N. J.; Jefferson Medical College, 1891, aged 53; a member of the Medical Society of New Jersey; for twenty-four years a member of the board of health of Camden; died, November 16, from cerebral hemorrhage.

**Alfred Alexander Tyrrell**, Spokane, Wash.; Milwaukee Medical College, 1910; aged 32; first lieutenant, M. R. C. U. S. Army, and honorably discharged, Dec. 6, 1918; interu at St. Luke's Hospital, Spokane; died in that institution, August 15.

**Cyrus Clay Reichard**, Brownsville, Pa.; Northwestern University Medical School, Chicago, 1870; aged 75; a veteran of the Civil War; formerly president of the board of health of Brownsville; died in his office, November 17, from heart disease.

**Frank Richard Curney**, Dumas, Texas; University of Illinois, Chicago, 1904; aged 44; on duty in Panama and afterward in the Coast Survey at Manila; was killed, November 19, in a collision between automobiles, near Dumas.

**Elisha Green Hale**, Nashville, Ark. (license, Eclectic State Medical Board of Arkansas, 1903); aged 86; a veteran of the Civil War; for thirty years a practitioner, and since 1885 a druggist; died, November 16, from chronic cystitis.

**Walter Peyre Poreher**, Charleston, S. C.; Medical College of South Carolina, Charleston, 1891; aged 61; a member of the South Carolina Medical Association; professor of rhinology and laryngology in his alma mater; died, November 2.

**Richard Leiman**, Detroit; Detroit Homeopathic College, 1910; aged 36; a member of the Michigan State Medical Society; while on a hunting expedition, near Parry Sound, Ont., was accidentally shot and killed, November 8.

**Albert M. Eaton**, Philadelphia; Jefferson Medical College, 1872; aged 69; a member of the Medical Society of the State of Pennsylvania, and once vice president of the Philadelphia County Medical Society; died, November 19.

**Hiram Hunt** ★ Greenville, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1884; aged 58; a member of the consulting staff of the Eastern Maine General Hospital, Bangor; died, November 4.

**George Platt Waller**, Montgomery, Ala.; University of the City of New York, 1892; aged 64; a member of the Medical Association of the State of Alabama; died at a hospital in Montgomery, November 4.

**T. J. McCord**, Galena, Mo.; Kansas City, Mo.; Hospital College of Medicine, 1885; aged 77; for four years a surgeon of United States Volunteers during the Civil War; died, November 18.

**Alpheus B. Stroud**, Henderson, Texas; New Orleans School of Medicine, 1861; aged 80; a Confederate veteran; died at the home of his daughter in Mooringsport, La., November 5.

**William F. Maggard**, Corning, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 64; a member of the Medical Society of the State of California; died, October 21.

**Ebenezer Farrington Spaulding**, Boston; Harvard University Medical School, 1866; aged 84; from 1862 to 1865 surgeon of the Seventh Wisconsin Volunteer Infantry; died, recently.

**Charles Lethbridge Stowe**, Hilo, Hawaii; M.R.C.S. (Eng.), 1882; L.R.C.P. (Edin.), 1883; aged 62; a member of the Medical Society of Hawaii; died, July 6, from acute myocarditis.

**John Joseph Hayes**, Boston (license, Massachusetts, years of practice, 1894); aged 68; at one time superintendent of the Delham County Jail and House of Correction; died, November 18.

**William Hamilton Crockett, Jr.**, Petersburg, Va.; University of Virginia, Charlottesville, 1902; aged 41; for several years coroner of Dinwiddie County; died, November 2.

**Junius Wooten**, Smith's Grove, Ky.; University of Louisville, Ky., 1868; aged 73; a member of the Kentucky State Medical Association; died, November 19, from nephritis.

**Thomas L. Eads**, Michigan City, Ind. (license, Indiana, 1897); aged 69; a practitioner since 1890; died, September 20, from septicemia following an infection of the hand.

**Gurley Curtis McCoy** \* St. Louis; Washington University, St. Louis, 1908; aged 35; who had devoted his attention especially to surgery; died, November 10, from nephritis.

**George S. Wilkins**, Brighton, Iowa; State University of Iowa, Iowa City, 1875; aged 66; died in the Jefferson County Hospital, Fairfield, Iowa, October 19, from nephritis.

**J. Alston Scott**, Monticello, S. C.; Medical College of the State of South Carolina, 1875; aged 66; died in the Columbia (S. C.) Hospital, November, 3, from heart disease.

**James L. Nelles**, Canton, Ill.; McGill University, Montreal, 1875; aged 68; a member of the Illinois State Medical Society; died, November 20, from heart disease.

**Richard W. Lease**, Redfield, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 68; a member of the Kansas Medical Society; died, November 9.

**Robert S. Hirsch**, Seward, Neb. (license, Nebraska, 1891); aged 71; an eclectic practitioner; also a pharmacist; for one term coroner of York County; died, October 29.

**John Lawrence Jordan**, Bennettsville, S. C.; University of the City of New York, 1868; aged 73; a Confederate veteran; died in a hospital in Richmond, November 15.

**J. C. Pickering**, San Francisco; Eclectic Medical College, San Francisco, 1893; aged 56; died in St. Joseph's Hospital, San Francisco, November 18, from dysentery.

**William W. Pearce**, Wankegan, Ill.; University of Illinois, Chicago, 1885; aged 61; for four terms mayor of Wankegan; died, October 16, from carcinoma of the jaw.

**Marcellus R. Jamison**, Greensburg, Pa.; Pulte Medical College, Cincinnati, 1881; aged 67; died in the Westmoreland Hospital, Greensburg, November 15.

**Albert Guy Howard**, Farmington, Me.; University of Vermont, Burlington, 1881; aged 72; a member of the Maine Medical Association; died, September 6.

**Wesley Kinney Bradner**, Bradley Beach, N. J.; Bellevue Hospital Medical College, 1876; aged 67; health officer of Bradley Beach; died, November 20.

**George Adams Barker**, Menomonie, Wis.; Bowdoin Medical School, Brunswick and Portland, Me., 1884; aged 64; died, November 16, from heart disease.

**William U. Martin**, Richmond, Ky.; University of Louisville, Ky., 1862; aged 86; a Confederate veteran; died, November 16, from carcinoma.

**Bernard Mellen**, Cleveland (license, Ohio, 1896); aged 69; a practitioner for thirty-five years; died, November 13, from cerebral hemorrhage.

**George C. Knight**, Barksdale, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1900; aged 40; died, October 27, from nephrothiasis.

**Andrew Nickell Herring**, Deraff, Ohio; Eclectic Medical Institute, Cincinnati, 1895; aged 56; died, November 17, from heart disease.

**Irvin C. Conn**, Oakwood, Ga.; Maryland Medical College, Baltimore, 1904; aged 44; died, recently, from cerebral hemorrhage.

**David Crary, Jr.** \* Hartford, Conn.; Yale University, New Haven, 1869; aged 77; died, July 9, from chronic interstitial nephritis.

**John F. Kent**, Newburg, Ark. (license, Eclectic Board of Arkansas, 1903); aged 48; died, November 3, from gastro-enteritis.

**George W. Bradford**, Grandview, Mo.; Medico-Chirurgical College of Kansas City, Mo., 1900; aged 57; died, November 5.

**Herman Frumson**, St. Louis; Washington University, St. Louis, 1889; aged 66; died, October 31, from heart disease.

**Samuel N. Kelley**, Bellingham, Wash.; Hospital College of Medicine, Louisville, 1886; aged 55; died, November 15.

**William Parrish Camp**, Springfield, Mo.; Missouri Medical College, St. Louis, 1876; aged 78; died, November 9.

**Francis Charles Murphy** \* Boston; Harvard University Medical School, 1886; aged 53; died, November 16.

**William Huff**, Cove Creek, Ark.; University of Virginia, Charlottesville, 1868; aged 75; died, November 6.

**Hiram W. Nye**, Enon Valley, Pa.; University of Wooster, Cleveland, 1896; aged 76; died, November 19.

**John Michael Stephen**, Reading, Pa.; Jefferson Medical College, 1887; aged 64; died, November 10.

**Daniel Marion Moser**, Claremont, N. C. (license, North Carolina, 1896); died, November 9.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE CLINIC ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESERVING AND THE OFFER OF FREED ON THE PUBLIC AND ON THE PROFESSION.

### ANTIMERISTEM-SCHMIDT

Some, possibly many of our readers, have received a letter from Cologne, Germany, from the "Bakteriologisch-Chemisches Laboratorium Wolfgang Schmidt." The letter contains a circular directing the attention of American physicians to "Antimeristem-Schmidt." It also contains some advertising leaflets. One physician in sending in this material to THE JOURNAL writes:

"A copy of the enclosed circulars has been sent to many of the physicians in this city, and probably elsewhere. Perhaps it has already been called to your attention. Let us be as liberal as possible with our recent enemies. The sooner the old channels of scientific communication are re-opened, the better. But let us not show such blatant commercialism from a foreign country to go unprotested, any more than we should if it were from our own."

It should be noted in passing that the envelop in which the Wolfgang Schmidt letter came has on its face a rubber-stamped impress to the effect: "Concerns Cancer Treatment." The circular letter declares that by means of Antimeristem Schmidt "either a cure or improvement has been effected in numerous inoperable cases" of malignant tumors. American physicians are asked "to employ the preparation when occasion arises" and are assured that "every medical man in city or country will be able to carry out treatment without preliminary knowledge." With the letter are two leaflets discussing the use and administration of the product; one contained what was called a "Synopsis of some of the more recent publications regarding the employment of Antimeristem-Schmidt in inoperable malignant tumors." The "recent" publications comprised three articles published in 1910 and one published in 1912!

Antimeristem-Schmidt was rather widely exploited some six or seven years ago. As was explained in THE JOURNAL of March 8, 1913, it is a preparation claimed to be useful in the treatment of inoperable cancer and as a supplementary treatment after operations for cancer. The treatment is founded on a theory advanced by one O. Schmidt that the cause of cancer is found in a fungus, *Mucor racemosus*, which, Schmidt at first asserted, carried a protozoon which he regarded as the real cause of the disease. The vaccine is said to be prepared from cultures from this fungus. While Schmidt claims that he has been able to produce cancer by means of the organism, scientific research has not verified his claims. Extensive clinical trials have shown the treatment to be without effect. THE JOURNAL also advised its readers on April 19, 1913, that no license for the sale of Antimeristem-Schmidt had been granted by the Treasury Department and, therefore, its importation into this country was prohibited. Neither the therapeutic nor the legal status of the product has been changed since then.

**Roentgen Examination of Abdomen.** The last work of the late Adolf Schmidt appeared in the *Deutsche medizinische Wochenschrift*, Feb. 20, 1919, p. 201, where he described the peculiarly instructive roentgen findings in the abdomen when from 1 to 3 liters of oxygen or air had been pumped into the abdominal cavity. He reproduced a number of roentgenograms showing the outlines of viscera thrown into sharp relief by this means. Rautenberg in the same issue reports excellent results from injection of air into the peritoneal cavity. He has been applying this method for five years, and describes twelve typical cases. The gallbladder is rendered visible by it. The findings with these methods are more instructive as the subject twists his trunk and bends over or reclines on different sides.

## Correspondence

## THE FALLING NECROPSY RATE

*To the Editor*—The letter from Dr. Douglas Symmers in *THE JOURNAL*, Sept. 20, 1919, p. 929, is an interesting contribution to the subject of the falling necropsy rate and an excellent illustration of just the point which was made in my address on "The Relation of Pathology to Practice" (*THE JOURNAL*, Aug. 23, 1919, p. 569). I am glad to obtain the support in this matter of so well known a pathologist as Dr. Symmers, and regret that any phrase in my address seemed at all critical of the work of Bellevue Hospital, long known as one of the great institutions in this country. The use of the Bellevue statistics was merely in illustration of how low a good hospital could fall, and the facts were obtained from a letter from Dr. Symmers, in which the percentage of necropsies in 1917 is given as 11, in 1918 as "almost 7." In a more recent letter to me Dr. Symmers says that these figures for 1918 were based on the total number of deaths in the hospital, and that if the medical examiner's cases and the unclaimed dead, which pass out of the control of the hospital, are deducted, the actual percentage of necropsies by consent in 1918 is 10 instead of 7. With the additional figures for 1915 given in Dr. Symmers'

decision is rendered, not to carry them to a higher court, where undoubtedly a reversal would be obtained.

Still another factor is the indifference or even active opposition to necropsies on the part of those members of the hospital clerical staff who have to do with the relatives of the deceased. Still another, the opposition of many undertakers who find it less easy to embalm a body after a necropsy has been performed. The pathologist can do but little to improve any of these conditions except the last; if the large vessels are left long so that they can be more easily injected, embalming is facilitated. In most hospitals the pathologist never sees the patient or the family, and thus cannot appeal except through the lay management and the attending staff.

But the outstanding reason for the falling rate of necropsies is, I believe, the lack of interest of the attending physicians and of the interns; the intern is a mirror reflecting the attitude of the attending physician. If the percentage curve of necropsies in a hospital is examined, it will be found to vary with the members of the attending staff. On those services on which teaching is carried on, a higher rate of necropsies usually obtains; when the service changes to a man who is not interested in scientific medicine, the rate falls. The reason why a high percentage of necropsies is obtained at the Mayo Clinic and at the Memorial Hospital is that these institutions make it a business to secure consent.

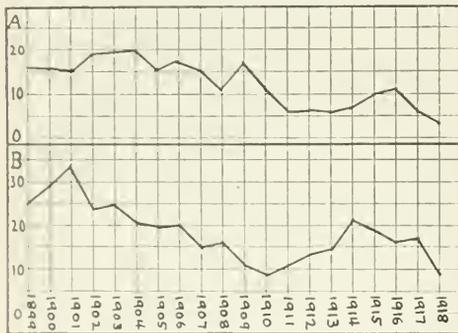
These are some of the difficulties with which the teacher of pathologic anatomy has to contend, and they may explain why most of our pathologists have had to go to Germany to complete their educations. They will always prevent this country from equaling, much less surpassing, the opportunities in pathology which up to 1914 were available in both Berlin and Vienna. The only way in which we can equal our German colleagues is by a thorough revision of the laws permitting postmortem examinations, which implies the scientific education of our legislators—always a matter of great difficulty—and by a united effort on the part of the medical profession, to suggest which was the purpose of my address before the Section on Pathology and Physiology of the American Medical Association.

FRANCIS CARTER WOOD, M.D., New York.

## AN APPEAL FOR EMBRYOS AND FETUSES

*To the Editor*—In 1906 I observed certain malformations of the human shoulder blade, and have given them the collective name "the scaphoid type of scapula," and suggested some of its possible bearings in general and special pathology. Personal observations and those of others have associated this form of scapula with problems intimately connected with those of heredity, longevity and racial morbidity. Notwithstanding the many studies which have been made on the scaphoid type of scapula, all of these must be considered preliminary to those which must follow before we shall be in a position to draw far-reaching conclusions, if any, in reference to the significance of this and associated anomalies.

Probably the most suggestive observation connected with the scaphoid type of scapula in man is its age incidence; that is to say, it occurs with great frequency among the young and with decreasing frequency in each succeeding decade of life when studied in comparatively large groups of individuals in the same period of time. There appear to be two possible explanations of this fact: Either (a) one form of shoulder blade changes into the other during periods of development and growth, or (b) many of the possessors of the scaphoid type of scapula are, in the broadest sense, the poorly adaptable, the unduly disease susceptible, the inherently weakened of the race. I have attempted to answer these questions by seeking evidence in various directions, and one of these has been a study of intra-uterine development of shoulder blades. My studies in this direction have been limited by the material at my disposal, which has been insufficient for a definite solution of all phases of this problem. I am, therefore, appealing to the medical profession for embryos and fetuses in any and all stages of human development,



Percentage of necropsies to deaths: A, at the Boston City Hospital from 1899 to 1918, inclusive; B, at St. Luke's Hospital, New York, from 1899 to 1918, inclusive.

letter to *THE JOURNAL*, there is shown a continuous fall in the percentage of necropsies in Bellevue Hospital. The absolute percentages are, of course, unimportant; the main fact is that even in a large city institution the percentage of necropsies has fallen in the last few years. This is equally true of many of the public and private institutions in the United States. I might perfectly well have cited St. Luke's Hospital with which I am connected, where the necropsy percentage has fallen, as is shown by the accompanying chart. The same is true of the Boston City Hospital, the figures for which are due to the kindness of Prof. F. B. Mallory.

The chief point it seems to me is to determine why this fall has occurred. In my address I pointed out some of the causes, but they are very numerous and vary in their activity in different localities, but the most important one, to my mind, is that at which I spoke, the growing lack of interest in postmortem pathology.

Another factor is the widespread growth of Christian science and similar sects which teach nonmedical treatment. Where the relatives of a person dying in the hospital hold these beliefs are under the influence of sepiopathy, or "contracted necropsy," naturally, and damnable. Another factor worth mentioning in particular in New York is the peculiar wording of the state law permitting necropsies, which enables the relatives of the patient to bring suit for damages. The tendency has been to compromise such suits, rather than to fight them, and in cases in which an adverse

Regardless of the length of time the material may have been in a preservative, of whatever nature, it can still be utilized in these studies, although it is desired that *fresh material* be immersed in 10 per cent. dilution of liquor formaldehyd in a suitable container, and any material, *old or fresh*, be forwarded to my address, charges collect. Due acknowledgment will be made to those forwarding material.

WILLIAM W. GRAVES, M.D., St. Louis,  
727 Metropolitan Building.

"SPOILED CANNED FOODS AND BOTULISM"

To the Editor:—In THE JOURNAL, Oct. 4, 1919, there appeared under this caption a letter by Georgiana S. Burke discussing my paper on "The Bacteriology of Canned Foods" published in the *Journal of Medical Research* (39:349 [Jan.] 1919). The following are the most prominent points which call for explanation:

1. Mrs. Burke states that "Dr. Weinzirl restricts the term [commercial] to refer to those factory canned goods in which no spoilage has been detected and which are still being offered for sale." No such statement is made in the paper, nor was it contemplated. For the purpose of discussion merely, commercial packs were separated from experimental packs and from obviously spoiled samples.

2. "Three such spoiled cans [all sardines] are included among the 'commercial' or unspoiled cans which he examined. But for some unexplained reason he made bacteriologic examinations of only two of these cans, while the third can, which was the only one suggesting botulinus spoilage was not examined." No bacteriologically unexamined cans were included in the report. Mrs. Burke has not read correctly the table given on page 384 of my paper. The column designated "not examined" refers to cans not examined for leakage, after the can was emptied. The can in question did not contain *B. botulinus*.

3. "The point that I wish to make clear is that when Dr. Weinzirl says that '*B. botulinus* is not found in commercial canned foods,' he means that it is not found in unspoiled factory canned foods." On page 409 it is clearly stated that "members of the paratyphoid-entertidis group were not found, nor was *B. botulinus* ever isolated."

4. "A second criticism . . . concerns . . . the total number of 'commercial samples' examined . . . 782. . . . This is too small a percentage on which to base a conclusion in regard to so vital a subject as food poisoning." The conclusion is based on 1,018 samples and not on 782 as stated by Mrs. Burke; furthermore, this number of analyses is at least fourfold that of any previous investigation, and the work was done under the most elaborate technic ever attempted.

5. "The result would be more convincing if the author had made tests for the specific botulinus toxin to substantiate his bacteriologic findings." Such tests were made, but it was thought best to withhold them until more results are available. They will be presented in due time by one of my colleagues in the work.

6. "No data are given by Dr. Weinzirl as to the length of the periods that had elapsed between the processing of the cans and the making of the bacteriologic examinations." This criticism is quite unreasonable, for it is well known that grocers do not keep such records, nor is the date of processing stamped on the can.

7. I am pleased to admit that one just criticism is made by Mrs. Burke, and that is that the length of time the cultures were incubated is not clearly stated in the paper.

8. "From a consideration of the foregoing, I am of the opinion that Dr. Weinzirl furnishes very unsatisfactory evidence on which to base his conclusion that food poisoning organisms, such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned goods." Briefly stated, the evidence is as follows:

A. I did not find *B. botulinus* in 1,018 samples of commercial canned foods, although careful search was made for it. The samples included spoiled, experimental and marketable goods, and practically every variety was represented.

B. All the literature known to me did not reveal a single instance of *B. botulinus* having been found in factory canned food in the United States. Since our annual consumption must approximate five billion cans of such foods, it is truly remarkable that not a single instance should be reported in our scientific literature. It is all the more remarkable because botulism exhibits highly characteristic symptoms.

C. From the analyses made and from the evidence presented in the scientific literature, the natural conclusion to draw is that *B. botulinus* and its toxin are not found or are exceedingly rare in factory canned foods.

This brings me to the one case reported by Mrs. Burke as botulism due to factory canned food. I was not informed of it at the time of writing my paper, and I am not now aware that the evidence has been published before. It must be remarked, however, that the evidence presented by Mrs. Burke is not convincing, for if we grant that the case was botulism, we are still uncertain that it came from the corn.

Finally, permit me to state that I am professor of bacteriology in the University of Washington, and that during a year's leave of absence I held a research fellowship in the Department of Preventive Medicine and Hygiene in the Harvard Medical School, where I studied the bacteriology of canned foods. I have never had the honor of occupying the other position indicated.

JOHN WEINZIRL, Seattle.

University of Washington.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THALION

To the Editor:—Kindly inform me regarding thalion, manufactured by the Vass Chemical Company, Danbury Conn. Please omit my name and address in answering in THE JOURNAL. H. C. W.

ANSWER.—Thalion is an heirloom of the days when lithium salts were supposed to be nature's antidote for a kind of ailments, supposedly due to excess of uric acid. It was advertised as a uric acid eliminant and therefore good for all kinds of diseases. The Council on Pharmacy and Chemistry published a report on thalion in THE JOURNAL, Nov. 3, 1906. At that time thalion was advertised by the Vass Chemical Company as a "laxative salt of lithia" with the chemical formula "3Li<sub>2</sub>O.Na<sub>2</sub>O.SO<sub>4</sub>.7H<sub>2</sub>O," and an elaborate structural formula was also furnished. The Council reported that the product was not a definite chemical compound, but a mixture consisting chiefly of sodium sulphate, sodium citrate and small amounts of lithia. In recent advertisements, thalion is referred to as "A Non-Effervescent Lithiated Laxative Salt," "a non-hygroscopic, non-deliquescent, granular salt of lithia," etc., but the chemical formula does not appear, nor is any definite statement of composition furnished. According to this advertising, the "indications" for thalion are: "gout, rheumatism, obesity, flatulency, constipation, acute and chronic, sluggish liver, Bright's disease, albuminuria of pregnancy, asthma, incontinence of urine, gravel, cystitis, chronic lead poisoning, headache, neuralgia, neurasthenia and lumbago. Hay fever, etc."

SYPHILIS IN TWINS

To the Editor.—I am treating twin children, one of whom had symptoms of hereditary syphilis which improved very much with mercurial inunctions. The other child is perfect the same with no syphilitic symptoms at all. How do you explain the fact that one has contracted the disease and the other has not? Should I treat the healthy child as a preventive measure? Dr. P. M. S.

ANSWER.—Several cases have been recorded of the infection of one twin with syphilis at birth while the other has been healthy. In a case recorded by Dr. George F. Still, one of the twins died with severe and fatal syphilis at the age of seven months, whereas the fellow twin was apparently perfectly healthy. In a case described by Sir Herman Weber

a syphilitic mother bore twin children, one of whom suffered with congenital syphilis and died at the age of seven weeks with diarrhœa, while the other remained perfectly healthy. Thus such cases are not inconsistent with fact, although a priori one would expect the event to be rare. The child who apparently escaped syphilis should be watched carefully for the appearance of the disease. It might be a wise policy to give this infant moderate courses of mercury by inunction. This would do no harm, and if the child is syphilitic, would be of benefit.

PIONEER MEDICAL MISSIONARIES

*To the Editor:*—Who was the first American medical foreign missionary? When did he begin his service?

D. I. HERRICK, M.D., Terhoo, Okla.

ANSWER—Dr. John Scudder entered medical missionary service in India under the Dutch Reformed Foreign Missionary Board, in 1819. His son, H. M. Scudder, appears to have founded the first hospital and dispensary in connection with American medical missions, at Arcot, India, in 1850. Peter Parker, who went to China as an American medical missionary in 1834, began to teach medicine to native students in Canton about 1839.

SODIUM CITRATE IN INFANT FEEDING

*Please inform me how sodium citrate is used in infant feeding, and why.* C. P. FERRIER, M.D., Fillmore, Calif.

ANSWER—Sodium citrate is added to the milk mixtures to prevent the formation of hard protein curds. Bosworth and Van Slyke have shown that increasing amounts of sodium citrate added to the milk increase coagulation time up to a limit of 17 grains to an ounce, after which the milk does not coagulate at all. If it is desired to use sodium citrate in this way, it may be prescribed safely in doses of 1 grain for each ounce of milk in the mixture.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ANSWER—MEDICAL EXAMINATIONS: Chairman, Dr. Samuel W. Welch, M. A. S. P. Ex. Jan. 6-7. Sec., Dr. Axel Martin, 97 Goodrich E. St., Peoria.

CHICAGO: Director, Jan. 6-7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Detroit.

DECATUR, GA.: Dec. 9-11. Sec., Register Board, Dr. P. S. Downs, DeKalb St. Bldg., Decatur. Board, Dr. H. W. Howell, 8-4 Washington St., W. Va. Pres., Medical Council, Dr. Henry W. Briggs, 1036 Broadway, Washington.

DETROIT: C. I. L. A. W. W. P. L. Jan. 1. Sec., Dr. Edgar P. Ferguson, 1450 1/2 St. Clair.

INDIANAPOLIS: Dec. 28-30. Sec., Dr. J. R. J. H. Hurdell, 1111 E. Tenth St., Indianapolis, Ind. 1918. Sec., Dr. Clifford H. Sumner, 1000 Long St., Detroit.

INDIANAPOLIS: B. M. Ex. Dec. 31. Sec., Dr. J. McP. Scott, 137 W. Washington, Indianapolis.

INDIANAPOLIS: Grand Ex. Jan. 6. Sec., Dr. George M. Williamson, 1111 E. Tenth St., Indianapolis.

INDIANAPOLIS: O. L. Ex. Jan. 14. Sec., Dr. J. M. Byrum, 1000 Long St., Detroit.

INDIANAPOLIS: J. C. Ex. Jan. 17. Pres., Dr. John M. Baldy, 1000 Long St., Detroit.

INDIANAPOLIS: P. Ex. Jan. 18. Sec., Dr. Park B. Jenkins, Waabau, Ind.

INDIANAPOLIS: D. Ex. Jan. 20. Sec., Dr. J. W. Preston, 411 McBan St., Indianapolis.

INDIANAPOLIS: S. Ex. Jan. 21. Sec., Dr. C. N. Suttler, 415 Old Market St., Indianapolis.

INDIANAPOLIS: M. Ex. Jan. 22. Sec., Dr. John M. Dodd, 10 E. Washington, Indianapolis.

Florida June Examination

Dr. William M. Roubitt, secretary of the Florida State Board of Medical Examiners, reports the written examination held at Jacksonville, June 16-17, 1919. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Of the 35 candidates

examined, 30 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University	.....	(1882)	77.4
National University Medical Department	.....	(1900)	81.6
Atlanta Medical College	.....	(1914) 81.7, (1915) 81.5	81.6
College of Physicians and Surgeons, Chicago	.....	(1910)	83.1
Chicago College of Medicine and Surgery	.....	(1918)	87.5
University of Illinois	.....	(1911)	85.5
Central College of Physicians and Surgeons	.....	(1910)	75.3
University of Louisville	.....	(1909) 85.1, (1918)	82.5
Tulane University	.....	(1918) 90, (1919)	86.3, 89.8
Medical School of Maine	.....	(1898)	89.8
Baltimore Medical College	.....	(1890)	87.1
College of Physicians and Surgeons, Baltimore	.....	(1895)	81.5
Johns Hopkins University	.....	(1915)	91.4
Maryland Medical College	.....	(1912)	77.7
University of Maryland	.....	(1910)	88.8
College of Physicians and Surgeons, Boston	.....	(1912)	84.2
Western Reserve University	.....	(1887)	80
University of Oklahoma	.....	(1918)	80.4
Medical College of Philadelphia	.....	(1891)	83.1
Jefferson Medical College	.....	(1880)	80.6
Med. Coll. of the State of S. Carolina	.....	(1900) 83.1, (1910)	78.3
University of Tennessee	.....	(1918)	83.6
North Carolina University	.....	(1894)	80.8
Medical College of Virginia	.....	(1917)	82
University of Havana	.....	(1896)	75.3
FAILED			
University of Alabama	.....	(1904)	72.3
University of Louisville	.....	(1904)	61.4
Missouri Medical College	.....	(1887)	73.8
Chattanooga Medical College	.....	(1909)	38.8
Royal College of Physicians and Surgeons, Ontario	.....	(1887)	51

Colorado July Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 1, 1919. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Of the 34 candidates who took the physician's and surgeon's examination, 28, including 4 osteopaths passed, and 6, including 3 osteopaths failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado	(1919) 82.2, 83, 83.1, 83.2, 84.2, 84.3, 84.6, 85.1, 85.6, 86, 86.2, 86.7, 87.1, 87.2, 87.3, 88.2, 88.3, 88.8, 92.3.		
Rush Medical College	.....	(1919)	83.9
Kansas City Univ. of Phys. and Surgs.	.....	(1919)	76.5
Harvard University	.....	(1915) 87.1, (1917)	88.3
University of Cincinnati	.....	(1919)	83.8
FAILED			
Atlanta School of Medicine	.....	(1910)	64.3
National University of Arts and Sciences	.....	(1918)	71.3
St. Louis College of Phys. and Surgs.	.....	(1919)	61

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
The Homeopathic Medical College	.....	(1888) Missouri	Nebraska
Northwestern University	.....	(1902), (1904), (1916)	Illinois
Rush Medical College	.....	(1914)	Illinois
State Univ. of Iowa, Coll. of Med.	.....	(1897) N. Mex., (1896)	Iowa
Hospital College of Medicine, Louisville	.....	(1893)	Missouri
Kentucky School of Medicine	.....	(1893)	Missouri
Baltimore Medical College	.....	(1898)	Maryland
College of Physicians and Surgeons, Baltimore	.....	(1907) W. Virginia	.....
John A. Creighton Medical College	.....	(1903)	Kansas
Barnes Medical College	.....	(1896)	Kansas
Missouri Medical College	.....	(1898)	Missouri
Univ. and Bellevue Hospital Medical College	.....	(1917)	New York
St. Louis University	.....	(1906), (1910)	Illinois
University of Nashville	.....	(1896)	Tennessee
McGill University	.....	(1896)	Iowa
Undergraduate.			

Utah July Examination

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 7-8, 1919. The examination covered 19 subjects and included 100 questions. An average of 75 per cent was required to pass. Eleven candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Chicago College of Medicine and Surgery	.....	(1910)	86.1
Louisiana University School of Medicine	.....	(1919)	75.3
Rush Medical College	.....	(1917)	85.9
Harvard University	.....	(1917)	86.9
Washington University	.....	(1919)	82.8, 85.5
Jefferson Medical College	.....	(1918)	82.6, 85
University of Pennsylvania	.....	(1918) 86.6, (1919)	84, 84.9
LICENSED THROUGH RECIPROCITY			
Hahemann Medical College of the Pacific	.....	(1912)	California
Tulane University	.....	(1917)	Wyoming
Tulane University	.....	(1901)	Alabama
St. Louis Medical College	.....	(1886)	Missouri

## Medicolegal

### A Physician's Letter That Was Not Evidence

(*Richardson v. North American Life & Casualty Co. (Minn.)*,  
172 N. W. R. 131)

The Supreme Court of Minnesota holds that, in an action to recover on a life insurance policy, in which action misrepresentation of the physical condition of the insured was interposed in defense, a letter written by a physician who had treated the insured at about the date of the insurance contract, addressed to the insurance company, and therein stating the physical condition of the insured as he found from examination, as to the beneficiary was hearsay and inadmissible in evidence, the letter being no part of the proofs of death and not procured at the instance of the beneficiary, but having been procured solely by the defendant and in furtherance of its defense.

### Detention of Persons Infected with Venereal Virus

(*Ex parte Brown (Neb.)*, 172 N. W. R. 522)

The Supreme Court of Nebraska, in denying a writ of habeas corpus, and dismissing the cause, says that this was an original application in this court for the writ. The petitioner was quarantined in the detention home in the city of Omaha under an ordinance of that city, and the question presented was whether such detention, under the circumstances, was justifiable. The case was presented to this court on a stipulation of facts and without other evidence. The stipulation showed that the petitioner had been arrested on a charge of "being an inmate of an ill-governed house"; that she was tried on this charge and found guilty, and appealed the case to the district court; and thereupon the court trying her approved of her bond on appeal, and notified the keeper of the jail to release her from confinement "on the ground that she had furnished an appeal bond as provided by law." But these facts were immaterial in this case, because it was further shown by the stipulation that the health commissioner of the city of Omaha "caused said petitioner to be examined, and under his direction said examination was made and said petitioner found to be infected with communicable venereal virus; that thereupon said health commissioner ordered said petitioner to be isolated and quarantined by the proper authorities in the detention home of the city of Omaha for treatment for such reasonable time and in such reasonable manner as to prevent the danger of said petitioner from communicating such infection to others, and until the danger of the infection should be removed."

The petitioner cited and relied on *Wragg v. Griffin* (Iowa), 170 N. W. 400. In that case their statutes are cited, and the rules of the local board of health referred to, and the law is stated to be that they "do not authorize the board of health to deprive of his liberty one suspected of venereal disease for the purpose of forcing the exposure of his body to examination and compelling the extraction of blood from his veins in search of evidence of the disease." And, in the opinion, it is said:

It may be said at the outset that the objection raised by this petitioner does not necessarily challenge the validity of any statute or any rule of the board of health by which authority is given to quarantine persons who are afflicted with contagious disease, or to remove or segregate a person so diseased from his own home for detention in a separate house or detention hospital and there detain him until he has so far recovered his health as to be no longer a menace to the health of the community.

In this case the stipulation showed that the petitioner was "found to be infected with communicable venereal virus," and that she was only detained "for such reasonable time and in such reasonable manner as to prevent the danger of said petitioner from communicating such infection to others and until danger of the infection should be removed." There can be no doubt that under the Nebraska statute (Rev. St. 1913, Sections 4082, 4094), the city could by ordinance provide for such detention, and the ordinance as quoted in the petitioner's brief provided for such detention. In other words,

the court holds that, under the Nebraska statute, the city of Omaha is authorized to provide for the detention in the detention home in that city of persons "found to be infected with communicable venereal virus," for such reasonable time "as to prevent the danger of . . . communicating such infection to others." And, under such circumstances, such person will not be entitled to a writ of habeas corpus for release from such detention.

### Mistaking Pregnancy for Tumor—Expert Testimony

(*Drucker et al. v. Ring et al. (N. C.)*, 99 S. E. R. 58)

The Supreme Court of North Carolina affirms a judgment in favor of the defendants, who were charged with malpractice in diagnosing a case of pregnancy as one of tumor. The court says that, according to the defendants, it was very difficult to determine the woman's true condition, and that, in their opinion, the indications were that it was an ovarian tumor or cyst, but that the true condition could not be determined otherwise than by an exploratory operation, which was the nature of the one performed. The woman, aged 47, married, had given birth to three children at intervals of three and two years, the last one having been born twelve years prior to her visit, Jan. 8, 1917, to Dr. Ring. From the date of the birth of the last child until the latter part of August, 1916, she was regular in her periods, and only about Sept. 21, 1916, noticed the first irregularity, the period at that time being partially suppressed, and continuing with slight but constant flow, broken by periods of one or two days with an absence of flow. With the exception of one week, these conditions continued until Jan. 8, 1917, up to which time she had not observed any signs of pregnancy, but stated to Dr. Ring that she thought she had a tumor. There was an apparent enlargement of the abdomen. Without coming to a definite conclusion as to the true condition, but strongly suspecting a tumor, Dr. Ring advised going to see the other defendant, looking to an operation. That defendant made two examinations and diagnosed it as a submucous fibroid tumor or possibly a cyst, but said he was not sure about it, and advised an exploratory operation. An incision was made, which showed that the woman was only normally pregnant. There was no indication of tumor. The wound was closed, the patient recovered from it, and in due course she was delivered of her child without any untoward incident in the accouchment. There was much evidence taken at the trial on the questions of negligence and damages as to each of the two defendants, and the jury returned the following verdict: "Were the plaintiffs injured by the negligence or want of skill, of the defendants, or either of them? Answer: No."

Taking up the question of what are the duties and responsibilities of a physician and surgeon in the diagnosis of a case and the treatment of a patient under his care, the court says that a physician entitled to practice his profession, possessing the requisite qualifications, and applying his skill and judgment with due care, is not ordinarily liable for damages consequent on an honest mistake or an error of judgment in making a diagnosis, in prescribing treatment, or in determining on an operation, when there is reasonable doubt as to the nature of the physical conditions involved, or as to what should have been done in accordance with recognized authority and good current practice. Whether errors of judgment will or will not make a physician liable in a given case depends not merely on the fact that he may be ordinarily skillful as such, but whether he has treated the case carefully, and has employed in its treatment such reasonable skill and diligence as is ordinarily exercised in his profession. There is a fundamental difference in malpractice cases between mere errors of judgment and negligence in previously collecting data essential to a proper conclusion, or in subsequent conduct in the selection and use of instrumentalities with which the physician may execute his judgment. If he negligently omits to inform himself as to the facts and circumstances, and injury results therefrom, then he is liable. Whether the fetus was quick with life so that the beatings or sounds of the heart could be observed by examination, was a question of fact for the jury to decide on the evidence, as were the other questions involved.

It was competent to ask an expert witness whether, in his opinion, on the facts stated in the hypothetical questions, it found by the jury on the evidence, the diagnosis was made according to the approved practice and principles of the medical profession. It is not the province of an expert to draw inferences of fact from the evidence, but simply to declare his opinion on a known admitted or hypothetical state of facts. The rule is that the expert must base his opinion on the supposition that the jury will find the facts recited in the hypothetical question, and there must be evidence of those facts.

#### Inadmissible Bases for Expert Testimony

*Bill C. Mowbray, Plaintiff, Railway & Truck Co. (Defnd.),  
12 N. E. R. 7913*

The Supreme Court of Wisconsin, in affirming a judgment for \$25,000 damages in favor of the plaintiff for injury to his eyes by an electrical explosion or flash on one of the defendant's cars on which he was a passenger, says that a physician who was called as an expert witness by the defendant was asked on cross-examination by the plaintiff's counsel if he considered Oppenheim an authority on optic atrophy, the receiving a qualified negative answer, and the statement that the witness had read a part of Oppenheim's works, he was asked if he remembered at some time in his reading certain language. The witness stated that he could not recall having read it, and that he could not deny that it was a correct statement of what is generally taken to be the effect of dazzling on the human eyes by men skilled in the medical profession. Counsel stated that his purpose in asking the question was to ascertain whether or not the witness was familiar with this passage. Under repeated decisions of this court its admission was error. If, under the guise of finding out a witness' familiarity with the contents of medical works, counsel read extracts therefrom to him and inquire if he is familiar with them, then you can get the contents of every medical book before the jury. That, this court has, for good reasons, declared cannot be done.

Another physician called as an expert witness by the plaintiff, whom he had examined since this action was begun, but had never treated, was allowed to give an opinion that the plaintiff was totally blind in his left eye, basing such opinion in part on his examination and in part on subjective symptoms or on what the plaintiff had told him. This was error. A physician who treats a patient may give an expert opinion based on the result of his examination and statements made to him by the patient, but not one who does not treat the patient. The reason for the application of different rules in the two cases lies in this: When a patient submits himself to treatment, he does so for the purpose of curing himself of the malady afflicting him, and he is desirous to know and the presumption is that he will tell the truth to the physician. If he does not, he knows that not only may a cure not be effected, but he may seriously jeopardize his health by giving false information or withholding important information. But when he goes to a physician for examination for the purpose of having him testify, but not treat him, the physician is giving false information, and the inducement was to induce rather than to reveal the truth.

But the court does not think that the admission in evidence in the case of the incompetent testimony was prejudicial. There was a basis of conflict to the expert medical testimony, and the extent and permanence of the plaintiff's injury. The fact however, that there was a serious dazzling explosion or flash on the car, and that the plaintiff sustained a serious injury to his left eye, and probably to the right one also, was clearly established. He was on the witness stand a great part of the time during the protracted trial, and he testified he saw the flash, the jury saw him and had an opportunity to note his condition of appearance and to judge more correctly of his condition than they could had. He said he was totally blind, and the jury no doubt believed him. The medical testimony was in direct conflict, even with the incompetent evidence. In such a situation this court cannot say that the result would probably have been different, if the error in the admission of evidence had not occurred, or that the result reached was clearly wrong.

## Social Medicine, Medical Economics and Miscellany

### THE CARDIAC CLINIC AT THE CENTRAL FREE DISPENSARY OF CHICAGO

LEO E. J. HARPEL, M.D., M.S.  
AND  
HELEN BECKLEY  
Director of Social Service  
CHICAGO

New York, previous to the war, found it necessary to establish a number of cardiac clinics in connection with its hospitals and dispensaries in order to meet the growing demands for proper medical treatment of its cardiac cases. Most of these clinics united to form what was known as the "Association for the Prevention and the Relief of Heart Disease," with Dr. Lewis A. Comor as its president. But owing to the fact that so many of the physicians were called into service, the clinics were to a large extent discontinued. A similar need was felt in Chicago, and an attempt was made to establish a cardiac clinic at the Central Free Dispensary in 1918; but as most of our men were called into service, it became necessary to discontinue it in order to meet the more urgent demands of the moment. In March, 1919, the work was again started and has progressed more rapidly even than was anticipated. Conferences are now being held every Wednesday and Saturday morning, and at each meeting there are from ten to twenty patients. Since the opening of the clinic in March, approximately 140 patients have been examined.

#### ROUTINE PROCEDURE

When the patients enter the clinic, a complete history, both social and medical, is taken. Special cardiac histories have been devised which simplify and at the same time give more complete information on which to base the diagnosis and subsequent treatment. The patients are then given a complete physical examination, including blood, roentgen-ray, electrocardiograph and urine examinations, whenever indicated. The medical advice given is largely dependent on the patient's home and working conditions. If his work is of such a nature as to interfere with his physical condition, he is advised to change his employment, and whenever possible, the social worker helps him find suitable work. Each patient is then advised as to the amount of physical exertion his heart will tolerate. When the heart is badly decompensated, he is sent to the Presbyterian Hospital where he can be placed in bed with absolute rest until his condition warrants his returning to work. After the first visit, an appointment is made, and the patient is urged to return at a later date for observation. In the interval, the social worker visits him at his home and place of employment to see that the physician's instructions are being carried out. A careful social record is kept on the medical chart so that one may see at a glance just what the patient's home and working conditions have been. For subsequent visits to the clinic, the social history is of utmost value as a guide in giving each patient the proper advice. Patients that have complications other than cardiac are referred to other departments in the dispensary. Many children are sent to the nutrition clinic, others to the nose and throat, and dental clinics, and still others to the syphilitic clinic.

#### TYPES OF CASES

Patients are referred to the clinic from a number of different organizations. Approximately nine different sources are now represented. The board of education has referred children between the ages of 14 and 16 who are anxious to go to work, but who because of their heart conditions are not given a working certificate until it is recommended by the cardiac clinic. If their conditions are very serious, they are advised against going to work and encouraged to continue their education as long as possible. Thirty-nine have been referred to the clinic, and of this number, twenty-four are now working. They are seen from time to time and

their employment is supervised. Dr. Brunner of the board of education is greatly interested, and it is hoped that as soon as the number of children warrants it, arrangements will be made in some of the schools to have classes on the first floor for cardiac cases. The social service department of the Cook County Hospital has referred twenty-four of its discharged patients to the clinic for further medical care and supervision. A few cases have been referred by private physicians. A large number have come directly to the clinic, because they were told by other physicians that they had heart trouble, whereupon they came to the clinic for corroboration and advice. A number have been referred from the various departments of the dispensary. The United Charities have referred thirteen; the Jewish Aid Society, four; the Central Charity Bureau, three; the Juvenile Court, three; the Visiting Nurses' Association, two, and the Immigrants Protective League, one.

In many instances, the patients are the heads of families, or are young adults who are helping to bear the responsibilities of the family income. They need social, as well as medical treatment, that will not only tide the family over present difficulties, but will also give a working plan for their future economic life. In such instances, it is not just temporary relief and supervision, but the making of a definite plan for the future that is required. In some cases the patients are children who should have vocational training in order that they may fit themselves to be independent in spite of their physical handicap. The social worker cooperates with employment managers of industrial plants in securing temporary relief for the various patients. In August, the clinic was without a worker, and because of lack of follow-up work, the attendance was very low.

Of the 140 patients seen in the clinic, twelve were sent to the hospital. Two died while at the hospital (one of hypertension with a systolic blood pressure of 300; the other of aortic regurgitation and stenosis); a third was sent home, but later died. All of the others have shown a decided improvement in their symptoms. During the summer months, twenty of the patients were sent on outings to camps, sanatoriums and convalescent homes. Sixteen of our patients are receiving special nutritional care. It is interesting to note that only forty-two have required cardiac stimulants, such as digitalis, strychnin and caffeine. Nine are under antisyphilitic treatment. The active therapeutic treatment, although essential, is by no means the main object of such a clinic. Prophylactic management of those cardiac cases in which slight injury to the heart has been noted should be the main aim, and only by repeated instructions to patients, particularly children, can we hope to prevent the numerous cardiac decompensations found in later life. This cannot be accomplished until a sufficient number of organized clinics are established in Chicago, and until such organizations can gain the cooperation of the various industrial plants and public schools. Many of our schoolchildren suffering from heart disease are undertaking strenuous courses in the gymnasium today. Ignorant of the seriousness of their condition, they are liable to undertake exercises which may lead to cardiac decompensation. As yet we have no careful supervision of such patients; not a few of them have come to the clinic with heart lesions, and complaining of dyspnea, dizziness and palpitation, while doing routine gymnastic work in school.

#### VOCATIONAL GUIDANCE

Some provision should be made for the employment of those patients unable to do regular work. This could best be accomplished by establishing a vocational department in connection with the clinic, where patients could learn a vocation that would be of value to them as a means of livelihood. Here, their work could be carefully supervised, and the amount of physical work could be graded in each individual case. Such patients in a well organized occupational department could soon be earning enough to maintain themselves as well as their families. Excellent cooperation has been established between the Central Free Dispensary and the Henry Favill School of Occupation. This institution is not large enough to meet the demands of a cardiac clinic

of this size, and a lack of funds prevents the institution's branching out along the practical vocational lines that these patients require. Six of the patients from the cardiac clinic have been referred to the Henry Favill School with special instructions as to the type and number of hours of work that they can tolerate. They are carefully supervised by a trained worker who reports to the clinic the general ability and progress of the patient. They do weaving, chair-caning, basket-making, sewing and special carpentry. Their hours of work are gradually increased as they become stronger. Unfortunately, the Favill School is unable to take children under 16 years of age or to take care of patients who are unable to leave their homes. The Service League for the Handicapped has provided material for knitting to be done by our patients at home. This does not solve the problem, as it gives no vocational training which would make the patients economically independent.

#### VALUE OF THE CLINIC

The educational and therapeutic value of such a clinic to the patient is self-evident. In a specialized department of this kind, a patient may receive more individual attention, and the follow-up work may be more unified and accurate. The physicians and students are also greatly benefited because of the almost absolute control an organization of this kind may have over the patients. The therapeutic effect on each individual case may be watched from time to time and any beneficial or deleterious results readily noted. In one single clinic, we were able to see cases of aneurysm, auricular fibrillation, heart block and several mitral lesions. The patients are always willing to cooperate with the physician, thus benefiting themselves personally, and they are also willing to aid by offering themselves for teaching purposes. Records are kept on file, so that on a moment's notice patients may be called on to appear in the clinic for further observation by the physicians and students. Should a series of cases of auricular fibrillation be desired, we need only notify these patients, and invariably enough will appear to make a very desirable clinic.

One can readily see how the establishment of these clinics with a unified organization in a city as large as Chicago can be of the utmost value to the community. In order to increase the efficiency of such a clinic, a full-time social service worker should be employed to devote her time to follow-up work and to the keeping of careful records for statistical purposes. The main object of this clinic should be to teach the patients a vocation that is best suited to their physical capacities. By so doing, many of our cardiac cases, now dependent on charitable organizations, may be made a benefit to the community and be economically independent. Every well established general hospital can and should have, as a part of its outpatient department, a well organized cardiac clinic.

122 South Michigan Avenue.

#### NUPTIAL PROTOGENESIC OR FIRST BIRTH DISTRIBUTION

In a series of 220,021 nuptial first births in Australia during the years 1907-1914, inclusive, the Australian statistician Knibbs has compiled the records according to "age last birthday" and "duration of marriage," by which he arrived at what may be termed "the nuptial or first birth distribution." In order to reduce the records so compiled to more of a percentage basis, Knibbs has multiplied the actual number of births in each instance by the factor that would make the total 1,000,000, and then has reported for each single month of duration of marriage from one to twelve and for each year from one to twenty-six the proportionate number of births that would occur on this basis. On examining this table one is struck by the large number of births that must be regarded as originating from prenuptial insemination. Age 16 of wife shows 382 births in a million during the first month after marriage, 423 during the second month 514 during the third, 532 during the fourth, 568 during the fifth, 541 during the sixth, 486 during the seventh, 295 dur-

ing the eighth, and only 91 during the ninth and 95 during the tenth month. Age 19 of wife shows 1,886 births during the first month after marriage, 2,227 during the second month, 3,513 during the third, 4,272 during the fourth, 5,127 during the fifth, 6,054 during the sixth, 6,760 during the seventh, 4,609 during the eighth, 2,850 during the ninth and only 3,909 during the tenth month. Age 21 of wife shows 1,877 births during the first month after marriage, 2,309 during the second, 3,454 during the third, 4,640 during the fourth, 5,704 during the fifth, 6,981 during the sixth, 8,331 during the seventh, 6,613 during the eighth, 4,613 during the ninth and 9,122 during the tenth month. Not until age 21 is reached is the number of births during the tenth month greater than the number during the seventh month. The relative proportion of births during the tenth month, as compared with those during the seventh month, increases from age 21 on. At age 23 of wife it is 11,981 as to 7,254, at age 24, 11,467 as to 4,959; at age 27, 7,649 as to 2,254; at age 30, 4,191 as to 877. After age 30 of wife there is not much difference in the relative proportion for the following ages. To be sure, a certain percentage of the births after six and seven months may be due to postnuptial insemination. What is the significance of the foregoing facts? Does a considerable portion of Australia's population believe that the marriage ceremony is superfluous unless children are to be born whose births must be made legitimate before the law? But before we apply this assumption to Australia, it might be interesting to know what results similar investigation would show in this and in other countries.

## Society Proceedings

### COMING MEETINGS

Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
Society of State of Association, New Orleans, Dec. 16-18.  
Western Kinetren Society, Chicago, Dec. 10-12.

### SOUTHERN MEDICAL ASSOCIATION

1919-20 Annual Meeting held at Asheville, N. C. Nov. 10-15, 1919

The President, DR. L. F. BARKER, Baltimore, in the Chair

#### Cautery in Acute Epididymitis

DR. J. C. VINSON, Tampa, Fla.: The procedure when properly carried out is painless. The treatment is essentially an in-office procedure. The effect on the infection is obvious. The immediate and remote effects are as good, if not better, than the cutting operation.

#### Value of Large Single Doses of Digitalis in Treatment of Heart Disease

DR. J. LANBY ROBINSON, St. Louis. The administration of the tincture of digitalis in large single doses is advocated as a useful method of treatment in certain cases of heart disease provided the tincture is standardized, the dosage properly regulated, and the patient under close observation. This method of administration not only brings the heart rapidly under the influence of the drug, but also affords a much more means of studying its effect than the older method of small repeated doses. Problems of dosage, especially the relation to body weight, still need solution. The beneficial effect of digitalis in cases with cardiac irregularity caused by auricular fibrillation is especially emphasized by our experience.

#### Scientific Teamwork in Diagnosis and Treatment of Diseases of the Eye, Ear, Nose and Throat

DR. E. M. CARR, Dallas, Texas: Group practice is desirable, whether it be from the point of view of a surgeon, a medical man, or an ophthalmologist dominating the situation.

#### Treatment of Visceroptosis

DR. F. W. WILKINSON, Montgomery, Ala.: For treatment, these patients may be classified as (1) those who can be

given ambulatory treatment and (2) those who require a preliminary period of rest in bed. The general principles of treatment are followed in both cases, the mild cases coming in the first class, the severe ones in the second class. Not all patients who have visceroptosis can be cured, but about two thirds can be given permanent relief and the other third temporary relief.

#### Intestinal Protozoa: Diagnosis and Treatment

DR. S. K. SIMON, New Orleans: In only one instance do we possess a specific remedy against intestinal protozoa: infection by *Endameba dysenteriae*, which is promptly controlled by the use of ipecac or its alkaloid constituents. Emetin merits a high place in the treatment of the acute or active phases of all forms of endamebiasis, but cannot be depended on for the complete clearing of the intestinal tract in chronic cases. For this purpose I believe the entire powdered ipecac root is needed. This drug must be administered daily, in full concentrated doses, covering a period of from ten days to two weeks. If given by mouth in one dose in the form of enteric coated pills, the ipecac can be made to reach the large bowel, where absorption takes place directly within the confines of the disease area. The early optimism in regard to the Jutte method of transduodenal lavage has not proved justifiable, as I have convinced myself from numerous and repeated observations.

#### Effect and Maintenance of Intra-Abdominal Pressure

DR. J. B. FITTS, Atlanta, Ga.: Normal intra-abdominal pressure is a necessary physiologic entity. Low intra-abdominal pressure is a factor in general physical inefficiency. It is of particular importance in disease of the gastro-intestinal tract. It can be maintained by the application of physiologic principles.

#### Focal Infection

DR. THOMAS D. COLEMAN, Augusta, Ga.: In the treatment of cases of focal infection, it is essential that (1) the focus or foci should be removed when the end justifies the means, and one should keep in mind the possibility not only of not doing good, but also of doing harm: "Non nocere." (2) Every agency, both in building up the bodily defenses and ameliorating symptoms as they arise, should be employed. (3) To all those who lean to radicalism, I would suggest the motto: "Festinate lente."

#### Lesions of the Fifth Cranial Nerve in Connection with Auditory Vestibular Disturbance

DR. E. R. CARPENTER, Dallas, Texas: The otologist should never be contented with making a diagnosis of nerve deafness, but he should determine whether or not the lesion is of intracranial origin. The prognosis and treatment depend on this point. The neurologist or brain surgeon may not be consulted until the disease has advanced too far to prevent deafness or loss of life. In Cushing's book on "Tumors of the Auditory Nerve," the sad fact appears that in his thirty-five cases the first symptom was disturbance of hearing, yet all the patients came to him in an almost hopeless condition, being either paralyzed, blind, or nearly blind, or they had some other equally serious complication that rendered the observation exceedingly dangerous and the prognosis serious even if they survived the operation.

#### Intranasal Surgery Without Packing

DR. WILLIAM T. PATTON, New Orleans: The advantages of leaving out packing are greater comfort to the patient, who often is able to breathe through the nose continually, and much less reaction to disease in the nose. Usually twenty-four hours after operation, if clots are clearing out of the nose, it is surprising to see how little reaction remains. There really seems to be less bleeding without packing in most cases, that is, provided we use the epinephrin spray, cold compresses, and keep the patient in a reclining position. If a hematoma forms between the flaps, it is a simple matter to curet and again seal the flaps, applying compound tincture of benzoin. If there is much hemorrhage, it may indeed be necessary to pack. Again no harm is done.

**Vincent's Disease**

DR. JOHN J. SHEA, Memphis, Tenn.: Vincent's disease is a degenerative condition and not an inflammatory condition. A smear should be made and studied of every acute throat and gum disease, and not all the reliance be left to a culture. Medicinal treatment is only temporary, and surgical intervention is indicated for permanent relief. The infection should be made reportable, and in armies, schools and institutions, it should be considered contagious and should be quarantined. One should always work in conjunction with a competent dentist.

**Radical Mastoid Operation: Indications**

DR. ELBURNE G. GILL, Roanoke, Va.: The radical mastoid operation is not indicated in all cases of chronic aural suppuration. It is possible to get dry cavities in most cases. The hearing in the average case should be improved. With proper technique, the operation is not dangerous. The condition calling for operation is usually a dangerous one, and is too frequently dealt with lightly.

**Comparative Study of Gastric Motility as Determined by the Ordinary Test Meal and Six Hour Barium Retention**

DRS. HARVEY G. BECK and JOHN EVANS, Baltimore: Our observations indicate that frequently when adhesions involve the pylorus and duodenum, the power of the stomach to empty itself is at first increased and later diminished. The degree of gastric acidity seems to have little or no influence on the amount of gastric contents after a test breakfast or six hour retention. No interpretation should be made on this point without studying the acid curve by the Rehfluss method of fractional gastric analysis. The motor function of the stomach can be determined by the complete removal of a standard test meal with the partial vacuum method. There is no constant relation between the motor function as determined by the test meal method and six hour barium. Six hour barium retention occurs after a motor meal if the stomach contents exceed 200 c.c. in fifty minutes or 150 c.c. in sixty minutes. The comparative results of the two methods are most uniform and constant in duodenal ulcer. Six hour barium retention occurs more frequently in adhesions involving the pyloroduodenal region than in either duodenal or gastric ulcer. There is little evidence to show that the secretory function has any influence on the motor function in pathologic conditions affecting the stomach and duodenum.

**Interpretation of Muscular Imbalance**

DR. HIRAM WOODS, Baltimore: The meaning of muscular imbalance cannot be determined by the balance test alone. Functional force of muscles should be determined by their power to overcome prisms. Owing to the close relation between accommodation and convergence and the ease with which they can be separated, convergence prism strength must be regarded as the extent to which this separation is possible, not as indicating the intrinsic power of the interni. In horizontal heterophoria the basis of calculation should be divergence power (abduction) because of the single nerve supply of the externus. The minimum of abduction should be 5 degrees, the minimum of positive relative convergence should be from three to four times as great. The vertical recti should practically balance each other at from 2½ to 3 degrees. In prescribing prisms for constant wear, the muscle to be helped should be weaker than normal and its antagonist stronger; otherwise, there is danger of converting one form of heterophoria into another.

**Signs and Symptoms of Hypopituitarism**

DR. STEWART R. ROBERTS, Atlanta, Ga.: Undergrowth, dwarfism, dysgenitalism, feminine hirsuties, feminine type skeleton, lack of secondary sexual characteristics, genital atrophy and impotence, headaches, languor and weakness may appear in varying degrees in different cases at different periods. The classic signs and symptoms of hypopituitarism are subnormal temperature, dry skin, adiposity, low blood pressure, slow pulse, constipation, amenorrhea, drowsiness and inactivity. Lack of attention, impairment of memory, actual dulness, and mild psychoses to actual convulsive seiz-

ures with epileptic attacks may occur. The cause may be glandular deficiency of one or both lobes, a pituitary tumor with damage of the gland, or a neighborhood tumor or hydrocephalus with pituitary pressure. The symptoms of intracranial tumor may be more prominent than those of pituitary deficiency. Infantilism, dysgenitalism and obesity, symptoms of intracranial tumor, warrant pituitary study.

**Responsibility of Physicians Who Treat Malaria Cases**

DR. C. C. BASS, New Orleans: The important duties or responsibilities of physicians who treat malaria cases are: To begin promptly proper treatment with the specific remedy for the disease, quinin, not neglecting it for spectacular methods of treatment; to advise the patient of the proper diagnosis and nature of the disease; to advise him of the mode of transmission of the infection and of the great danger of transmission to other members of his family and associates, endangering their health and perhaps life, and to advise and prescribe specific treatment which will disinfect the patient so as to avoid relapse and prevent transmission.

**Coccidioidal Granuloma**

DR. KENNETH M. LYNCH, Charleston, S. C.: No successful treatment has been devised, and all patients but one died within from a few weeks to nine years. The patient who recovered was one in whom the infection was recognized in an extremity and the infected member amputated apparently before dissemination had occurred. I saw the first case of *Coccidioides immitis* infection in South Carolina and east of the Mississippi, it being the forty-fifth case, the second in a woman, and the fourth that had not been in California. It is highly probable that infection by *Coccidioides immitis* has occurred in cases in which we have not recognized it, and it is desirable that those cases of supposed tuberculosis in which the tubercle bacillus is not demonstrable should be investigated carefully for this or kindred infection.

**Status of Amebic Dysentery: Diagnosis and Treatment**

DR. RANDOLPH LYONS, New Orleans: Macht and Fisher believe that benzyl benzoate has amebicidal qualities. Haughwout and Lantin treated eight patients (including Osuzano's two patients); all were benefited. The dose varied from 10 to 30 drops, three times daily. The cases have not been followed long enough to make any definite statement as to cure. Ipecac and its alkaloids are still the sheet anchor in the treatment of amebic disease. The tendency of the times is to administer a combination form of treatment, that is to say, emetin hydrochlorid is given hypodermically in conjunction with the oral administration of either emetin hydrochlorid, powdered ipecac or emetin bismuth iodid. Occasionally some other drug may be administered by mouth, as chapparro or bismuth.

**Subacute Combined Degeneration of Spinal Cord**

DR. WILLIAM G. SOMERVILLE, Memphis, Tenn.: There is a similarity between the nervous symptoms of subacute combined degeneration of the spinal cord and pellagra. Both diseases have in common secondary anemia, gastro-intestinal disturbances, degeneration of the posterior and lateral columns of the cord, pigmentation of nerve cells, and frequent occurrence of mental symptoms. One of the chief points of difference is the presence in pellagra of the characteristic skin lesions. The secondary anemia is common to the two, but more intense in the subacute combined degeneration, and more likely to assume a pernicious type. *Ceromonas intestinalis-hominis* has been found in the intestinal discharges of both, in every case of pellagra, according to Jelks, and in my case of subacute combined degeneration.

**The Minnesota Rural Clinic**

DR. E. J. HENRIKENS, Minneapolis: The value of these rural clinics consists in: the teaching of the proper feeding of infants and children, and the especial value of maternal nursing; general hygiene instruction; the value of fresh air, sunshine and proper clothing; the early recognition of defects before they are obvious to the parents; the awakening of general interest in child health and child welfare and last, but not least, the education of physicians.

### Hookworm and Manifest Tuberculosis

DR. ROY D. ADAMS, Washington, D. C.: While hookworm disease and tuberculosis are often referred to in the literature as being related, and though the inference is frequently that the connection is one of cause and effect, no serious studies have been made which place the relationship on anything firmer than a speculative basis. A generally lowered resistance, incidental to hookworm disease, especially evident as anemia and malnutrition, is credited with being the essential factor producing lapse of immunity to tuberculosis. There is no evidence establishing any specific relationship between the two diseases. As it has been demonstrated that the mortality from tuberculosis may be reduced by a measure so simple as the elimination of hookworm when double infection exists, the obligation of the physician with regard to diagnosis and treatment is apparent.

### Empyema

DR. FRANK K. BOLAND, Atlanta, Ga.: Making the earliest possible diagnosis of acute empyema is a burden which falls in the general practitioner, the pediatrician and the internist, who must ever be ready with the exploring needle. How often has pus in the chest been called unresolved pneumonia for so many days or weeks that the condition was already chronic before its presence was known? Tube drainage and suction are needed. The use of surgical solution of chlorinated soda is not advised immediately following the opening of the chest in acute empyema. A few days later, when the abscess has had time to become well walled off, and there is no danger of a bronchus communicating with the cavity, it may be tried. The last word in the treatment of empyema has not been said.

### The Medical Profession in the War

DR. JERE L. CROOK, Jackson, Tenn.: Surgery's outstanding gains may be thus summed up: the Carrel-Dakin method of treating suppurating wounds; a revival of the use of débride-ment, first used extensively in the Napoleonic war; the treatment of shock caused by hemorrhage with blood transfusion and the citrate method, demonstrating the great superiority of blood over salt solution because the former has real sustaining power and the latter is temporary only because it carries it out of the vessels; the paraffin treatment of burns; improved methods in the treatment of fractures and the use of the Thomas and Blake splints and the alkan frame; early mobilization of injured joints; management of lung injuries; improvements in plastic surgery, and the education of the crippled.

### Toxic, Nonexophthalmic Goiter

DR. WILLIAM D. HAGGARD, Nashville, Tenn.: This type of goiter is quite as dangerous, if not more so, than exophthalmic goiter, because the toxin seems to have a selective action on the heart, causing the so-called "goiter heart," thyrotoxicosis instead of the mechanical "goiter heart" from pressure. It is more likely to be overlooked on account of the absence of exophthalmos. Many simple adenomas are prone to degenerate and produce toxic symptoms. An atoxic goiter may be of long duration before producing toxic symptoms. There is danger in administering iodine in a case of goiter of this nature. It may set up toxic and sometimes fatal symptoms. Toxic nonexophthalmic goiter occurs in one out of four cases that are not hyperplastic. Toxic goiter is an extremely insidious by-ligation. Operation for toxic nonexophthalmic goiter is dangerous, if not more so, than in the exophthalmic type, owing to the condition of the patient. In my last series of 100 toxic cases, exclusive of the so-called "goiter heart," death occurred in thirty-three operations, and only two deaths in sixty-seven exophthalmic cases.

### Nonhypertrophic Forms of Prostatic Obstructions

DR. FRANKARD LEWIS and NEL S. MOORE, St. Louis: Hypertrophic obstruction at the bladder neck is a definite pathologic condition, appearing at any age, but most common in later life. Its diagnosis is practically easy, provided a systematic examination is made. Cystoscopy is most important. The treatment used is very simple and easy to do, if

done properly. The risk is comparatively small and the results in appropriate cases have been very satisfactory.

### Treatment of Acute Abdomen

DR. J. P. RUYAN, Little Rock, Ark.: It is a safe and sane procedure to operate early in acute suppurative peritonitis. After the stage of contamination comes, the stage of diffuse peritonitis, the Ochsner treatment offers the largest percentage of recoveries. The exceptions are perforation of duodenal ulcer and gunshot wounds of the hollow viscera. One should not be in too great a hurry to operate once the Ochsner treatment has begun. Following the Ochsner treatment, operation should be done and Crile's principles applied in the after-treatment of all cases of septic peritonitis. When there are large areas of denuded peritoneum, from which may be expected a considerable flow of pus and serum, gauze drainage after the manner of Mikulicz or Price will give the most satisfactory results. In cases in which no peritoneal denudation has occurred, rubber tube drains will suffice.

### Malignant Moles

DR. H. H. HAZEN, Washington, D. C.: Every acquired mole and every congenital mole that is liable to irritation should be removed, preferably by canter. Whenever a mole begins to grow or to show signs of either irritation or ulceration it is an imperative sign for immediate extensive operative inference, preferably with the cauter, though this will often be too late. When numerous metastases have appeared, treatment is useless. In the cases in which involvement is only in the lymph nodes, extensive block dissection might occasionally effect a cure.

### Radium in Gynecology

DR. WILLIAM C. GEWIN, Birmingham, Ala.: Radium is the treatment of choice: in cases of menorrhagia of the menopause not associated with large fibroid tumors, and in which the possibility of carcinoma has been definitely eliminated; in cases of menorrhagia in patients between 35 and 40 years of age who have small sized mucous fibroid tumors with no demonstrable evidence of malignant conditions existing; in cases of myoma in which there is a contraindication to operation; in cases of menorrhagia in young persons who have resisted all medical treatment; in all cases with a malignant tendency, and in all operable cases after a complete surgical extirpation of all cancer possible as a prophylactic, and also to destroy such cancer cells as are not possible to be removed by the surgeon. In all inoperable cancers of the uterus, radium will relieve pain, eradicate the offensive odor from the discharge and stop the hemorrhage, and in many cases produce an anatomic and symptomatic cure when the patient seems to be moribund. Radium will render operable many cases that are inoperable. The use of radium is practically the only means of relief in cases of recurrent carcinoma of the uterus. In the use of radium it is very essential to have a thorough knowledge of the technic of its application and of its physical properties.

### Value of Radium in the Treatment of Bladder Tumors

DR. J. T. GERAGHTY, Baltimore: While benign and malignant papilloma and the early papillary carcinoma disappear under the influence of radium, the infiltrating types have proved very resistant to this agent. It is our procedure, therefore, when the infiltrating character of the growth has been determined and when the tumor is sufficiently localized to permit of complete removal, to carry out a radical resection. Following the removal of an infiltrating papillary carcinoma, cystoscopy should be done at an early date, as the not infrequent recurrences will yield promptly in many instances to radium, notwithstanding the resistance of the primary tumor. The use of radium has not diminished the tendency of bladder tumors to recur, recurrences being observed in about 30 per cent. of the cases treated. The recurrence, however, responds to radiation in most instances.

### Pulmonary Syphilis

DR. J. H. GIBBS, Columbia, S. C.: A chronic pulmonary disease, physically indistinguishable from the common types of

chronic pneumonitis, and producing a symptomatic picture similar to that of pulmonary tuberculosis, is not infrequently associated with a positive Wassermann reaction, and the favorable change in general and local conditions following antisyphilitic treatment is so striking as to lead one to the opinion that the syphilitic process is, at least, in part responsible for the pulmonary pathologic condition.

#### Ileocolitis

DR. N. C. WOMACK, Jackson, Miss.: Ileocolitis is mainly due to a gas-producing bacterium. In my opinion, this bacterium is an attenuated or malignant form of the colon bacillus. There is always an attending pyelitis in which the colon bacillus is found in great number. This pyelitis may antedate and certainly is the immediate complication of ileocolitis, and assumes the major rôle from the standpoint of the cause of death. In the treatment of ileocolitis, first attention should be paid to the kidney. Forced feeding of a selected carbohydrate diet with plenty of water should be given. All forms of rectal irrigation or alimentation should be interdicted on the ground that they not only do no good, but are distinctly harmful.

#### Maternal Feeding of Infants

DR. J. D. LOVE, Jacksonville, Fla.: The mother's dietary should consist of food generous in quantity, easily digested, and above all a food to which she is accustomed. A food that causes indigestion in the mother will cause trouble for her nursing baby. On the other hand, if a mother can handle well even the most indigestible food, her baby will rarely suffer in consequence. The gross appearance of breast milk furnishes an unreliable index as to its suitability for the baby. Before milk is pronounced as being too rich in quality, the presence or absence of colostrum bodies should have been determined. The mere fact that milk is scant in quantity furnishes no valid excuse for the withdrawal of the infant from the breast, but rather calls for supplemental feedings. In influencing the quality of breast milk, the maternal dietary, while of some importance, is a smaller factor than causes which operate through the medium of the mother's nervous system.

### CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

*Ninth Annual Meeting, held in New York, Oct. 20-24, 1919*

*(Concluded from page 1722)*

#### Brain Tumor

DR. HARVEY CUSHING, Boston: I have undertaken a statistical résumé of brain tumor cases (or suspected brain tumor cases) studied during a fifteen year period. Generally speaking, about 80 per cent. of these were tumors, of which half were verified by operation or necropsy. Another important question to settle is what are operative fatalities and what operative recoveries. Of twelve patients from whom tumors were removed, all died. Two patients entered the hospital within one week of each other. Both suffered from the rare kind of brain tumor, a cholesteatoma, or mother of pearl tumor. From a superficial study of statistics one might suppose this tumor is common, but only six have been recorded in the literature. It is of the highest importance in these cases to agree on certain standards of classification so that surgeons may know they are speaking the same language as regards results.

#### DISCUSSION

DR. CHARLES H. FRAZIER, Philadelphia: I would like to refer to the use of callosal puncture in this field. In all pretentorial tumors the symptoms are due to distention of the ventricles which often brings matters to a fatal issue. The increased tension appears before localization is possible. I hoped that an opening could be made and drainage instituted in the corpus callosum so that in an inoperable growth, the life of the patient could be prolonged by this means. It was, however, of but transitory benefit. Lately I have combined

callosal puncture with subtentorial decompression. My attention has also been attracted by the relation of chronic meningitis to brain tumors. An exploratory operation does not always exclude brain tumor, as the growth may be overlooked. In many cases, however, it seems that one is dealing with a preexisting meningitis. It is better not to wait to localize a tumor, but to operate early. There is clinical evidence that with the use of radium the tumor undergoes retrograde changes. In one such case, an enormous cerebellar tumor so adherent that its removal was impossible, the use of radium was combined with operative measures, and now five years later, there is no sign of recurrence. In another case, in which the patient was stuporous and bedridden from tumor at the cerebellopontile angle, a tube of radium was embedded and left in situ. The patient has recovered so far as to be able to return to work. As to operative mortality, I do not feel that when the patient dies of subsequent meningitis we should charge this up to operative mortality. The length of cure depends on the type of tumor. Endothelial growths are slow growing. Seven years would not be too long to wait for recurrence. All cases should be observed at least for five years.

DR. ALLEN B. KANAVEL, Chicago: Good results depend not only on the skill of the operator but also on the opportunity of early and correct diagnosis. The profession is too apt to believe that such symptoms as projectile vomiting, headache and choked disk are diagnostic. Progress will not begin until medical men learn that these are not the signs of brain tumor, but of its terminal stage. When this is learned we shall be able to cure, not merely relieve, the patients. Too often the case progresses far beyond the stage at which successful operation is possible. It is therefore necessary to arouse the interest of the profession to the diagnostic phase of the early stages. A nation-wide study must be inaugurated. Classified data should be collected and published. This would undoubtedly give rise to the performance of curative operations, instead of merely palliative ones.

DR. CHARLES A. FELSBERG, New York: Any one who has followed the history of brain surgery during the last fifteen years will feel that this field has not received the attention it deserves. The justification for specialization in neurologic surgery is now well recognized. The improvement in results in ten years is very striking. Mortality has dropped from 43 per cent. to 10 per cent. This is due to combined improvement in diagnosis and technic, and more skilful surgical judgment rather than to selection of cases. I saw one case of cholesteatoma in which three fourths of one hemisphere was involved. The growth was successfully removed and the patient recovered.

#### The Acute Abdomen

DR. JOHN B. DEAYR, Philadelphia: The acute abdomen occupies too prominent a place in mortality statistics. Among the reasons for this is the fact that too many untimely and unsuitable operations are performed in the treatment of this condition. This is in part due to the want of intimate knowledge of living surgical pathology, in part to too great a reliance on laboratory findings, and to the hesitancy to resort to radical measures in the hope that the symptoms may pass away under what is called conservative treatment. Occasionally, the acute abdomen is the result of conditions not recognized by even the most astute. The foolish belief that chronic ulcer, chronic gallbladder disease, chronic appendicitis, etc., can be cured by medicine, diet rest, etc., is a perverted faith that courts disaster. A very abdominal wall which shows a penetrating wound, whatever its location and whatever the agent that inflicted the wound, should be opened. Similarly, severe blows on the abdomen, or a fall on the abdomen, or being crushed between wheels should bring to mind the possibility of one of the various subacute injuries that not infrequently occur. In these cases it is better to open the abdomen on suspicion and do nothing than to wait for an untimely diagnosis and hemorrhage. The earlier the acute abdomen is seen and the earlier suitable surgical treatment is instituted the more favorable will be the prognosis. There are certain conditions of the abdomen in which surgery is not indicated.

Among these are acute dilatation of the stomach, acute post-operative gastric dilatation, acute gastro-enteritis simulating appendicitis, and conditions mistaken for the acute abdomen, such as pneumonia, diaphragmatic pleurisy, and the gastric crises of tabes. The physician and the laity should know the harmful possibilities of the purgative. The purge belongs to the same class, but is more deadly than morphin. In the acute abdomen amenable to surgery, early intervention is, of course, the best procedure. On general principles it may be said that in the acute abdomen with diffuse peritonitis, in the absence of a reliable history or a reasonably sure diagnosis and of a localised point it is good judgment to defer operation, treating the patient by strict anatomic and physiologic rest. In circumscribed or localized peritoneal inflammation, operation is comparatively, if not entirely safe, with proper support. The carefully elicited history is the point around which diagnosis should develop. I do not attach the same importance to the blood count that some surgeons do.

## DISCUSSION

DR. J. M. T. FINNEY, Baltimore: Two important things should be borne in mind:—One is the diagnosis and the other is treatment. The main question is how to make the diagnosis. When that is reached, the rest is easy. Several cases have come under my observation in which the symptoms pointed to an acute abdominal condition, and in one of these an operation for appendicitis was performed. In the course of twenty-four hours these patients were found to have peritonitis. Such occurrences serve to emphasize the difficulty of making a diagnosis of the acute abdomen, and the danger of mistaking something else for an abdominal crisis.

DR. GEORGE E. ARMSTRONG, Montreal, Que.: The difficulty of making a diagnosis in the presence of the acute traumatic abdomen may best be illustrated by citing several cases. Two cases have come under my observation in which after traumatic injury there was a quiescent period during which the patient manifested few symptoms, and yet at operation the small intestine was found to be completely severed and the ends of the intestine closed off by the local reflexes so that there was no leakage. It may be said that after certain traumatic injuries to the abdomen there is frequently a quiescent period of from twelve to twenty-four hours during which the patient and the patient may decide what is to be done. I would emphasize the evil of purgatives. The inadvisability of giving strong morphin is also to be emphasized. There are instances in which it is well, when the symptoms are few, to give opium and wait.

DR. STUART MCGUIRE, Richmond, Va.: It is necessary to emphasize that the acute abdomen is not always surgical and sometimes when it is surgical it has reached a stage in which operation would be unwise. In some cases by postponing operation and treatment by palliative measures a patient's case became a safe risk. When in doubt, I am inclined to wait. I agree thoroughly with the commendation of opium, but I do not think morphin has been given the credit it deserves. It should not be given while the diagnosis is in doubt, when the diagnosis is once made, the patient should have the relief from pain that morphin affords. I believe in the Fowler-October-Murphy treatment.

Berberi at Bahia. In a recent paper published by Dr. J. F. de Lima, of Bahia, he discusses the occurrence of berberi at Bahia during recent years, especially as shown in the mortality of the insane asylum and the state penitentiary. In the former there were in 1902, 34 deaths caused by berberi, 2 in 1903, 58 in 1904 while more recently there were 16 deaths in 1914, 4 in 1915 and 8 during the year 1917. At the penitentiary there were outbreaks of berberi in the years 1897, 1900, 1901, 1902, 1903 and 1908; in the latter year there were 112 cases with 62 deaths. In the marine hospital which is no longer in existence, there were in the years 1881-1892, 432 cases, practically all landed from warships. In the hospital of Santa Isabel for the last fifty years there has been an annual average of 18.48 cases making a total of 924 cases.

## Current Medical Literature

## AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

## American Journal of Public Health, Concord, N. H.

November, 1919, 9, No. 11

- Supreme National Need. Coordination and Enlargement of Federal Health Activities. W. S. Rankin, Raleigh, N. C.—p. 817.  
The Outdoor Pool. Obvious Need for Clean Pools. C. V. Craster, Newark, N. J.—p. 823.  
What Is the Matter with Public Health Today? H. W. Hill, St. Paul—p. 827.  
Personality in Public Health. J. A. Tobey, Washington, D. C.—p. 831.  
Influenza and Pneumonia. B. S. Maloy, Chicago—p. 835.  
Public Health Work in India. I. Caste System and the Sanitary Problem. H. N. Jenks, Berkeley, Calif.—p. 838.  
Characteristics of the Colon Type of Bacteria Found in Feces. C. A. Darling, Mendville, Pa.—p. 844.  
Influenzal Pneumonia as Influenced by Dish Washing in Three Hundred and Seventy Public Institutions. J. G. Cumming, Berkeley, Calif.—p. 849.  
Publicity and Campaign Against Venereal Disease. R. H. Everett, New York—p. 854.  
Critical Study of Some Methods Proposed for Liberation of Fur-malehyde Gas for Fumigation Purposes. E. K. Kline, Toledo—p. 859.

**Influenzal Pneumonia and Dish Washing.**—Cummings believes that transmission of the potentially dangerous is group of pneumonia producing organisms, incident to promiscuous messing in the army, in public institutions, in public eating places and in the home, can be prevented largely by the disinfection of eating utensils with scalding water. The universal application of the principle of proper eating utensil disinfection will reduce enormously the prevalence of all sputum borne infections. As is shown in the institutional population, the influenza case rate was reduced by 66 per cent, and the mortality by 55 per cent, through the use of machine washed dishes. It is believed that a further reduction in these rates would have occurred had the full efficiency of all mechanical dish washers been utilized by the use of boiling water. This principle applies to public eating places, as well as to public institutions, and with equal force to the scalding of eating utensils in the private family.

## American Journal of Syphilis, St. Louis

October, 1919, 3, No. 4

- \*Standardization of Wassermann Reaction. V. Preservation of Complement Serum. J. A. Kolmer, T. Matsunami and M. E. Trist, Philadelphia—p. 513.  
\*Id. VI. Human Versus Guinea-Pig Complement in Serum Diagnosis of Syphilis. J. A. Kolmer and A. M. Flick, Philadelphia—p. 541.  
Early Asymptomatic Neurosyphilis. Report of Cases. J. V. Klaunder, Philadelphia—p. 559.  
\*Congenital Syphilis in Orthopedic Clinics. P. W. Roberts, New York—p. 587.  
\*Chronic Diarrhea Probably Due to Syphilis. H. Liser, San Francisco—p. 594.  
Incidence of Syphilis. A. B. Day and W. McNitt, St. Louis—p. 595.  
Delaying Early Diagnosis of Syphilis (Chancre): Dangers and How to Avoid Them. E. W. Abramowitz, New York—p. 607.  
Syphilis Among Insane with Special Reference to Hecht Weinberg Gradwohl Test. T. B. Christian, Norristown, Pa.—p. 613.  
\*Syphilitic and Arsenical Jaundice. G. O. Scott and G. H. J. Pearson, R. A. M. C.—p. 628.  
\*Four Fatalities Following Use of Arsenphenamin (Salvarsan). W. B. Blanton, Richmond, Va.—p. 648.  
Intensive Treatment of Women with Neodiarsenol at Hospital Jail, San Juan, P. R. H. Goodman, New York—p. 661.  
\*Treatment of Late Syphilis. H. H. Hixon, Washington, D. C.—p. 665.  
Treatment of Syphilis of Central Nervous System. S. T. Nicholson, Jr., Clifton Springs, N. Y.—p. 669.

**Wassermann Reaction: Preservation of Complement Serum.**—Of the sixteen methods studied by Kolmer and his associates, preservation with sodium chlorid at a low temperature yielded the best results. When complement is required in dilution of 1:10, the methods of Thompson and Neill are satisfactory for preserving guinea-pig complement for a period of two weeks, provided the serum is kept at a low temperature and preferably not above 4 C. When complement is required in dilution of 1:20 the addition of 0.17 gm. sodium chlorid to each cubic centimeter of serum and keeping at a low temperature preserves the complement for about three weeks.

**Wassermann Reaction: Human Versus Guinea-Pig Complement.**—These studies have shown that from 2 to 10 per cent. of human serums do not contain sufficient complement, natural hemolysin or both for the conduct of these special tests. Human complement is not as satisfactory as guinea-pig complement for the conduct of tests employing heated serum and spinal fluids. The advantages of tests employing human complement are (1) greater delicacy; (2) guinea-pigs are not required, and (3) sheep are not required if an anti-human system is employed. The disadvantages are (1) falsely positive reactions may occur; (2) falsely negative reactions may occur; (3) the serums must be fresh; (4) unsatisfactory with heated serums and spinal fluids; (5) complement, natural hemolysin or both may be absent from serums and (6) isoagglutinins may interfere in tests employing an antihuman hemolytic system. Of the special tests, those of Thompson and Bartlett and O'Shansky proved most reliable.

**Congenital Syphilis in Orthopedic Clinics.**—Roberts is convinced that many syphilitic infections which find their way into orthopedic clinics pass through unrecognized, first because the tradition that nearly all chronic destructive lesions of the spine and large joints are tuberculous has been accepted without question, and second, because the far reaching distribution of congenital syphilis and its potential dangers has been ignored.

**Chronic Diarrhea Probably Due to Syphilis.**—Liser reports a case of chronic diarrhea of one year's duration in which a cure was effected by arsphenamin and mercury. Syphilis as the cause seems reasonable, since malignancy, tuberculosis, hyperthyroidism, achylia and amebic dysentery can be excluded. No therapeutic measures of any kind were employed, except arsphenamin and mercury.

**Syphilitic and Arsenical Jaundice.**—Jaundice occurring in the course of an attack of syphilis is divided into two groups by Scott and Pearson: first, the jaundice that occurs in untreated cases of syphilis and which is due to an invasion of the liver by the *Spirochaeta pallida*, and second, that which occurs during or subsequent to the treatment of syphilis by arsphenamin, or its substitutes, and which may be due to the organism, the drug or a combination of both. Among 2,243 patients treated for syphilis Scott and Pearson found two cases which showed unmistakable evidence of belonging to the first group and thirty-nine to the second group.

**Four Fatalities Following Use of Arsphenamin.**—The four fatalities reported by Blanton followed an intensive course of arsphenamin treatment consisting of from four to six intravenous doses. There was an average interval of four days between injections; from 0.4 to 0.6 gm. arsphenamin were given at a time. Two days in three cases, and three days in the other case intervened between the time of the last treatment and the onset of the illness. The time elapsing between the admission to the hospital and death was two days in three cases and one day in the other. A striking similarity in symptoms, as well as in postmortem findings existed in all four cases. After a symptomless latent period of about two days, the development of sudden and profound coma was characteristic and dominated the clinical picture so that it was difficult to elicit any focalizing signs at all. There were no cranial nerve palsies. The pupils were dilated in two cases; in two they were unaffected. During the last twenty-four hours of life the reflexes disappeared in all four cases. Two patients had convulsions. Cheyne-Stokes breathing was present in all cases and death was apparently due to failure of the respiratory center. Pathologic study of the brains of these four cases showed similar lesions. These consisted in minute hemorrhages, scattered through and confined to the basal nuclei and that part of the cerebrum bounding the lateral ventricles. These were associated with a softening confined to this locality and seen easiest on gross examination. Cerebral congestion and edema were marked. Increase of cerebrospinal fluid was not a conspicuous finding. In only one case was there a slight fatty degeneration of the liver. In Blanton's opinion the cause of these mishaps is undoubtedly to be found in the toxic

by-products of arsphenamin synthesis, the exact nature of which is unknown.

**Treatment of Late Syphilis.**—Hazen says it is extremely improbable whether any case of late syphilis has ever been cured. Any patient with an active syphilitic process must have sufficient treatment to render the lesions inactive and the blood reaction negative. A small amount of treatment is dangerous, neurorecedives being especially liable to develop after one or two doses of arsphenamin. The condition of the heart and of the large vessels must be watched just as well as the nervous system.

## Boston Medical and Surgical Journal

Nov. 20, 1919, 181, No. 21

- Necessity of Additional Accommodations for Insane of Boston. J. V. May, Boston.—p. 601.  
Neuropsychiatry in Army Camps. G. E. McPherson, Medfield, Mass.—p. 606.  
Relation of Oral Infection to Systemic Disease. A. J. Leary, Boston.—p. 611.  
Improvement of Obstetrics. S. Kushmore and A. K. Paine, Boston.—p. 615.  
\*Preliminary Ligation in Hyperthyroidism. F. H. Lahey, Boston.—p. 618.

**Preliminary Ligation in Hyperthyroidism.**—Personal experience has convinced Lahey that preliminary pole ligation is the one definite factor which can be said to make the final operation of partial thyroidectomy less hazardous. The operation is based on sound principles, produces definite effects and consists of a clean-cut procedure.

## Bulletin of Johns Hopkins Hospital, Baltimore

November, 1919, 30, No. 345

- \*Fate of Bacteria Introduced into Upper Air Passages. A. L. Bloomfield, Baltimore.—p. 317.  
Influenza Bacillus in Paranasal Sinus Infections. S. J. Crowe and W. S. Thacker-Neville, Baltimore.—p. 322.  
\*Meningococcus Pneumonia. I. Occurrence of Influenza Pneumonia in Which Diplococcus Intracerebellaris Meningitidis Was Isolated. M. L. Holm, Lansing, Mich., and W. C. Davidson, Baltimore.—p. 324.  
Id. II. Epidemiology of Influenza Pneumonia in Which Diplococcus Intracerebellaris Meningitidis Was Isolated. W. C. Davidson, Baltimore, M. L. Holm, Lansing, Mich., and R. V. B. Emmons, Hamble, England.—p. 329.  
\*Occurrence of Pfeiffer Bacillus in Measles. A. W. Sellards, and F. Sturm, U. S. Army.—p. 331.  
Reaction of Leukocytes in Epidemic Influenza. B. Douglas, Baltimore.—p. 338.

**Fate of Bacteria Introduced into Upper Air Passages.**—The general result of Bloomfield's experiments indicates that even after a short period of time it is usually impossible to recover *Sarcina lutea* swabbed in large amounts on the tongue, nasal mucosa, or into the crypts of the tonsils, indicating the remarkable efficiency of the mechanism present in the upper air passages for disposing of this organism. The mouth bacteria play little, if any part, but the saliva and mouth secretions exert a prompt and marked bactericidal effect.

**Meningococcus Pneumonia.**—From the fact that meningococci rank third among the bacteria found most frequently in the lungs at necropsy in cases of pneumonia bemy exceeded only by pneumococci and *B. influenzae*, Holm and Davidson conclude that meningococci were an important factor in the causation of influenza pneumonia at Camp Coetquidon from Sept. 1, 1918, to Feb. 15, 1919. The meningococci present in the lungs in cases of meningococcus pneumonia were essentially the same type of organisms as those found in the spinal fluids in cases of epidemic cerebrospinal meningitis. Cases of meningococcus pneumonia may arise from contact with cases of meningococcus cerebrospinal meningitis and vice versa. The meningococci may produce either bronchopneumonia or lobar pneumonia.

**Occurrence of Pfeiffer Bacillus in Measles.**—The examination of a group of measles cases occurring a few weeks after an epidemic of influenza showed the presence of an organism indistinguishable from the Pfeiffer bacillus in twenty-five of thirty-one cases. This organism was obtained readily from the sputum and with little difficulty from the conjunctivae. The Pfeiffer organism was not obtained from the blood stream nor from the excised skin lesion. With the

presence of the above symptoms of measles these microorganisms disappeared rather rapidly in about three-fourths of the cases. The occurrence of the Pfeiffer bacillus both in measles and in infantile convulsions suggestive evidence against its etiologic relationship in either disease.

### California State Journal of Medicine, San Francisco

November 6, 1919, 17, No. 11

- Over Methods of Treating Malignant Contractures Following Wound. G. J. McArthur, San Francisco.—p. 374.
- Case of Leptospira in California. Origin. G. S. Wells, Santa Barbara.—p. 375.
- Female Reactions. J. D. Alving, Santa Fe.—p. 376.
- F. M. Loomis, Oakland, California.—p. 380.
- Pathologic Illustrations of Chlamydia. A. S. Lubliner, Los Angeles.—p. 401.
- U.S. Army, San Francisco. A Renaissance. D. W. Montross, San Francisco.—p. 401.
- War Wounds. R. Smith, Los Angeles.—p. 416.

**Relationship of Dental Abscesses and Toxemias of Pregnancy.**—Eight cases are reported by Loomis in which he is convinced that all the evidence is at hand to connect abscesses of the teeth with manifestations of toxemias of pregnancy. He suggests that this relationship be borne in mind and that extraction of abscessed teeth is indicated.

### Canadian Medical Association Journal, Toronto

November 1919, 9, No. 11

- Significance of Small Amount of Sugar in Urine. L. Hamman, Baltimore.—p. 961.
- After Effects of Chlorin Gas Poisoning. J. C. Meakins and J. G. Presley, Montreal.—p. 968.
- Natural Albuminuria. M. Mackay, Sherbrooke.—p. 975.
- Veronal. A. D. Blackader, Montreal.—p. 978.
- Surgical Efficiency in Army Medical Service. H. A. Bruce, Toronto.—p. 982.
- Tick Caused Paralysis. J. L. Todd, Winnipeg.—p. 994.
- Town Planning and Civil Authorities. J. E. Labege, Montreal.—p. 997.
- Home and Town Planning. E. Nadeau, Quebec.—p. 1003.
- Internal Hydrocephalus and Xanthochromia of Spinal Fluid. A. H. Sault, Montreal.—p. 1007.
- Salt Metabolism and Rehabilitation. J. L. Bugar, Toronto.—p. 1013.
- Comparison of Kimer's Modification of Original Wassermann Test and N. 4 Method as Recommended by Medical Research Committee. N. O. Thomas and K. M. B. Simon, Granville.—p. 1016.
- rupture of Left Cardiac Ventricle. G. B. Murphy, Vancouver.—p. 1019.

**Significance of Small Amount of Sugar in Urine.**—If with persistence and chronic nephritis there is but an occasional trace of sugar in the urine and the blood sugar is not abnormally high, then, Hamman says, the disordered carbohydrate metabolism must be subordinated to the renal or arterial condition. If there is marked glycosuria and the blood sugar is unusually high, then the diabetes must be emphasized. The clinical history is of importance. Patients in middle life with mild diabetes often gradually develop arthritis and hypertension, so that finally the renal and arterial conditions assume the prominent position in the clinical picture. On the other hand, Hamman has observed instances with hypertension over a number of years and has seen them gradually develop glycosuria and finally a definite clinical picture for carbohydrates.

**Tick Caused Paralysis.**—From the evidence accumulated, Hamman is convinced that ticks may cause paralysis in human beings, especially in children. In rural districts, patients who develop cases of progressive and sudden paralysis should take it a practice to search for a tick. Care should be given to find all about the back of the head and neck of a tick found. It should be removed carefully and kept alive if possible, in a laboratory for examination and identification. If the tick's head be torn off and left on the patient's skin, the bite may become infected and an ulcer developed, and in the local infections which have been reported to follow tick bites were exceptionally severe. Practitioners who meet with cases where symptoms are associated with the presence of ticks should record their experience.

**Internal Hydrocephalus and Xanthochromia of Spinal Fluid.**—The syndrome of Froin consists of (a) a spinal fluid which is yellow color (xanthochromia); (b) which coagulates en masse and (c) shows an abundant lymphocytosis. The syndrome of Nonne consists of a spinal fluid showing (a) marked

increase of globulin, (b) without increase of cellular elements. The above features may be complete or partial, and variations may exist in the several factors. The syndrome of Froin, or xanthochromia alone, usually indicates an isolation of one portion of the subarachnoid space from the rest by tumor, adhesions, etc. This separation is usually found at the lower levels of the cord. Internal hydrocephalus may be associated with separation of the spinal from the cerebral subarachnoid space either by adhesions of the brain stem to the tentorium, or by hernia of the distended brain into the foramen magnum. In the case reported by Gordon the possible explanation is (1) basal meningitis (meningococcus or *B. influenzae*); (2) partial recovery; (3) obstruction of foramina in the roof of the fourth ventricle by meningitis; (4) development of a noncommunicating hydrocephalus; (5) hernia of the brain into the foramen magnum; (6) separation and sacculation of the spinal subarachnoid space; (7) development of partial Froin's syndrome lies in the separation of the sacculated portion of the subarachnoid space from the choroid plexus through which normally it is filtered and a reversion of its contents to a simple lymphoid material, yellowish, coagulating and cellular.

### Journal of Abnormal Psychology, Boston

April June, 1919, 14, Nos. 1 and 2

- Mechanism of War Neuroses. S. I. Schwab, St. Louis.—p. 1.
- Neuro-psychiatric Problems at Front During Combat. J. H. W. Khen, Philadelphia.—p. 9.
- Emotions and Their Mechanism in Warfare. T. A. Williams, Washington, D. C.—p. 15.
- Management of Psychoneuroses in Canadian Army. C. Russell, C. A. M. C.—p. 27.
- Revels; Sex and Holy Ghost. T. Schroeder.—p. 34.
- Psychopathology and His Responsibility. C. M. Campbell, Baltimore.—p. 48.
- Cyclothymic Fugues; Fugues Associated with Manic Depressive Psychosis. Report of Case. K. A. Menninger, Topeka, Kan.—p. 54.
- Shelley as Myth Maker. E. C. Taylor.—p. 64.
- Source and Aim of Human Progress. B. Sidis, Boston.—p. 91.

### Journal of Experimental Medicine, Baltimore

Nov. 1, 1919, 30, No. 5

- Chemotherapy of Trypanosome and Spirochete Infections. Chemistry of N-Phenylglycineamide-p-Arsenic Acid. W. A. Jacobs and M. Heidelberger, New York.—p. 411.
- Toxic Action. W. H. Brown and L. Pearce, New York.—p. 417.
- Therapeutic Action in Experimental Trypanosomiasis of Mice, Rats and Guinea Pigs. L. Pearce and W. H. Brown, New York.—p. 437.
- Therapeutic Action in Experimental Trypanosomiasis of Rabbits. L. Pearce and W. H. Brown, New York.—p. 455.
- Action on Spirochete Infections. W. H. Brown and L. Pearce, New York.—p. 483.
- Occurrence of Bacillus Influenza in Normal Throat. A. I. Winchell and E. G. Stillman, New York.—p. 497.
- Pathologic Changes in Testes in Epidemic Pneumonia. R. G. Mills, Baltimore.—p. 505.

**Trypanosome and Spirochete Infections: N-Phenylglycineamide-p-Arsenic Acid.**—Jacobs and Heidelberger have been engaged in the synthesis of certain new types of organic arsenic compounds for the treatment of experimental trypanosome and spirochete infections. A number of substances have been prepared which have given interesting experimental results. However, those obtained with one in particular, the sodium salt of N-phenylglycineamide-p-arsenic acid were such as to demand special attention. The simplicity of this compound, the ease of preparing it, its relatively inexpensive character, stability and solubility, and its favorable biologic behavior, warrant further study. It readily yields a colorless, crystalline sodium salt which is extremely easily soluble in water, forming neutral solutions, which are perfectly stable. In fact, a 10 per cent. solution may be boiled a reasonable length of time without appreciable cleavage of ammonia or arsenic. The materials required and the method of preparation are described in detail.

**Therapeutic Action of N-Phenylglycineamide-p-Arsenic Acid in Experimental Trypanosomiasis.**—This acid is an agent of marked therapeutic action in the treatment of experimental trypanosomiasis of mice, rats and guinea-pigs. It possesses an average curative range of from 0.2 to 0.3 gm.

per kilogram of body weight of the sodium salt against a twenty-four hour infection in mice and rats produced by several species of pathogenic trypanosomes. Since the lethal dose for mice is from 2 to 2.25 gm. and for rats 0.75 gm. per kilogram of body weight, the curative ratios are 1:8 and 1:3, respectively. The curative dose for guinea-pigs is 0.15 gm. per kilogram of body weight, thus giving a curative ratio of 1:10. The trypanocidal activity of this compound is relatively rapid in all three animal species for the peripheral blood is cleared of organisms within twenty-four hours after its administration, and in addition, the lower limits of the curative range are comparatively sharply defined. Intra-peritoneal, intravenous and subcutaneous routes of administration for all practical purposes may be considered equally efficacious in *Tr. brucei* infections of mice both as regards the speed of action of the drug and the average curative range. The administration of the drug in therapeutic amounts in all three animal species is not followed by manifestations of organic or functional injury but, on the contrary, the general physical condition of the treated animal shows an immediate and continued marked improvement. The therapeutic activity in trypanosomiasis of mice, rats and guinea-pigs, as evidenced by the relative speed and sharpness of action, together with the curative ratio as expressed in fractions of the minimum lethal dose and the absence of organic injury or functional disturbance following therapeutic doses, are significant and characteristic features of the amide of N-phenylglycine- $\beta$ -arsonic acid.

Therapeutic results with the amide of N-phenylglycine- $\beta$ -arsonic acid were obtained in rabbits which showed well marked clinical signs of a definitely established disease, and in many instances the infection was extremely advanced and of prolonged duration.

**Action of N-Phenylglycineamide- $\beta$ -Arsonic Acid on Spirochetes Infections.**—This acid is capable of exercising a very definite effect on the course of infections produced by spirochetes of the recurrent group and by *Spirochaeta pallida*. It is difficult to say, however, just how these effects should be interpreted. In the case of the blood spirochetes, the infection is ameliorated, and even though the spirochetes are not immediately destroyed, the infection is frequently brought to a termination which leaves the animal in a condition not unlike that produced by more powerful spirocheticidal agents. That is, the infecting organisms are either affected in such a way that they eventually die off or are destroyed by the host in such a way that no lasting immunity is developed in consequence of their destruction. With either group of organisms, therefore, N-phenylglycineamide- $\beta$ -arsonic acid appears to act in a manner somewhat different from that of the usual spirocheticidal agents. While it does possess a considerable degree of spirocheticidal action, its chief effect is seen in the peculiar manner in which it modifies or controls the course of these infections.

**Changes in Testes in Pneumonia.**—Sixty cases were studied by Mills. Pneumonia was the cause of death in every instance, but in some cases it was the sole factor, while in others it was preceded by measles or epidemic influenza. The testicular changes in pneumonia are without clinical manifestations, are nonspecific, focal in character, independent of the infecting organisms or the antecedent disease, and vary in severity directly with the total length of the illness. The process is a continuous one, divisible into stages in which the following features are recognizable: (1) cessation of spermatogenesis; (2) degeneration of pre-formed spermatocytes, spermatids and spermatozoa; (3) desquamation of altered cells and fragments of the same; (4) formation of giant cells in the tubule walls with subsequent liberation into the lumen; (5) disappearance of all desquamated cells in all those derived from the spermatogonia by mitosis; (6) in some instances thickening of the hyaline layer of the basement membrane. The hemolytic streptococcus produced more extensive changes, both epithelial and interstitial, in primary pneumonia occurring during the measles epidemic than when pneumonia followed as a secondary infection; in the latter cases the pulmonary complica-

tions covered a relatively shorter period. Measles and epidemic influenza had little apparent effect on the testes, except that the former caused mild inhibition of spermatogenesis; evidence regarding the latter is inconclusive. The Pfeiffer bacillus was always associated with other organisms, in primary infections and in those following measles. It occurred alone in a few cases after epidemic influenza, but the testicular lesion was not distinctive. The pneumococcus when alone in primary infections or after an epidemic disease produced a uniformly mild picture which was not intensified when associated with the influenza bacillus. Giant cells were much more frequent after influenzal pneumonia, regardless of its cause and were associated with large numbers of other desquamated cells. They are formed in the walls of tubules by futile mitotic effort and incomplete protoplasmic separation, the abnormality of the process being further suggested by the early severing of cytoplasmic attachments and rapid desquamation.

**Kansas Medical Society Journal, Topeka**

November, 1919, 19, No. 11

- Postoperative Use of Radium (Heat. L. A. Sutter, Wichita.—p. 265
- Personal Experience with Gas in St. Michel and Argonne Meuse Drives. R. H. Meade, Kansas City, Mo.—p. 267.
- Treatment of Mental Diseases. K. A. Menninger, Topeka.—p. 271.

**New York Medical Journal**

Oct. 4, 1919, 110, No. 14

- "The Jest": The Destruction Wrought by Hate. S. E. Jelliffe and L. Brink, New York.—p. 573.
- \*Pneumonia and Empyema at Camp Dix. S. S. Leopold, Philadelphia.—p. 578.
- \*Multiple Neuritis of Toxic Infectious Origin. A. Gordon, Philadelphia.—p. 581.
- Plural Sympyema in Children. C. G. Cumston, Geneva, Switzerland.—p. 583.

**Empyema at Camp Dix.**—According to Leopold, the patients at Camp Dix who were suffering from empyema due to *Streptococcus hemolyticus* were operated on immediately on finding the organism in the pleural fluid. The operations were performed under local anesthesia. The mortality in this group of cases was 54 per cent. The average mortality among these cases in the national army cantonments was 30.2 per cent. The highest mortality reported was 84 per cent, in a series of eighty-five cases.

**Multiple Neuritis of Toxic Infectious Origin.**—Gordon analyzes seventeen cases. They followed infectious diseases: pneumonia, three cases; typhoid, five cases; measles, two cases; influenza, two cases, puerperal states, three cases. The author suggests that hepatic insufficiency might be responsible for the trouble. Gordon says that however plausible the infectious theory of multiple neuritis may be, hepatic insufficiency seems to form a strong basis even if the disease develops in the course of infectious processes. Moreover the clinical picture in such cases presents certain special features and with such a uniformity that polyneuritis with a hepatic etiology may be considered as a special entity.

**Philippine Journal of Science, Manila**

April 1919, 14, No. 4

- New or Newsworthy Philippine Plants, XV. L. D. Merrill, Manila.—p. 365

**Surgery, Gynecology and Obstetrics, Chicago**

November, 1919, 29, No. 11

- Strapping Hip; Report of Cases. J. Mayer, New York.—p. 41
- Penetrating Cheat Wounds. J. J. Lebowitz and W. H. Noyes, Chicago.—p. 429
- Gunsight Injuries of Lung and Chest. V. C. Davis and F. M. Murray, Chicago.—p. 435
- \*Rewection of Lung for Post-tubercular Abscess. H. E. Hurler, New York.—p. 443
- Surgical Pathology of Rupture. P. G. Stiller, Jr., Philadelphia.—p. 447
- \*Estimation of Fats, Cholesterol and Sugar in Blood of Third Trimester Pregnant Women. H. Schiller, Chicago.—p. 451
- Technic of Gallbladder and Common Duct Surgery. H. M. Reilly, Chicago.—p. 455
- \*Galgren's-Use Appropriate in Connection with Labor. Report of Case. J. F. Grattan, New York.—p. 457
- \*Progynon in Hyperthyroidism. A. E. Hedinger, Kansas City.—p. 463
- \*Surgical Treatment of Epitheliomas and Thyrotoxic Garter and Garter Reference to Bilateral Resection. S. M. MacLean, Worcester, Massachusetts.—p. 475

- \*Large Vesical Calculi.—Report of Case. E. C. Smith, Quebec.—p. 481.  
Uterus Bicornis Unicornis with Two Ova Implanted in One Horn and a Fibroid in the Other. E. I. Cornell and W. C. Earle, Chicago.—p. 485.
- Intussusception of Jejunum Associated with Two Pedicled Fibroadenomas. Report of Case. R. J. F. Uden, Chicago.—p. 489.
- Surgical Treatment of Infections of Knee Joint. H. W. Orr, Lincoln, Neb.—p. 492.
- Internal Piles. W. E. Miles, London, England.—p. 497.
- Permanent Cure of Inguinal and Femoral Hernia. G. P. Laroque, Richmond, Va.—p. 507.
- Suspension of Uterus with Strip of Fascia Lata in Treatment of Prolapse. I. Freeman, Denver.—p. 511.
- Penetrated Band in Fractures of Bone. A. W. Collins, San Francisco.—p. 511.
- Control of Hemorrhage in Tonsillectomies. W. R. Parkes, Evanston, Ill.—p. 515.
- \*Patella Splint. J. J. Reitenwald, Pittsburgh.—p. 516.

**Lung Abscess Following Tonsillectomy.**—About a week after removal of the tonsils Lilienthal's patient began to cough and expectorate foul sputum and occasionally blood. For days and even weeks at a time the patient felt fairly well and coughed but little. Then there would be an attack of fever, hemorrhage, emptying of the abscess, and much coughing with the discharge of large quantities of fetid pus. In the beginning of the illness, the pneumococcus was found in the sputum and autogenous vaccines were given with no apparent improvement; indeed, there was some hemoptysis after each injection. The roentgenogram showed that in the right chest, there was a cavity in the midclavicular line; an area of infiltration from the seventh to the ninth ribs (middle lobe) with a cavity about the size of a walnut; infiltration about 4 inches vertical by 3 inches horizontal. There was much infiltration into the lung tissue outside the zone of inflammatory reaction. The patient's condition went from bad to worse and finally Lilienthal removed the lower, middle and part of the upper lobe of the right lung. The man returned to his work, that of hospital secretary, July 16, 1917, exactly four months after his operation. When clothed, his figure looks symmetrical but there is considerable contraction of the right chest. The wound remained open for nearly a year longer, then gradually closed, but reopened once or twice and finally healed soundly.

**Fats, Cholesterol, Sugar in Blood of Pregnant Women.**—Schöller claims that there is no hyperglycemia in the later months of pregnancy or in the first two weeks after pregnancy. Glycosuria and alimentary glycosuria during this period can be explained by the activity of the glands of internal secretion or as a renal hyperfunction. Hyperlipemia in pregnancy is in reality for the most part a hyperglycemia. There is no parallelism between cholesteremia and hyperglycemia in pregnancy. The etiology of this condition is as yet not established. It seems that the endocrine glands are to be looked on as an important factor.

**Gangrenous Appendicitis and Labor.** Grattan cites the case of a young, vigorous woman, primipara, with a negative Wassermann, normal obstetric outlook and no complaints, in whom there was the simultaneous occurrence of early labor pains with abdominal symptoms, ending in the diagnosis and operation for appendicitis. A totally gangrenous appendix, with abscess and about to perforate was removed. This was followed by proctitis of a seropurulent character. A normally formed and developed full term baby and placenta were delivered. A state of apnea in the baby, lasting forty-one minutes, with good pulse was followed by a normal course of three hours. Apnea recurred with normal periods of breathing, finally ending in failure of the baby's heart action and death, one and one-half hours after delivery. The cause was probably toxic from the pus in the mother's appendix. There ensued postoperative complications in the mother, i. e., cardiac and renal failure, almost of fatal termination and undoubtedly of toxic origin from the appendix. A subsequent autopsy was an evidence of the effect of the toxemia on the liver function. Complete recovery followed without residual pulmonary opacities and with cardiac, renal or other residue of the complications and without invalidism of any kind.

**Prognosis in Hyperthyroidism.**—Hertzler points out that in hyperthyroidism the general tendency is toward recovery

and that many patients do recover spontaneously. Recovery may be expedited by judicious operations. The time for operation must be selected carefully and the operation chosen must be commensurate with the resistance of the patient. Above all, the operator must ever hold the fact before himself that his operations must be without mortality lest his therapeutic endeavors prove a greater menace than the disease. The young man is too apt to assume that whatever good follows his efforts must have come because of such efforts, and if disaster is averted, it must be because of his efforts.

**Exophthalmic and Thyrotoxic Goiter.**—MacLean has done bilateral resection in thirty-one cases of true exophthalmic goiter or in cases with positive symptoms of hyperthyroidism where both lobes of the thyroid were enlarged. There was no operative mortality in this series.

**Large Vesical Calculi.**—The calculus in Smith's case weighed 38.5 ounces (1,155 gm.) in the moist state. This did not include any of the flakes and fragments which were lost during the removal and which would have at least brought the total weight up to 40 ounces. It was ovoid, light brown in color, smooth and flaked easily. It measured 9.6 by 14.2 centimeters with a circumference of 36 centimeters. Its cut surface resembled the cross section of a tree, being built up of numerous, concentric, yellowish white lamellae about twenty in number. It was apparently of the same composition throughout, no distinct nucleus or foreign body being present. Chemical analysis showed urates, calcium oxalate and earthy phosphates. The urates were the predominating salts. Mucin was also present.

**Operation for Inguinal and Femoral Hernia.**—The method described by LaRoque is offered as a modification of the standard operative procedures employed for the cure of inguinal and femoral hernia. The entire operation is "open." The general peritoneal cavity is opened well above the hernia and exploration is made carefully. Enucleation and removal of the entire sac, including the redundant peritoneum in the region to a point well above the neck of the sac is surely and safely accomplished with the minimum amount of trauma to the cord and other structures in the region. The internal ring and beginning of the spermatic cord can be easily and adequately lifted upward and outward, thus certainly obliterating the internal ring and actually transplanting the proximal portion of the cord at its origin (both of which procedures are useful) rather than merely shifting only the middle or distal portion of the cord to an apparently changed location (the needfulness and permanency of which is questionable). Hernias which have been previously incompletely removed and in which the canal has been properly sutured (so-called recurrences) with a portion of the original sac and its neck remaining, may be cured completely with the least trauma to the cicatricial tissue following the previous operation and without the necessity of reopening a partially or completely obliterated canal.

**Suspension with Fascia Lata in Prolapse of Uterus.**—Freeman secures access to the uterus in the usual way. If the patient is still within the childbearing period, she must be sterilized, best by ligation of the severed tubes with silk, dividing them, and perhaps folding the severed ends on themselves. A strip of fascia lata, about 6 inches in length and three-fourths inch in width, is then obtained from the outer side of one of the thighs. The uterus is held firmly while a closed pair of small, sharp pointed, curved hemostatic forceps is plunged from one side to the other directly through the substance of the uterus close beneath the peritoneum covering the fundus, but not penetrating into the cavity. The forceps should be entered just internal to the attachment of one of the tubes and brought out at a corresponding point on the opposite side, although if the organ is large it may be well to tunnel it somewhat more anteriorly in order to prevent undue pressure on the bladder when the uterus is suspended from the tendons of the recti muscles. The strip of fascia is then dragged through so that its center rests in the middle of the tunnel and its loose ends project from either side. Catgut stitches are inserted to close the openings of the tunnel, thus preventing oozing and holding the

fascia in place. The ends of the fascia are secured around the tendinous insertions of the recti muscles in order to bind the fundus of the uterus securely and closely to the anterior abdominal wall. This is accomplished first by stripping back the anterior sheaths of the muscles for a short distance above the pubes, so as to uncover the tendons, and plunging through these and the underlying peritoneum from without inward, a pair of pointed hemostatic forceps with which the ends of the fascial strip are seized and dragged into place, one on either side of the abdominal incision. After the peritoneum is closed, the ends of the fascial strip, which have been retained in forceps to prevent retraction, are pulled tight enough to hold the uterus firmly against the abdominal wall and are then crossed over the median line, best by tying them in a half knot, and stitched securely to each other in several places by means of chromic gut so that they cannot slip. The wound is then closed in layers. Additional security against slipping may be obtained by catching the ends of the suspending fascia in the bight of a figure of eight silkworm-gut suture used in closing the abdominal incision.

**Fenestrated Band in Fractures of Bone.**—Collins describes a new metal band consisting of an alloy of nickel and silver which he has used in operations on lone fractures.

**Patella Splint.**—The appliance used by Rectenwald consists of thin leather straps and felt pads held in place by a mixture of tallow (1 dram) and burgundy pitch (3 ounces).

FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

October, 1919, 21, No. 5

- Mode of Spread of Cancer in Relation to Its Treatment by Radiation. W. S. Handley.—p. 137.
- Lymphosarcoma Treated by Radium. D. Turner.—p. 154.
- Roentgenologic Examination of Liver, Gallbladder and Bile Ducts. R. Knox.—p. 156.
- Importance of Radiologic Examination of Inferior Surface of Liver. R. Ledoux-Lebard.—p. 162.

Dublin Journal of Medical Science

October, 1919, Third Series, No. 574

- Importance of Relativity between Physiologic Facts. E. Wootton.—p. 129.
- Ductless Glands. G. H. Davis.—p. 137.

Glasgow Medical Journal

November, 1919, 10, No. 5

- \*Syphilis of Circulatory System. I. MacKenzie.—p. 209.
- \*Role of Fat in Etiology of Infantile Marasmus. H. S. Hutchison. p. 227.
- With the 1/1st Lowland Field Ambulance in Gallipoli. G. H. Edington.—p. 238.

**Syphilis of Circulatory System.**—MacKenzie says that cerebral arteritis (or meningitis) of the late secondary stage should be treated with arsphenamin, beginning with 0.1 gm. and gradually increased to 0.4 gm. until a total of 3 or 4 gm. has been given. Mercury should also be given, and the result controlled by examination of the blood and cerebrospinal fluid. Late cerebral arteritis (chronic meningitis) should be treated by the initial administration of mercury and iodids for a fortnight, to be followed by gradually increasing doses of arsphenamin, the mercury and iodids to be continued meanwhile, and the results controlled by examination of the blood and cerebrospinal fluid. The greatest precaution must be observed in the treatment of arteritis and its coronary and myocardial complications. Preliminary measures of a hygienic and dietetic character must be taken before having recourse to the administration of arsphenamin. The general condition of the patient must be such as to preclude the possibility of circulatory failure incidental to the vasomotor disturbances which occasionally follow arsphenamin injection. The efficiency of the circulation must be restored to as great an extent as is compatible with the nature of the lesions. Iodid and mercury should be administered orally for a period of a fortnight, and, following this, an injection of 0.1 gm. of arsphenamin may be given

This should be repeated every three days for a fortnight, when the dose may be increased to 0.2 gm. In no case should more than 0.2 gm. be given at a time. Careful observation should be made to note the possible advent of a vasomotor reaction during the injection. This is heralded by a change in the quality of the pulse, which takes on a bounding character and increases in rapidity, and also by a flushing of the face. If any of these phenomena appear, injections should be stopped immediately. The accessory treatment employed in cardiac syphilis with coronary disease, aortic regurgitation, or angina should be continued. Varicose ulcers or chronic phlebitis of the later stages should be treated with arsphenamin and mercury in the ordinary way. In a case of chronic varicose ulcer, excellent results are obtained from the local application of gauze soaked in a 1 in 30 solution of alkalinized arsphenamin. This may be alternated with the local application of fresh human serum applied in the same way.

**Etiology of Infantile Marasmus.**—In Hutchison's opinion there is no evidence to show that in infantile marasmus a defective absorption of fat is a factor in its causation either through imperfect digestion, passage of unduly large motions, or through a defect in the absorptive capacity of the bowel wall. Saponification of fats does not lead to loss of fat through defective absorption. A high percentage of insoluble soaps in the feces fat simply upsets the soap-fatty acid balance, and since the insoluble soaps possess feeble hydrophilic properties, constipation results. The iodine value of the feces fat is lower than in health, and this suggests that in marasmus there may be a qualitative error in absorption rather than a quantitative one. The alkaline reserve of the blood in marasmus is lower than in health, but the diminution is small, and does not suggest an acidosis of any consequence. There is no evidence that there is a lower alkaline reserve on a whole milk diet than on a weak fat milk, so that apparently in marasmus there is not an incomplete metabolism of fat.

Indian Medical Gazette, Calcutta

October, 1919, 54, No. 10

- Prevalence of Malaria and Anopheline Mosquitoes and Measures Recommended for Prevention of Malaria in Mercara. E. H. Wright. p. 361.
- Maternity and Child Welfare. B. N. Ghosh.—p. 365.
- Schistosomiasis in India. F. Milton.—p. 368.
- Fly Proof Laitrine Seat for Indians. W. R. J. Scroggie.—p. 370.
- \*Influence of 1:1000 Platinum Solution on Pneumonic Infections. B. N. Anklesaria.—p. 372.
- Kala-Azar Treated in the Nowgong Earle Hospital, Assam, Since 1917. S. S. Kundu.—p. 376.
- Six Cases of Kolra Poisoning. D. J. Asana.—p. 379.

**Use of Platinum Chlorid in Pneumonia.** Anklesaria has made use of a 0.1 per cent solution of platinum chlorid in 5 minims doses, in combination with Burney Yeo's effervescent quinin mixture, every four to six hours, in the treatment of pneumonia. He claims to have had very good results. The effect in some instances was really very striking. Within twelve hours of the treatment a noticeable change for the better was observed. He has also used quinin in a somewhat different form and manner. An ounce of good quinin is well rubbed with an equal quantity of powdered carbonate of ammonia. The powder is then made into a paste with an ounce of liquor ammonia and set aside for an hour. Absolute alcohol, 4 ounces, is now added to the paste and the solution is filtered. The filtrate thus obtained is added to a pound of aromatic spirits of ammonia (B. P.). The clear mixture is labeled mixture of quinin carbonate, I 20. It is prescribed as follows:

	Gm or Cc	
℞ Solut bicarbonatis	4	5 j
Mist quinniae carbonatis	8	5 ij
Vinopiperaurinae	2	5 iij
Syrup auridi	4	5 iij
Aquar. arisi	10	5 iij
M. Ft. misturam		
Sig. One ounce every four to six hours.		

To the mixture for an adult, 10 minims of a 1:1000 platinum chlorid solution are added on the first day, 7.5 minims on the second day, 5 minims on the third day also on the fourth day if necessary, and then it is continued in 3 or 5 minim doses until recovery.

## Journal of Laryngology, Rhinology and Otology, London

November, 1919, No. 11

- Case of Infection of Lacrimal Sacs, Maxillary Antrums, Pharynx, Tonsils, Mouth and Parotid Glands Caused by *Histoplasma Albicans* (Thrush Organism). W. H. Brownie—p. 435.  
Complications in Chronic Middle Ear Suppurations. J. S. Frazer, and W. T. Garretson—p. 432.  
Pharyngeal Diverticulum, Two Cases. W. H. Kelson—p. 444.

## Lancet, London

Nov. 8, 1919, No. 5199

- \*Acute Dysentery from Point of View of Microscopic Diagnosis. H. A. Haig—p. 825.  
\*Mechanism of Immunization with Special Reference to Lipase. J. A. Saw Mackenzie—p. 825.  
\*Picric-Brass Preparations in Treatment of Lupus. H. A. Ellis. 1-837.  
Case of Tripanosoma Rhodesiense Infection with Recovery. C. W. Daniels and H. B. Newham—p. 839.  
Chloroma Spreading Mastoid Disease. E. C. Lewis—p. 830.

**Microscopic Diagnosis of Amebic Dysentery.** For the fixation and staining of amebae, motile and encysted, Haig makes thin smears from the fresh stool, selecting, where present, a portion containing mucus and blood, on cover slips, and floated, without drying, smear downward, on the following fixing solution, corrosive sublimate (saturated aqueous solution) 2 parts; absolute alcohol, 1 part. Fixation is complete in about thirty minutes. The smears are then placed thin upward in iodized alcohol in order to remove the last traces of sublimate, washed in distilled water, and then stained as follows: (1) Soak for several hours in a 4 per cent. solution of iron alum (made with violet crystals); (2) wash in distilled water; (3) stain in Heidenhain's hematoxylin for several hours (or over night); (4) wash in distilled water; (5) place in 1 per cent iron-alum solution until decolorization has reached a satisfactory stage; (6) wash in distilled water and counter stain with 5 per cent. aqueous eosin solution; dehydrate through the alcohols, clear in xylol, and mount on a slide in Canada balsam.

**Mechanism of Immunization.**—Mackenzie claims that the addition of pancreatic coenzyme and of vaccine to serum or blood *in vitro* exerts a lyolytic action. The serum so treated has bactericidal properties. The resulting tissue lipolysis in the case of vaccine appears in certain details to be different from pancreatic lipolysis. Preliminary experiments indicate that serum (autoserum) diluted and heated in which the coenzyme or coenzymes of the serum are present activates in a similar way the inactive prolipase of fresh serum. It induced tissue lipolysis an explanation in part is afforded of natural and therapeutic immunization.

**Picric-Brass in Treatment of Lupus.**—Ellis now uses a saturated solution of picric in sulphuric acid. This is made by adding picric acid to sulphuric acid and raising to a temperature of 100 C., a subsequent addition of 1 per cent. picric being made. The combination has been named sulphuric picric. The amount of picric acid taken up is about 2 per cent., and the liquid does not show the presence of free picric acid. Ellis claims that its power of selection of tissue for tissue is immediately apparent on application, and that the more force is deeper and more extended than is the case in the picric brass preparations. (See also THE JOURNAL, April 16, 1919, p. 1191.)

## Bulletin de l'Académie de Médecine, Paris

Oct. 15, 1919, No. 1

- \*Hypertension Arteriale. L. Martin—p. 17.  
\*L'Action de l'Acide Sulfurique. L. Legrand—p. 181.  
\*Sérum Remède de Wessely. J. Bourgaud—p. 183.  
\*L'Étiologie Gécrite. Cause de Sterilité. R. Blondel—p. 185.  
\*L'Étiologie de l'Aviation. Georges Ferry—p. 188.  
\*Émission des Doses de Radiant Energy. H. Guilleminot—p. 191.

**Twenty-Five Years of Diphtheria Antitoxin.**—Martin analyzes the records in regard to the prevalence and mortality of diphtheria since the introduction of antitoxin in 1894. The highest known death rate per hundred thousand inhabitants, before that, he says, was 200 at Berlin in 1893; next at Paris, 100 in 1882. Since then Paris has never gone as high as 27.7 except in the year 1901, and the average every-

where has been below 20, and often below 10. The improvement has been progressive and continuous. "Would that other diseases might soon profit in the same way," he exclaims, "by this fruitful union of the bacteriologist and the practitioner."

**Improved Technic for Cultivation of Anaerobes.**—Lignières calls attention to the advantages of a semiliquid culture medium for cultivating anaerobes, a soft, tremulous jelly made by adding only 0.25 per cent. gelose to the bouillon. He calls it "quarter gelose," and inoculates it with the germs from a pipet as usual. In addition to the ordinary solid and fluid culture mediums we now have the semiliquid, which affords the complete response to our queries.

**Operative Correction of Wrinkles.**—A method of taking up a fold in the skin in the shadow of the hair, etc., to smooth out wrinkles was described in these columns, July 5, 1919, p. 70. Bourquet gives the details of the principles here, but no illustrations.

**Hyperthyroidism as Responsible for Sterility.**—Blondel comments on the prevalence during the war of the emotional factors known to cooperate in the production of exophthalmic goiter, and remarks that he has not been surprised to find hyperthyroidism much more prevalent now than in former years, especially in women. Any one of the main symptoms, the exophthalmos, the tachycardia, tremor or goiter, may alone reveal the excessive functioning of the thyroid, and explain any one of numerous trophic and other changes. Chief among these he has noticed a decrease in the size of the uterus. This atrophy of the uterus is possibly the explanation of sterility in certain cases, and as such the causal hyperthyroidism should be combated. There are several ways of doing this, raying the thyroid, injecting serum from thyroidectomized animals, thymus treatment, and other means.

He prefers thymus treatment, and has been using it for years as the routine treatment in exophthalmic goiter. He gives half of a raw thymus from a lamb, chopped and mixed with a little flour, salt and butter to make small balls that are mixed with soup as it is eaten. Subcutaneous injection of the extract is more active, but less convenient for the patient. Thymus treatment is logical, he reiterates, on account of the antagonism between the thymus and thyroid, and years of experience have proved the soundness of these premises. He warns in conclusion that we must be wary in giving iodine in cases of amenorrhoea or we may whip up an incipient exophthalmic goiter. The thymus treatment in these cases of sterility might be supplemented by massage of the uterus and dilatation with laminaria for three or four days, each month or two months. The pathologic condition does not seem to be able to right itself spontaneously but with this treatment perseveringly carried out good results were obtained in the majority of his cases.

**Influence of Repose on the Blood Pressure of Army Aviators.**—Ferry explains the two main phases of aviators' asthenia, and comments on the depressing and sclerosis-inducing action on the human organism of aviation, and on means to stave this off as long as possible by rest, diuretics, epinephrin, and heart tonics.

**Calculation for Doses of Radiant Energy.**—Guilleminot gives the mathematical expressions for the penetrating power of the roentgen rays.

## Bulletin Médical, Paris

Oct. 4 and 11, 1919, 33, Nos. 42-43

- \*Curability of Renal Tuberculosis. F. Cathelin—p. 555.  
\*Traumatism of the Wrist. Jeanne and A. Mouchet—p. 567.

**Curability of Renal Tuberculosis.**—Cathelin discusses whether there is a possibility that the tuberculous processes in the kidneys which surgeons remove might have healed under medical measures alone. The intense cystitis is the sign of surgical renal tuberculosis, and it is no more possible to cure this by medical measures alone than the lesions in the kidney above. He defies any one to find a single specimen of kidneys preserved in the museum of the Hôpital d'urologie in which any medical treatment could have offered

any chance of a cure. The medical cases, he reaffirms, are those with lesions in both kidneys, with pyuria and bad general condition. "Medical," here, means only "Bilateral: Hands off," whatever the anatomic form may be. Study of the physiology and the chemistry of the kidney will bring further progress; the pathologic anatomy is of little moment as the tuberculous process is single, although we encounter it in different phases.

**Mechanism of Traumatism of the Wrist.**—Jeanne and Mouchet illustrate the exact mechanism of the different ways in which the wrist may become dislocated or fractured. This gives the clue to treatment in each case. See review in Paris Letter, p. 1625.

**Bulletins de la Société Médicale des Hôpitaux, Paris**

Oct. 10, 1919, 43, No. 27

- Prevalence of Acute Anginas. Courcoux and J. Lermoyez.—p. 794
- Emetin with Biharrizosis of Bladder. Collignon and Monziols.—p. 796
- \*Differential Auscultation. L. Azoulay.—p. 797
- Sensory Disturbances in Case of Cerebellopontine Angle Tumor. P. Marie, C. Chatelin and H. Bouttier.—p. 800
- \*Alcohol in Cerebrospinal Fluid. E. Lenoble and F. Daniel.—p. 804 and p. 809.

**Differential Auscultation.**—Azoulay remarks that bifocal auscultation seems to be almost unknown in France although it has long been practiced in the United States but has never been utilized to the full, he thinks. The lumen of the stethoscope is too narrow, as a rule, and he has found that it works best in connection with a telephonist's headpiece. Changes of attitude may facilitate the examination.

**Alcohol in the Cerebrospinal Fluid.**—In this fifth communication on this subject, Lenoble and Daniel report that tests on eight persons demonstrated that exactly 325 gm. of absolute alcohol must be ingested before any appears in the cerebrospinal fluid. It appears first in the urine, and disappears early here. The subjects were in the hospital for white swelling, pulmonary emphysema or other chronic pathologic condition, and the alcohol was given in wine or rum. They describe further five cases in which the alcohol found in the cerebrospinal fluid gave the clue to the diagnosis. In three cases this demonstrated that the alcohol had been responsible for the fatal cerebral hemorrhage, and testified further that at least 325 c.c. of alcohol had been ingested. In another case it proved that irregular epileptiform seizures and acts of impulsive violence which had been ascribed to the underlying epilepsy were in reality the consequences of alcohol intoxication. This case suggests the necessity for revision of certain phenomena which we now attribute to petit mal. In the fifth case, mental impairment and tendency to ataxia in the man of 54 were explained by the alcohol found in the lumbar puncture fluid during eighteen days. When it finally disappeared from the fluid, all the symptoms subsided also, and the diagnosis was clear for the first time.

**Journal de Médecine de Bordeaux**

Oct. 25, 1919, 90, No. 20

- \*Deformity from Fracture of Pelvis. J. Ardierpatis.—p. 423.
- \*Intermittent Claudication. Cornet.—p. 427.
- \*Torsion of Spermatic Cord. F. Papin.—p. 429.
- \*Pathologic Modification of Pupil Reflexes. Cabannes.—p. 431
- Electric Alarm Bell System for Control of Actual Death in Cemetery Watch Station. J. Peyrol.—p. 434

**Deformity from Fractured Pelvis.**—Andréolias relates that cesarean section was done just as labor began, with complete success, although the left side of the pelvis was reduced in size by at least a half from the old fracture.

**Intermittent Claudication.**—Cornet's patient was a woman of 75 with renal sclerosis and intensely painful arteritis of the tihalis posticus. An elastic band was thrown around the thigh at the upper third to relieve the pain, which it accomplished at once. The constriction was not tight enough to arrest the pulse in the dorsal artery in the foot; it was kept up for two hours and repeated twice the next day. The intermittent claudication had been rapidly progressive, and the edema, hypo-esthesia, hypothermia and some purpuric patches indicated obliteration of the vessel. But the imme-

diately subsidence of the pain and edema and the retrogression of the entire syndrome seemed to indicate merely spasm of the artery, on a basis of arteriosclerosis.

**Torsion of Spermatic Cord.**—Papin reports two cases. In one the torsion was of the recurring form with occasional attacks of pain and abdominal reflex phenomena. In Lapointe's compilation of thirty-seven cases, seven were of this recurring form. In two thirds of the cases in which the pedicle was untwisted and the testicle left unmolested, supuration compelled its removal later. The infection responsible for this may have been blood borne, or from the usually coexistent hernia, or the operation may not have been aseptic, the damaged testicle being defenseless against germs that a sound organ would speedily master.

**Modification of the Pupil Reflexes.**—Cabannes discusses reflex pupil anomalies in one or both eyes, especially non-talctic anomalies.

**Journal de Radiologie et d'Electrologie, Paris**

October, 1919, 3, No. 9

- \*Increase in Outline of Heart on Reclining. H. Dausset.—p. 385.
- \*Tubes for Roentgen Work. F. Arcein.—p. 389.
- \*Roentgenologic Signs of Abscess in Liver. J. Colanéri.—p. 395.
- \*The Electric Reactions in Tetanus. R. Gauducheau.—p. 403.
- \*Gage for Radium Emanations. A. Laborle.—p. 408.
- \*Roentgenology of Pyloric and Duodenal Ulcer. Laquerrière and Jeandel.—p. 410.
- Roentgenogram of Horseshoe Kidney. N. Voorhoeve.—p. 414.
- \*Roentgenotherapy in Paget's Disease. G. Haret.—p. 416.
- \*Movements of Luminous Particles in Gas. H. Guilleminot.—p. 419.

**Change in Outline of Heart in Different Positions.**—Dausset calls attention in particular to the increase in the area of dullness over the heart when the subject reclines. He found that the heart spread out in this way in twenty-two of fifty men examined while twenty-five showed no change. These were the strong and robust; men with flabby muscles and not breathing with normal force were more apt than others to show this spreading out of the heart area. In some, only a certain part of the heart spread out in this way, which may prove useful in differential diagnosis. The outline of the area may increase by as much as 30 sq. cm.

**Tubes for Roentgen Work.**—Arcein analyzes some of the phenomena presented by the tubes in instantaneous radiography with his timing record. They may throw new light on the composition of the rays. He remarks in conclusion that the size of the zone of impact is an important factor in the results. For radiotherapy, the zone of impact should be large, to generate and diffuse heat, but in seeking for a minute foreign body, in the eye for instance, the smaller the zone of impact the better. It might be well to ask dealers to specify the size of the zone of impact when buying a tube.

**Roentgenologic Signs of Abscess in the Liver.**—Colanéri shows by six illustrations the presumptive signs of an abscess in the liver. He classifies them as static or radiographic, and functional or radioscopic signs.

**The Electric Reactions in Tetanus.**—Gauducheau records the findings with electric tests applied to muscles and nerve in a man who had quite recovered from tetanus, and in a second man just entered on convalescence. The response were still far from normal.

**Table for Radium Exposures.**—Laborle publishes a long table for ready reference and comparison for doses and duration of exposures to radium emanations in closed tubes.

**Radiologic Findings After Operative Treatment of Gastric and Duodenal Ulcer.**—The numerous roentgenograms reproduced confirm the satisfactory outcome when the pylorus has been excluded by throwing a ligature around the stomach above the lesion, after the gastro-enterostomy has been concluded. Although the peristaltic waves are arrested by the ligature, yet they have not shown any lack of vigor during the nearly two years since.

**Roentgenotherapy in Paget's Disease.**—Haret relates the clinical cure by raying of Paget's disease of the nipple in a woman of 70. He has now two cases in which the clinical cure dates from nine to ten years, and one from six years, while two cases are still improving under treatment. These facts justify a more optimistic view of this disease.

**The Movements of the Luminous Particles in Gases.**—Gaullemont describes experimental confirmation of the kinetic theory of heat, commenting on the special interest this has for radiologists.

### Journal d'Urologie, Paris

Oct. 1-7, 1919, 8, N. 4

- \* Ascending Urethritis.—Rochet—p. 187.
- \* Hydronephrisis Revealed by Trauma.—Aymes and Delord—p. 285.
- \* Incontinence with Renal Tuberculosis.—G. Constantinesco—p. 291.
- \* Microscopic Examination in Urologic Cases.—M. Vivier—p. 295.

**Ascending Urethritis.**—Rochet has been studying on dogs, rabbits and guinea-pigs infectious processes in the lower urinary passages with intact or only slightly involved kidneys. The findings confirm his clinical experience that infection may spread upward, favored by some retention or chronic congestion of the ureter from some focus nearby, or by direct trauma of the ureter from a calculus or catheter. The ascending infection is less grave than the descending, if it can be arrested in time by curing the cystitis, correcting retention and disinfecting the whole tract and rendering it freely permeable throughout. Some minor operation may be necessary for this, to remove constricting bands, etc., as in a case described in a young woman. She had been having for two years attacks of pain in the right ureter region, and the catheter showed pyuria in the lower segment while urine from the pelvis was normal. There was a history of occasional brief mild cystitis; only the colon bacillus and diplococcus could be cultivated from the urine. The exposed ureter was found dilated in the lower half, and embedded in a thick fibrous sheath although the ureter walls were supple. The ureter was merely freed from this adherent sheath, and the clinical cure has been complete during the nine months to date. Rochet has found that an oily or fat vehicle for disinfection of the urinary passages clings longer to the walls and is more effectual than an aqueous solution of the disinfectant. He is now testing the application to the flures of the bladder of substances that may generate gas or fumes that can find their way spontaneously into the ureters, iodin, hydrogen dioxide or formaldehyd, for example.

**Hydronephrisis Revealed by Trauma.**—The hydronephrisis in the boy of 12 developed in about five days after the fall on the abdomen, and 3 liters of blood-stained urine were found in the kidney. In the eighteen similar cases on record the average interval was three or four weeks, but in some cases it was several years. The operation in this case the fifth day demonstrated beyond question that the hydronephrisis was of long standing, and that the trauma had merely exacerbated and revealed it. The boy's girth had always been rather large.

**Incontinence of Urine in Renal Tuberculosis.**—This is Constantinesco's second communication on this subject, and he now relates that nocturnal incontinence of urine was the first symptom to bring the patient to the physician in two of a recent series of twenty-eight cases of renal tuberculosis. These two patients were 15 and 17 years old, and the incontinence had followed a period of increased frequency of micturition.

**Microscopic Examination in Urologic Cases.**—Two colored slides are used in this concluding instalment of Vivier's work. He warns that microscopic examination is instructive only when the urine is fresh and clean, and that there is no possibility of error otherwise. The best plan is to send the patient home to the laboratory.

### Paris Médical

Oct. 18, 1919, 9, N. 42

- \* Wounds in Both Chest and Abdomen.—Schwartz and Quénu—p. 301.
- \* Treatment of Tuberculosis of the Uterus.—P. Nolle—p. 305.
- \* Ocular Tuberculosis for Treatment.—Jouin, J. Jaubert—p. 311.

**Wounds Involving Both Chest and Abdomen.**—Schwartz published in 1912 a study of injury of the diaphragm from gunshot or stab wounds, and he here brings the subject down to date with the ample experience of the war. The incision he advocates and illustrates was described recently, page 1315, as used for diaphragmatic hernia.

**Chronic Tuberculous Endocarditis.**—The boy of 13 whose case is described by Nohécourt has chronic endocarditis although he has never had acute rheumatism, chorea or scarlet fever, but he shows numerous local tuberculous lesions, caries of the spine, spina ventosa, tuberculous abscess, tracheobronchial glandular lesions and mediastinitis. The boy is thus *un tuberculeux et un cardiaque*, and treatment and prognosis have to be heard this in mind.

**To Combine Orthopedic Treatment and Heliotherapy.**—Jaubert refers to tuberculous joint disease, and shows the different casts, splints, beds, etc., which ensure immobilization while permitting ample exposure to the sun. Hinged plaster casts can be removed during the exposures, and he describes the technic for making very thin light casts with celluloid or plaster and glue.

### Presse Médicale, Paris

Oct. 18, 1919, 27, N. 60

- \* Treatment of Intolerance for Milk.—E. Weill—p. 601.

**To Cure Infants of Intolerance for Milk.**—Weill relates that in the last six months he has had thirty breast-fed infants and eleven partly breast fed who all presented digestive disturbances for which no infection nor intoxication could be incriminated, and no lesion of any kind could be found. He reasoned that these digestive disturbances must be a manifestation of anaphylaxis, and he sought to combat them by antianaphylaxis, that is, by subcutaneous injection of milk. The favorable results surpassed all his anticipations. This vaccination is specific; human milk vaccinates against breast milk alone, and cow's milk against cow's milk. The infants given the injection six months ago have had no relapses and have developed normally since. He describes eight cases to show the different types of disturbances from intolerance of milk in infants without organic lesions. Some vomit soon or late after most of the feedings, and the milk may be quite fluid; some have a higher number of stools. They are greenish and accompanied with chafing. Or there may be tenacious constipation. These digestive disturbances are usually associated with nervousness. The babe often screams after feeding as if suffering, until it vomits. It is restless, starts at the slightest sound, stiffens in its mother's arms, and is hard to get to sleep, but there is no fever and the general condition keeps good. Eczema or impetigo may be observed, but no eruptions suggesting anaphylaxis. Change to another milk or food or certain drugs may correct the disturbances, but only transiently; the latter return sooner or later. The best results have been obtained when milk was dropped entirely, but infants are unable to thrive in the long run without milk.

In some of his cases the intolerance for breast milk was apparent from birth; in others, not until a month or two later. One previously healthy infant developed them at the age of 1 month when the mother had a plegmon. Intercurrent disease in either the babe or the mother may modify the milk or the digestion so that this intolerance may become manifest at any time. The identity of symptoms and of the therapeutic influence of the subcutaneous injection of the specific milk shows the common basis for the primary and secondary intolerance. He injects the milk in the flank as a rule. With cow's milk, there is a rise in temperature for a few hours but not with the milk from the nursing woman. In two cases a reinjection induced slight shock for ten or fifteen minutes, the extremities growing cold. The breast milk can be injected raw, boiled, or heated to 110 C.; cow's milk should be boiled or heated to 110 C. for twenty minutes. The dose of 5 or 10 c.c. seems to be best. If the improvement is not pronounced, he makes a second or third injection, proceeding always by the Besredka progressive method, first 0.5 c.c., then 2 c.c. an hour later and not until after three hours the full dose of 5 or 10 c.c. In one case severe laryngospasm in an infant of 12 months seemed to be arrested by less than 1 c.c. of the milk injected twice. Weill is now trying this antianaphylaxis in cases of congenital vomiting, injecting both the mother and the infant with the mother's milk.

Oct. 22, 1919, 27, No. 61

\*Surgery of the Large Intestine. J. Okinczyk.—p. 613.  
\*Sodium Cacodylate in Relapsing Fever. J. L. Peyron.—p. 615

**Artificial Anus.**—In this instalment of his article on the surgery of the large intestine, Okinczyk gives an illustrated description of the technic for making and for correcting an artificial anus.

Oct. 25, 1919, 27, No. 62

\*Syphilis of the Stomach. R. Bensaude and L. Rivet.—p. 621.

**Syphilis of the Stomach.**—Bensaude and Rivet review the manifold forms in which syphilis may manifest itself in the stomach, describing with the roentgenologic findings a number of typical cases. There are no pathognomonic symptoms, but when everything else can be excluded, syphilis can generally be accepted, as also when there is multiple localization, as in esophagus and stomach, or the skiagram is unusual. A vigorous course of arsenical treatment improves the general condition whatever the cause, as a rule, but in syphilis the local lesion shows marked improvement besides. By this twofold effect they were able to differentiate and cure the syphilis in ten recent cases. This drug test is most instructive when it has been preceded by failure of dieting and the other ordinary measures for treating stomach derangement. Iodin and mercury by the mouth are usually well borne in case of gastric syphilis, while lesions of other kinds are aggravated by them. Stenosis once installed is scarcely amenable to any medical treatment, but before this stage is reached there is no pathologic condition which yields such brilliant therapeutic successes as gastric syphilis.

**Progrès Médical, Paris**

Sept. 20, 1919, 34, No. 38

\*Primary Suture for Skull Wounds. E. Chauvin.—p. 371.  
\*Roentgenology of Tuberculosis. L. Ribadeu Dumas.—p. 373.  
\*Ether in Treatment of Tetanus. Audrain.—p. 376.  
\*Vaccine Therapy of Typhoid. P. LaFosse.—p. 377.  
\*Breech Presentation. H. Vignes.—p. 378.

**Primary Suture After Wounds of the Brain.**—Chauvin reports eighteen cases with thirteen healing by primary intention after primary suture. The outcome is not known in the other cases or they are still under treatment; only one was still wearing the drain when discharged. He sutured without draining only in four cases, but he never left the drain in place for over three days.

**Early Diagnosis of Tuberculosis.**—Ribadeu-Dumas expatiates on the valuable aid from roentgenology in detecting incipient tuberculosis. It not only locates the focus in the lung but shows up the diseased mediastinal glands which are the most evident tuberculous lesions in children.

**Ether in Treatment of Tetanus.**—Audrain states that the benefit from intramuscular injection of ether in whooping cough inspired him to treat tetanus by inhalation of ether. The amount was not enough to put the patient to sleep. The patient held the mask himself and the ether was given, 60 c.c. morning and night, by the drop or teaspoonful. Seven patients thus treated recovered, but the eighth died the tenth day with asystole for which chlorin impurities in the ether were probably responsible.

**Vaccine Therapy in Typhoid.**—LaFosse gave Besredka's sensitized vaccine in 62 cases of typhoid; all recovered except 12. The prompt cure under the vaccine was striking in 24, the course was protracted in 12, and 10 developed complications and 4 had a relapse.

**Breech Presentation.**—Vignes discusses some recent publications on this subject.

**Revue Franc. de Gynécologie et d'Obstét., Paris**

August, 1919, 44, No. 8

\*The Justomnor Pelvis. L. Demelin.—p. 270.  
\*Erosions of Uterine Cervix. D. Christides.—p. 287.  
\*Premonitory Signs of Eclampsia. A. Van Cauwenbergh.—p. 294.  
\*Hydrasarcoma from Fibroma in Uterus. J. Doyerey.—p. 302.  
\*Inversion of Puerperal Uterus. A. Grosse and Collet.—p. 305

**The Justomnor Pelvis.**—Demelin applies this term to the pelvis that is too narrow in an otherwise well formed woman. It may be of the adult type but unduly small or it may be

of the infantile, funnel shape. The hips are narrow, the diameter from crest to crest is only 24 or 25 cm. instead of the normal 27 or 28, and the diameter from spine to spine only 18 to 21 cm. Menstruation is usually late, and some endocrine disturbance is responsible for this and for the premature junction of the epiphyses or primary points of ossification which arrests the growth of the pelvis, just as premature occlusion of the fontanelles arrests the growth of the skull. The accoucheur should be warned by the external measurements of the pelvis, roentgenography, etc. Premature delivery at the eighth month is advocated by some, but this has more drawbacks than advantages. If the conjugate diameter is 9 cm. or less, cesarean section at term is far preferable. Forceps is better than version if delivery by the natural route is attempted; the head should be in the oblique diameter and convergent forceps chosen. The difficulty increases with the progress of labor with this type of pelvis.

**Erosions of the Uterine Cervix.**—Christides extols the advantages of Filhos' paste as a caustic but nontoxic treatment for erosions of the cervix. Its former vogue died out on account of the difficulty of applying it, but he has conquered these difficulties and describes seven cases in detail to show its superiority to other methods of treatment in old rebellious cases when operative measures are refused. The caustic of Filhos is a mixture of caustic potash and quicklime in alcohol, in pencil form. Aubert has also reported excellent results in fifty cases. The caustic is applied with special forceps to the erosion and is held there until this mucosa turns black and oozes. This takes only two or three minutes at most. The surface is then wiped off and tamponed with medicated gauze. Two vaginal douches are given daily and the application is repeated when the eschar has dropped. From two to four applications are the maximum.

**Premonitory Signs of Eclampsia.**—Van Cauwenbergh writes from Ghent to comment on the frequency of eclampsia recently and the scarcity of warning symptoms from it. The urine was often apparently normal, but eclampsia was most common when there had been digestive disturbances, uncontrollable vomiting in particular. In suspicious cases, venesection may be useful, or at least the natural losses of blood should not be combated before an amount of blood equivalent to a venesection has been lost. Hence pituitary treatment is contraindicated. In one of the five cases of eclampsia reported in detail, a primipara of 18 had had actually no symptoms, except a little pain in the stomach, when the eclampsia developed. In another case, except for two periods of vomiting, early and late in the pregnancy, conditions were normal, but the young woman died in a convulsion. Another woman had a rapid delivery after pituitary extract had been given on account of the complete inertia of the uterus after labor had commenced, accompanied by frequent vomiting. Delivery was rapid but the uterus kept contracted for forty-eight hours, and there was scarcely any blood lost. Thirteen hours later cramps in the stomach developed, followed in four hours by convulsions and coma, but the woman recovered. In two previous pregnancies there had been vomiting but no eclampsia. In this latest delivery, the pituitary extract had locked up the uterus so there was not the usual loss of blood, thus depriving the woman of this safety vent, and tipping the scale in favor of eclampsia. The intense contractions which it induces may also tend to bring on convulsions. In the fifth case described there was no albuminuria but during labor there were headaches and disturbance in vision and a little edema in the feet. Expulsion was rapid and there was considerable loss of blood. The bleeding kept up for some time, but he refrained from injecting ergot or pituitary to arrest it. This escape of blood was followed by immediate subsidence of the headache, etc. He is confident that eclampsia had been impending in this case but was warded off by the profuse losses of blood.

**Revue Neurologique, Paris**

August 1919, 20, No. 8

\*Intracranial Treatment of Syphilitic Diseases of the Nervous System. G. R. Lafora.—p. 625.  
\*Neurotic Manifestations of Typhoid. D. J. Patton.—p. 630

**Intraspinal Treatment of Syphilitic Diseases of the Central Nervous System.** Lafora now has a record of fifteen cases of general paralysis in which the manifestations of the disease have retrogressed under his treatment, not only the symptoms but the laboratory findings in the lumbar puncture fluid as well. This latter does not occur with the spontaneous remissions in general paralysis. The secret of success, he says, is to diagnose the disease in its earliest phases, before it has been under way for more than six or eight months. This is possible, he explains, by the laboratory findings in the cerebrospinal fluid and blood. Two of these laboratory reactions are characteristic of general paralysis alone, namely, the Wassermann test applied with only 0.2 c.c. of the cerebrospinal fluid, and the special curve of the colloidal gold test the figure being very different from the figure with other forms of cerebrospinal syphilis. With these two reactions, general paralysis can be detected even before any clinical symptoms become manifest. Then intraspinal treatment may arrest it for years, and perhaps permanently. It must be kept up possibly for a year and a half, that is, until the few laboratory reactions are permanently negative. Nine or ten months sufficed in some of his cases.

The same treatment proved almost always effectual in eight cases of tabes, the subjective symptoms rapidly subsiding, with some of the objective symptoms. It also proved the most effectual means to arrest progressive amaurosis, and in syphilitic radiculitis it suppressed the pains much better than intravenous treatment. He gives intravenous treatment in the intervals, testing the susceptibility by gradual therapeutic preparation, both intraspinally and by the vein, as he describes in minute detail. His list includes also four cases of syphilitic spinal and two of cerebral paraplegia. He uses the autoserum prepared in vitro by the Byrnes and Ogilvie methods. Four or five injections are made by the vein at intervals of from four to six days, 0.01 gm. of mercury and arsphenamin. The first intraspinal injection was made with arsphenaminized serum, never more than 2 or 3 mg., and the maximal dose ever reached was 4 mg. of mercuric chlorid or 7 mg. of (French) neo-arsphenamin. The intervals were from twenty to forty days while the injections by the vein were made about twice a week, alternating the mercury and the neo-arsphenamin and suspending for two or three weeks at the end of six months. The efficacy of this treatment is extremely manifest in syphilitic processes which have not yet invaded the deep parenchyma of the nervous system, and meningeal lesions are only just beginning around the nerve lesions. (His previous report on the subject was mentioned in these columns, Dec. 14, 1918, p. 2031.)

**Nervous Manifestations of Typhus.**—Paulin refers to the tardy meningeal reaction in typhus, and the unequal pupils. He noted the latter in 60 per cent. of his cases, and it was evident months later, suggesting syphilis. Neuritis is also common, he saw fifty-five cases with this complication. In another case of neuritis, facial diplegia developed nine months after the typhus, in two others during convalescence.

#### Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 16, 1919, 49, No. 42

1919, 49, 1, 1. Wassermann, p. 177

1919, 49, 1, 1. Maffei, C. Centralis Constipating Effect of Opium Prepara-  
tion, p. 185

**Partial Antigens in Diagnosis and Treatment of Tuberculosis.** Walther refers to the Deycke-Much partial antigens, which, with so much conflicting testimony is accumulating. He applied them in the diagnosis of tuberculosis of 157 subjects, including 24 clinically healthy, 54 with bone and joint tuberculosis and 43 with urogenital tuberculosis. Only 15 of the total 157 failed to respond and 8 of these were in advanced tuberculosis, the others were normal children and young people. The titer of the response varied widely within brief periods, the conditions being apparently the same at each test. It seems as if the theory of the partial antigens is not based on solid premises, but it is important for research on immunity, and deserves further study as it throws light on many obscure points. Striking

benefit was not obtained with the partial antigens in any instance, but some improvement was evident in some of the 29 cases of bone or joint tuberculosis and 5 of urogenital lesions.

**The Influence of the Morphin Content on the Constipating Action of Opium Preparations.**—The research was done on cats, and ten roentgenograms show the progress of the contrast meal. Uhlmann states that his findings confirm the different action of morphin and opium. The former whips up peristalsis, while the latter induces relaxation, actual atony. With colic pains, morphin arrests the pains but the peristaltic movements persist or may be exaggerated. Opium arrests the pains likewise, but in a different way, by relaxing and quieting the bowel.

#### Gazzetta degli Ospedali e delle Cliniche, Milan

Sept. 28, 1919, 10, No. 78

Psychology of Simulation in Prisoners of War. Pellegrini.—p. 828.

#### Policlinico, Rome

Aug. 17, 1919, 26, No. 33

\*Typhus. Camillo Artom.—p. 985.

\*Acute Lymphatic Leukemia. A. Gasbarrini.—p. 996.

**Typhus in Prisoners' Camp in Italy.**—Artom found at the necropsies during an epidemic of 500 cases of typhus at the prisoners' camp at Itri that edema of the brain, bronchopneumonia, and nephritis were constant. The mortality among the prisoners was 20 or 30 per cent. as they were debilitated from inadequate food before they had been taken prisoner. Among the Italian troops in the region the mortality was only 4 or 5 per cent. In one case there was no spotting at any time and none could be induced although the typhus was otherwise typical. Among unusual complications were laryngeal paralysis, panophthalmitis, intensely painful peripheral neuritis, and inflammatory processes in ear and parotid (fifty) and gangrene from arterial thrombosis, bilateral in most of the cases.

**Acute Lymphatic Leukemia.**—The boy of 15 died two months after the first symptoms had been noted, but a period of marked improvement had followed an intravenous injection of antistreptococcus serovaccine. There was a violent reaction with intense chill for an hour then fever of 40.2 C. Then great improvement followed; by the third day the leukocytes had dropped from 220,000 to 55,200 and by the twelfth day to 6,400 and the proportion of immature cells was much reduced. The uric acid content of the urine increased materially at the same time, confirming the actual leukolysis. An intercurrent febrile gastro-intestinal derangement from an error in diet aggravated the anemia, and the boy died within two days.

Aug. 24, 1919, 26, No. 34

\*Cerebrospinal Fluid in Typhus. R. Monteleone.—p. 1009.

\*Modification of Bassini Method. M. Battaglia.—p. 1012.

River Fever in Japan. C. Basile.—p. 1016.

**The Cerebrospinal Fluid in Typhus.**—Monteleone was impressed with the high tension and high albumin content of the lumbar fluid in typhus, while the Nonne reaction was constantly negative. Agglutination with the proteus X occurred parallel with the blood and spinal fluid.

**Improved Herniotomy.**—Battaglia extols the advantages of the modification of the Bassini technic which he describes. He prepares the threefold layer as for a Bassini, and sutures with cross or D'Antona sutures if the muscles are stout. If not, he takes U sutures, the loop passing through the muscle fibers above and from within. The suture at the pubis includes the rectus muscle. When the sutures are drawn up the planes lap, and recurrence of the hernia is practically impossible. With this technic he has never felt the need for plastic reinforcement, not even in men of 60 to 75 with hernias of ten or twenty years' standing, actual ventrations.

#### Brazil-Medico, Rio de Janeiro

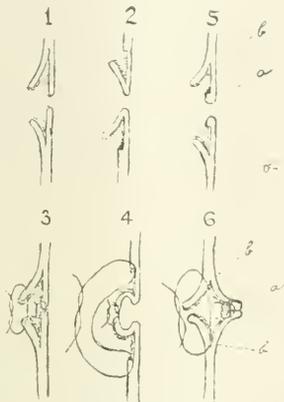
Aug. 30, 1919, 33, No. 35

\*Vesicovaginal Fistulas. J. Adeodato.—p. 273.

Sept. 6, 1919, 33, No. 36

Large Doses of Quinin in Malaria. Alvaro da Franca Rocha.—p. 281.

**Vesicovaginal Fistulas.**—Adeodato relates that the gap in the vesicovaginal septum in the case he describes was 3 cm. in diameter. The perineum had been lacerated, besides, at the delivery about two years before. The fistula was readily corrected by a modification of the Ferguson-Braquehay method, but he ascribes this success to his systematic preparation of the woman for the operation. With a retention catheter the urine was diverted, and hexamethylenamin and sodium benzoate were given, along with hot vaginal douches and tonics. Under this treatment the urine returned to normal, and the fistula became much smaller so that the operation was much facilitated. He dissected the tissues to separate the vesical and vaginal walls for 1 cm. back from the fistula all around, leaving a layer of vaginal tissue adherent to the bladder tissue in a ring around the fistula. The bladder defect was then drawn up and sutured, turning in the mucosa with the crown of vaginal tissue, leaving this to project into the bladder lumen. The vaginal opening was then closed with a suture thread passed through the farthest points of the separation of the vesical and vaginal tissues. By this means the former seat of the fistula was strengthened with quadruple layers of tissue. The knob projecting into the bladder will probably become flattened out in time as the bladder stretches and relaxes.



Figs. 1 and 3. The centrifugal method for correcting vesicovaginal fistula. Figs. 2 and 4. The Ferguson-Braquehay method. Figs. 5 and 6. The author's method.

**Gaceta Médica de Caracas**

Sept. 15, 1919, 26, No. 17

- \*Ptosis of Liver with Cholecystitis. L. Razetti, p. 175
- \*Cecal Diverticulum. L. Razetti, p. 176
- \*Eugene Asylums. A. Ayala, p. 178; E. Escómel, p. 179.
- \*Vaccination Against Tuberculosis. J. Ferrán, p. 181

**Ptosis of Liver with Cholecystitis.**—The woman had had various attacks of vomiting and fever with pain in the iliac fossa but the region was too tender for palpation and the walls were rigid. The laparotomy on the assumption of chronic appendicitis, disclosed instead a much sagging liver, with emphyema and stones in the gallbladder. One pole of the liver had sagged until it reached nearly to the groin. The tip of the gallbladder was at McBurney's point and explained the tenderness here, pressure on the gallbladder merged with stones and pus giving a typical reaction. The first cholecystectomy was done at Caracas in 1918, but a number have been done since.

**Care of the Insane.**—Ayala comments on the revolution in insane asylums since the colony system came into vogue, and describes the fine institution of the kind in charge of Calred in Argentina and the Magdalena colony in Peru. Calred described his methods and success at a medical congress at Lima in 1913, and, without waiting for the congress to close, the authorities of the antiquated local asylum burned the old strait-jackets and other appliances for forcible constraint. "It was like an *autó da fe* of former days," Ayala remarks, "and from the ashes of these outworn appliances has developed the new modern open-door colony." He urges Venezuela to follow in the footsteps of Peru.

**Vaccination Against Tuberculosis.**—This is Ferrán's own announcement of the principles of his method of vaccination

against tuberculosis, as he presented it at the recent Spanish medical congress. See Madrid Letter, page 1074.

**Gaceta Médica de Cartagena**

- July-September, 1919, 2, No. 19-21
- \*Necessity for Sanatoriums for Tuberculosis. J. D. Timon, p. 3.
- \*Placenta Praevia. Lengua, p. 8
- \*Code of Ethics, p. 12.

**Necessity for Sanatoriums for the Tuberculous.**—Tuñón says in the course of his remarks on tuberculosis, that great progress would be realized if the public dreaded tuberculosis as they dread leprosy, and made provision in the same way for segregation. Leprosy is very far from being as contagious as tuberculosis, the germs of which are spread at every breath, every greeting and every contact. He appeals to the authorities for the foundation of a sanatorium for the tuberculous in the Cartagena district. There is already a sanatorium for lepers.

**Code of Ethics.**—This proposed code was described in these columns recently, page 1170.

**Medicina Ibera, Madrid**

- Sept. 13, 1919, 8, No. 97
- \*School Dental Clinics. Virgilio Losada, p. 193.
- \*Infantile Gastro-Enteritis. J. Lorens Molto, p. 195.

**Infantile Gastro-Enteritis at Malaga.**—Lorens Molto urges the necessity of milk stations and well baby clinics as the only means available to check the extremely high death rate among infants in Malaga.

Oct. 4, 1919, 9, No. 100

- Teaching of Pathologic Anatomy. L. López García, p. 1.
- Technic for Ueb therapy. Alvarez Sierra, p. 4.
- \*Laboratory Diagnosis of Hydatid Cyst. Angel Lopez, p. 5.

**Differential Diagnosis of Hydatid Cyst.**—Lopez insists on microscopic examination of the sputum, exudate or puncture fluid in search for the scolices or membranes of the parasite; also on the eosinophil count, and on the fixation of complement test, the value of which is unquestionable. With these data it is possible to certify to the existence of echinococcosis disease without subjecting the patient to a possibly futile operation.

**Plus-Ultra, Madrid**

- June, 1919, 2, No. 12
- \*Insanity in the United States. Santos Ruluabco, 295
- Recent Progress in Gynecology and Obstetrics. J. C. L. ... p. 118; in Heart Disease, p. 3, 9; in Ophthalmology, p. 3, 4; in Instrumentation, p. 335; in Digestive Apparatus, p. 345; in Neurology, p. 350.
- \*Pure Insufficiency of Pulmonary Valves. F. del Campo, p. 314.
- \*Recurring Dislocation of Shoulder. Bastos Acosta, p. 1.
- Case of Submoral Phrenasthenia. F. Ferrán, p. 327; C. J. Juarre, and E. Mennero Romeros, p. 334
- Vaccine Therapy in Influenza. A. Salvat, p. 108.

**Insanity in the United States.**—Santos Ruluabco reviews with much detail the census compiled by the Committee for Repression of Mental Diseases, showing the numbers and distribution of the insane in this country in 1915. He remarks that "the large percentage of insane inhabitants is not to be wondered at in a country where the business failures mount up to 1,500 a month, and suicides average 16,000 per year, and the natality is the lowest of all civilized peoples."

**Pure Insufficiency of Pulmonary Valves.**—Del Campo ascribes to pure insufficiency of the pulmonary valves the hypertrophy and dilation of the right ventricle, with a diastolic murmur heard loudest in the left second intercostal space, and the dyspnea accentuated by effort. The patient was a woman of 24 with positive Wassermann reaction. Under specific treatment these symptoms subsided to a certain extent, and the patient had no return of the former attacks of hyposthly during the nine months to date. He calls attention to the anomic oscillator evident in the pulse tracings given from this case, saying that this has differential importance as the greater circulation seemed to be absolutely normal in this case. The tracing was most instructive when taken with the drum revolving at high speed.

**Recurring Dislocation of the Shoulder.**—Bastos Ansart describes the recurring dislocation to relaxation of the subscapular muscle. He corrects this by suturing the free margin of the subscapular to the periosteum of the anatomic neck and to the lips of the biceps. This simple operation answered the purpose admirably in the single case in which he has applied it to date. The man, an aviator, has had no return of the dislocation during the seven months since.

**Prensa Médica Argentina, Buenos Aires**

July 20, 1919, 6, N. 6

**Internal Kinks and Membrane.**—Tardy Inherited Syphilis. M. R. Castex and Delfor del Valle. p. 61.  
**Vaccine Therapy of Infection.** J. J. M. p. 61.

**Syphilitic Perienteritis.**—This is the concluding installment of this long and profusely illustrated article on the chronic symptoms of the abdomen which may be a tardy manifestation of inherited syphilis. Castex and Delfor regard the latter as a very frequent—perhaps the most frequent—cause of membranous bands and kinks. The inherited syphilis may likewise induce a set of chronic symptoms without appreciable anatomic lesions. The disturbances are due to deficient functioning of the endocrine glands which are the physiologic stimulators and regulators, the suprarenals and thyroid in particular. This type of chronic disturbance implies a prognosis and treatment quite different from those with membranous peri-enteritis, but the two types were combined in some of his cases. In six typical cases described, the patients were men of 20 and 28 and two women of 25 and 31. Some required surgical measures besides specific treatment, but great improvement or a complete cure was realized in all.

Aug. 1, 1919, 6, No. 7

**Spontaneous Lysis and Splice.**—Ciffo, I. L. Reso.—p. 65.  
**Therapy of the Hematuria in Treatment of Tuberculosis of Urinary Apparatus.** J. F. M. p. 66.  
**The Urinary and the Duty to Society.** G. Araz Alfaro.—p. 68.

**Ascites from Inherited Syphilis.**—The child of 4 had had severe intestinal disturbance soon after birth, and the liver and spleen became enlarged and ascites had developed. Examination of animals was negative, but treatment for several months marked improvement. An intercurrent pneumonia was followed by return of the ascites, evidently due to the work of the pneumococcus, and thus developed. The child had a laparotomy to break up adhesions and drainage of a hemorrhagic effusion, and a second intervention to clear out a pus pocket. Then milder mercurial treatment of the child was required promptly to clinical health.

**Heliotherapy plus Tuberculin in Treatment of Tuberculosis of the Urinary Apparatus.**—Mieres describes three cases of tuberculosis of the kidney or bladder or both, in two men of 25 and 28 and a woman of 32, in which all the symptoms were completely relieved under combined heliotherapy and tuberculin treatment. He began with only five minutes' exposure and increased to full sun baths. The doses of tuberculin were extremely minute, seeking to imitate Nature's method of mineralization by the minimal amounts generated in a small innocuous focus. In three other similar cases the improvement was realized, and in a seventh case the other continued to progress.

**Repertorio de Medicina y Cirugía, Bogotá**

10, 1919

**On the Etiology of the Tuberculosis of the Urinary Apparatus.**—Ciffo, I. L. Reso.—p. 67.

**The National Medical Congress.**—On July 31 of 1919, the 11th National Medical Congress of the American Republics met in Bogotá, Colombia. The report of the proceedings is published in this issue on page 1811.

**Revista Médica, Puebla, México**

Sept. 2, 1919

**On the Etiology of the Tuberculosis of the Urinary Apparatus.**—Ciffo, I. L. Reso.—p. 2. Contrib. to the study of the tuberculous process. J. J. M. p. 1.  
**On the Etiology of the Tuberculosis of the Urinary Apparatus.**—Ciffo, I. L. Reso.—p. 14.  
**On the Etiology of the Tuberculosis of the Urinary Apparatus.**—Ciffo, I. L. Reso.—p. 14.  
**On the Etiology of the Tuberculosis of the Urinary Apparatus.**—Ciffo, I. L. Reso.—p. 14.

**Professional Secrecy.**—Vallejo discusses whether the authorities have any right to compel a physician to violate professional secrecy. In connection with the organized campaign against venereal diseases, a bill was presented in the legislature to compel physicians to report to the Consejo Superior de Salubridad all the syphilitics among their clients, specifying names, etc. Vallejo quotes Hippocrates' oath on the inviolability of the professional secret, and states that a similar oath is exacted of the medical graduates of the University of Montpellier. He would like to have a similar oath made part of the graduation procedures everywhere. The Mexican laws on privileged communications are based in the main on the United States laws. He reproduces the principal paragraphs, and points out certain contradictions, and emphasizes that society has other and more important interests than mere conviction of criminals.

**Intravenous Injections in the Neck.**—Vasconcelos' two photographs show the technic for injection into the jugular vein. He cites Najera, who witnessed in 1912 injections by the jugular vein, and Lerelde who in his (1917) work mentions the advantages of the jugular vein for injection in children. Vasconcelos congratulates Kaliski for his recent work on the subject in THE JOURNAL, May 31, 1919, p. 1613, seeking to render more popular this method which with a certain skill is simple, harmless and useful. He has applied this technic himself in giving arsphenamin to five men and neoarsphenamin to five women, and the patients found it more agreeable than by a vein in the elbow. But he prefers the latter for the routine route, next the jugular, or a vein in head or foot, or by the rectum, never utilizing a varicose vein, as Rosenheck proposes, as this might set up phlebitis.

**Hospitalstidende, Copenhagen**

Oct. 1, 1919, 62, No. 40

**Simultaneous Extra Uterine and Normal Pregnancy.**—M. Fenger.—p. 1113.  
**Abnormally Small Hearts.**—K. Secher.—p. 1119.

**Normal plus Extra-Uterine Pregnancy.**—Fenger comments on the rarity of the coincidence of intra-uterine and extra-uterine pregnancy. In Neugebauer's compilation of 169 cases, the diagnosis had been incarcerated retroflexion in 6 cases, and the attempt in 3 of the cases to correct the displacement proved fatal. In 127 of the cases rupture led to intervention, but in the majority the intra-uterine pregnancy was not discovered at the time, the changes in the uterus being attributed to the influence of the tubal pregnancy. The gravid uterus usually expelled its contents soon afterward, as in the personal case he describes. Eleven days after the laparotomy for the ruptured tubal pregnancy, phlebitis developed and a 6 cm. fetus was found in the vagina. The pregnancy continued uninterrupted only in 8 of the 70 in this group. In 40 of the 169 cases the uterus abortion occurred first, and the extra-uterine was not suspected; 27.5 per cent. died from lack of proper operative measures when the tube ruptured. Death usually occurred in an hour and was ascribed to shock from the abortion. Even in the cases in which a prompt laparotomy saved the woman, the ectopic pregnancy was a surprise. In 42 of the 169 cases both pregnancies continued to the twenty-eighth week or to term. In 4 cases both children were viable, the acconcheur delivering one from within and one from outside the uterus. In 10 cases the extra-uterine fetus was expelled through a fistula. Some of the women succumbed to fulminating intraperitoneal hemorrhage in these late cases. The main thing is to bear in mind the possibility of a normal plus an ectopic pregnancy. It is so rare that we are apt to forget the possibility. According to Neugebauer, the true condition was recognized at the operation only in 7 cases.

**Small Hearts.**—Secher reviews recent literature on the constitutionally small or drop heart, pendulum heart and thorax paralyticus, and emphasizes the lesser resisting power in these conditions. Geigel multiplies by 3/2 the figure representing the area of the heart and divides by the figure representing the length. The quotient in normal subjects ranges from 15 to 23. He found it under 14 in 10 per cent. of 2939 persons examined.

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## RECONSTRUCTIVE SURGERY OF THE HAND\*

JOHN C. WILSON, M.D.  
LOS ANGELES

AND

CLARENCE H. HYMAN, M.D.  
CLEVELAND

One of the most perplexing problems that were presented to the orthopedic surgeon during the war was the restoration of function in injuries of the hand. Each case presented many difficulties rather than a single problem. Complete restoration of function, or as nearly complete restoration as possible, is essential before the full duty of the surgeon to the soldier is fulfilled. An all too frequent mistake has been to send the man with imperfect function of the hand to his home to work out motion in the wrist or some of the small joints of the hand by himself. Many of these men live in remote districts and will never come under medical supervision again.

It has not seemed practicable to divide this subject in any way; therefore an attempt will be made to paint the picture as it actually presents itself. Injuries of the wrist joint will be considered in a general way because of the necessity of securing the proper relation of the hand to the forearm.

### INJURIES TO SOFT PARTS

*Dorsal Surface of the Hand.*—These wounds were found to be due for the most part to machine gun bullets or fragments of shell casing, and as a general rule they were of the oblique type. The dorsal surface of the hand is exposed to projectiles to a greater extent than the palm because of the position assumed when it is hanging by the side or when it is active. Cicatricial tissue follows these wounds because of the presence of infection in all instances. The scars are unsightly, often tender and easily abraded, but they interfere to a lesser degree than does the presence of scar tissue in the palm of the hand.

Frequently, cicatrices of the dorsum of the hand may be excised and the skin freed sufficiently to allow closure of the defect due to the removal of the scar tissue. In case this procedure is followed, care must be taken to preserve the circulation in all parts of the skin flaps, for, although an occasional small skin

slough has occurred, this method of skin repair has proved satisfactory.

*Palmar Surface of the Hand.*—Extensive scarring of the palm of the hand may lead to contractures of the thumb, as in Case 10 (Figs. 1, 2 and 3). The skin of the palm cannot readily be mobilized; hence excision of an appreciable amount of scar tissue leaves defects that must be repaired by skin and fat from other parts of the body. This is best accomplished by transplantation of a section of skin, fat and superficial fascia from the abdominal wall by means of the method described by Babcock as illustrated in Figures 4 and 5. The area of scar tissue is completely excised in order that the blood supply between the flap and bed may be readily established. A flap of skin, superficial fascia, and fat is dissected free from the abdominal wall, except for the pedicular attachment, which should if possible be the superior portion of the flap. Great care should be taken to make the flap fit the bed accurately. It is then sutured along the free border to the skin margins of the bed, care being exercised not to constrict the pedicle of the transplant. The hand is then put up in a comfortable dressing for a period of about nine days. During this time the abdominal flap will acquire sufficient blood supply to allow the pedicle to be severed. In all probability the union between the sutured flap and the skin margin will be complete; but it may be possible that one of the corners of the transplant will show signs of necrosis, and a definite line of demarcation may be present. In case this has occurred, the necrotic area may be trimmed away and the vascular edge of the transplant approximated to the skin margin, usually resulting in prompt union. By this means a serviceable skin surface is provided in place of a tender cicatrix, and a suitable bed is secured for the tendons.

### TENDON INJURIES

Few of the projectiles passed completely through the hand, and as a result the greater number of these cases were injuries only of the extensor tendons. In twenty-five cases the extensor tendons were involved, and in three cases only the flexor tendons; in four cases both flexor and extensor tendons had been subjected to injury. In the last group, the damage was done by a projectile entering on the dorsal surface of the hand and passing out through the palm.

Three distinct types of cases with tendon involvement may be described, namely, complete division, partial division and adherent tendons.

*Complete Division.*—When complete division had taken place, it was not uncommon to find the severed ends embedded deeply in callous or scar tissue in the

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\*Because of lack of space, this article is abbreviated by the omission of many case reports. The complete article will appear in the reprints, a copy of which may be obtained on application to the authors.

hand in a plane corresponding to the course of the projectile. By careful dissection the tendon could be freed and often exhibited very little destruction, a fact that proved of great value in considering the repair.

*Partial Division.*—In the small number of cases in which the tendons were partially divided, an over-



Fig. 1 (Case 10).—Perforating gunshot wound of the hand with large cicatrix in the palm. The flexor tendons of the thumb and the first two fingers have been divided. Note the adduction deformity of the thumb.

production of fibrous tissue along the remnants of the tendon sheath and beneath the skin prevented return of function. Prior to operation it was impossible to differentiate this group.

*Adherent Tendons.*—Tendon adhesions were due to lacerated wounds in the long axis of the hand, followed by infection. The differentiation between this type of case and complete division presented no great difficulty for the reason that attempted active extension of the digits showed distinct evidence of force being transmitted along the tendon course.

For the sake of classification, these three groups have been described in detail; but one must bear in mind the fact that rarely was a single one of these conditions present at one time.

*Treatment of Tendon Injuries.*—That a moderate range of joint motion must precede tendon function is an axiom well worth remembering. It is useless to expect a repaired or liberated tendon to combat an



Fig. 2 (Case 11).—Cicatrix has been excised, tendons repaired, and transplant in place. Skin edges are not entirely healed.

ankylosed joint; therefore in describing the treatment of tendon injuries we shall assume the range of motion of the joints of the hand to be moderately free.

*Complete Division.*—When tendon division had taken place, tendon repair or tendon transplantation was, of course, considered. By careful dissection it

was possible at times to separate enough of the tendon from the cicatricial tissue to allow end to end repair. When such gaps were present that end to end repair was impossible, the extensor indicis and extensor minimi digiti were available for transplantation as extensors to any of the digits except the first. The tendon of the extensor carpi radialis brevis may be transplanted into the distal tendinous portion of the extensor ossis metacarpi pollicis or extensors longus or brevis pollicis, as in Case 38. In case of ankylosis of the wrist, the extensors carpi radialis longior and brevis, the extensor carpi ulnaris, and the flexors carpi radialis and ulnaris may be utilized.

*Partial Division.*—When partial division had taken place, the rational procedure was followed. The tendons were liberated from the bed of scar tissue and the divided portion sutured. In many cases of complete or partial division, adjacent tendons were found to be bound down to the metacarpals or the interossei by dense scar tissue.

*Adherent Tendons.*—The problem of tendon adhesions was met by tendon liberation and early active motion, which should be understood to be due to active contraction of muscles which will produce motion of the affected tendons, or by tendon liberation and an



Fig. 3 (Case 10).—Five weeks after operation. Transplant of skin fat and fascia healed. Note the abduction of the thumb.

autogenous fat and fascia transplant. Fat and fascia were transplanted in eight cases, infection following in one case within forty-eight hours. In four cases, the skin remained healed for fourteen days, when the skin margins separated slightly, liberating a considerable amount of oily fluid, the result of fat decomposition. In two cases, the wounds healed promptly after the discharge, and in the two remaining, infection followed and the transplants were extruded, leading of course to absolute failure. In three cases, satisfactory return of tendon function followed. If a fat and fascia transplant is used, the difficulties of skin closure are multiplied several fold. In view of the skin defects that were dealt with, it is possible that conclusions should not be drawn from these cases. However, the fact remains that the best results were obtained without fat and fascia transplants, in cases in which early active motion was instituted, often within a few hours after operation.

#### FRACTURES OF THE CARPUS

Fractures of the carpus are considered only so far as they are factors in determining the relationship of the hand to the forearm. In several instances, fractures of the scaphoid and semilunar bones with dis-

placement of the proximal fragment were found to limit dorsal flexion by mechanical blocking, and as a result the muscle balance of the hand was destroyed (Cases 7 and 12). This lesion was only a component part of the picture, but necessitated consideration before perfect functional restoration could be gained. Even though a considerable range of motion was present in an arc of palmar flexion, measures to bring the hand into a position of dorsal flexion with somewhat of a sacrifice, if necessary, of the arc of motion seemed advisable for the sake of restoration of the normal muscle balance.

When the carpal bones had been extensively destroyed, radial deflection of the hand was found to occur in conjunction with palmar flexion. The articular surfaces of the radius and ulna were often destroyed by the injury or the associated infection. Motion in the position of deformity was painful, and the deformities showed great tendency to recur after correction by mechanical measures.

The best results were obtained by carporadio-ulnar resection of bone, sufficient to allow correction of the deviation of the hand and to allow the hand to be set at an angle of 40 degrees of dorsal flexion, with fixation in this position until firm bony ankylosis had occurred, care being taken to preserve tendon and joint function during this period.

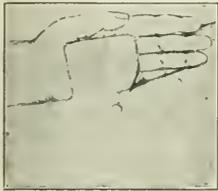


Fig. 4 (schematic).—Single pedicle abdominal flap in position, vascularized and ready to be cut free.



Fig. 5 (schematic).—Flap liberated with method of abdominal skin closure. Incisions along dotted lines allow skin margins to be approximated.

#### FRACTURES OF THE METACARPAL BONES

Fractures of the metacarpal bones calling for special consideration by the orthopedic surgeon are of two varieties; those with nonunion, and those with union in such a position as to disturb the alinement of their respective joint surfaces.

Nonunion is rarely seen when approximation of the fragments has occurred. The lack of union is generally found to be due to defects in the shafts, and may be associated with destruction of either of the articulating extremities.

The loss of proximal metacarpal fixation is a troublesome factor, especially if associated with ankylosis of the metacarpophalangeal joints, because of the false point of motion. An attempt to secure proximal metacarpal fixation is advisable, either by implantation of the metacarpal shafts into the carpus, or, if the defect is too great, by means of an autogenous bone transplant that will bridge the gap between the metacarpal and the carpus in juxtaposition. This having been accomplished, the proximal arm of the lever becomes fixed, and the problem of restoration of motion in the metacarpophalangeal joint may be attacked.

Ununited fractures of the metacarpal bones disturb the function of the metacarpophalangeal joints because

the proximal end of the distal fragment becomes tilted forward, throwing the articulating surface backward, changing the arc of flexion, and destroying the muscle balance of the finger in question. At operation the fragments may be properly approximated and the defect in the shaft repaired by a carefully cut tibial



Fig. 6 (Case 16).—Amputation of four fingers through distal part of metacarpal shafts, unhealed; greatest tenderness over the only available point of apposition for the thumb.

transplant or by exogenous bone. In two cases of repair by autogenous bone, the results were most gratifying, while exogenous bone (beef) was used in one case with an unsatisfactory result.

Destruction of the distal metacarpal articulating surfaces presents greater difficulties. The management of this condition depends on the number of



Fig. 7 (Case 16).—Appearance of hand two months after operation. Unhealed cicatrix has been excised, and skin fat and bone transplant from the abdominal wall has healed, resulting in a good functional result. A prosthesis was readily fitted to the stump to be worn for esthetic effect when desired.

fingers involved; and if only one, the extent of the process will determine the treatment. A point of

approximation for the thumb should be preserved, and if need be, an ankylosed metacarpophalangeal joint may be considered to obtain this end. Should the



Fig. 8 (Case 24).—Amputation of index finger; flail third finger due to resection of metacarpal with extensive scar tissue formation following gunshot wound.

function of the remaining digits be undisturbed and one metacarpal be extensively involved, amputation of the digit with resection of the fragments of the metacarpal shaft will give the best result, as in Case 24.

Fractures of the metacarpal bones with union in malposition do not require special remark except that the normal relationship of the joint surfaces must be secured to insure the return of greatest function. This realignment is easily accomplished after an osteotomy at the joint of election.

#### JOINT INVOLVEMENT

Of primary importance in reconstructive surgery of the hand is the condition of the joints; for regardless of how ingenious or how skilfully executed, an operation on tendons, failure to secure a good functional result will be certain if there is marked limitation of motion or ankylosis of the joints to be functionated. Muscular contraction is a means of



Fig. 9 (Case 4).—Appearance of hand two months after operation. Scar was removed, and the third metacarpal repaired by transposing the remains of the shaft of the second metacarpal and finger used in position of slight palmar flexion to allow approximation of the thumb. This procedure was imperative to secure a point of approximation for the thumb because of ankylosis of the fourth and fifth metacarpophalangeal joints.

producing joint motion; and if there is not already passive motion in a joint, it is a waste of time and energy, both to the patient and the surgeon, to per-

form a tendon operation and then expect a result. In those cases in which ankylosis or limitation of motion is expected, there are positions of election to secure the maximum degree of usefulness.

Limitation of motion in a joint may be due to extra-articular causes, usually when associated with gunshot wounds with infection, to a thickened contracted capsule, or to intra-articular causes, usually a fracture extending into the joint, or to destruction of the articular cartilage.

All injuries of the wrist joint should be treated with the wrist in a position of dorsal flexion, particularly when there is any likelihood of a resulting limitation of motion or complete ankylosis. If the wrist is in a position of palmar flexion or in a neutral position, the force of the grip is diminished because of the loss of muscle balance. The position of dorsal flexion is the position of strength. To secure this position, it is necessary to devote special attention to the splinting. Any of the ordinary cock-up splints will usually suffice if properly applied and observed. If the tendon injury is uncomplicated by joint involvement, the mere passive attitude of the hand in palmar flexion will result in a deformity that may require months of treatment to restore function.

In practically all cases of injury to the tendons of the fingers there has been a marked limitation of motion of the metacarpophalangeal joints, and the



Fig. 10 (Case 23).—Persistent hyperextension of metacarpophalangeal joint as a result of excision of scar and a posterior capsulorrhaphy.

fingers were as a rule found in a position of hyperextension. This deformity was associated with thickening and contraction of the joint capsule. Baking, massage, contrast baths and other physiotherapeutic measures commonly used seemed of very little benefit without elastic traction. A very satisfactory apparatus may be improvised such as is shown in Figures 15 and 16. The rubber tubing is attached to the fingers by adhesive plaster and then attached to heavy iron wire embedded in a molded plaster-of-Paris palmar splint that will extend to the elbow. The traction must first be made in the line of deformity. By bending the wire, the deformity can gradually be overcome and flexion of the fingers produced. In conjunction with this traction and flexion, it is important that daily massage and manipulation be given with the splint removed, with the exception of the adhesive bands attached to the fingers. Good results have been obtained more rapidly by a transverse posterior capsulorrhaphy at the time of the tendon repair. The fibrous capsule of the metacarpophalangeal joint is incised transversely, allowing the maximum of palmar flexion at this joint immediately. Massage and exercise must be used faithfully after this operation to obtain the best results.

One case of recurrent dislocation of the first carpo-metacarpal joint was observed in this series of cases. This was due to impacted fractures of both the trapezium and trapezoid bones of the wrist which altered

the plane of the articulating surface of the trapezium. The joint was partially stabilized by passing a heavy silk ligature through the base of the first metacarpal, and thence through the body of the trapezium. This ligature was tied with the thumb in a position of extreme extension. The result seemed most satisfactory, for at the end of four weeks the patient had recovered complete function of the first digit and had suffered no relapse at the time of departure from the hospital, several weeks later.

The limitation of motion in the interphalangeal joints caused comparatively little difficulty, as these conditions were readily amenable to physiotherapeutic measures.

#### AMPUTATIONS

Evidences of conservation of the structures of the hand are seen constantly. Thanks to the able surgery performed at the front, metacarpal stumps that might be of value as apposing digits have been preserved. It must be borne in mind that a functioning thumb with a point of apposition will make a useful hand, and that the artificial hand with all of the delicate mechanism has never been perfected to the degree of



Fig. 11 (Case 23)—Limit of voluntary flexion of the finger ten days after dorsal transverse incision of the capsule of the metacarpophalangeal joint.

usefulness equal to that of apposing digits or parts of digits.

In case all fingers are amputated, the point of apposition, which will necessarily be metacarpal stumps, must be covered with integument that is not sensitive. Unfortunately, laceration of soft parts is more extensive than the resection of bone, resulting in the formation of cicatricial tissue over the osseous structures. Scar tissue is prone to crack and become abraded with the slightest trauma. This cicatricial tissue may be replaced with skin and fat by resection of the entire scar and transplantation of a pedicle of fat and fascia, after the technic illustrated in Figures 4 and 5 with the result shown in Figure 7. In this particular instance the result was most pleasing, because a tender unhealed stump of a hand was transformed into a functioning member.

The question of finger amputation is open to considerable controversy; but it seems to be agreed that in case both flexor and extensor tendons of one digit, excepting the first, are involved, amputation should be considered. Metacarpal and metacarpophalangeal joint injury with tendon involvement of only one

digit, except the first, should always be treated by amputation of the digit. Metacarpal shaft destruction which may occur without tendon injury does not



Fig. 12 (Case 21).—Ankylosis of the wrist joint in a position of palmar flexion with marked disturbance of muscle balance of the flexors and extensors of the fingers and partial ankylosis of all of the small joints of the hand. This condition was not amenable to mechanical treatment.

require amputation of the digit if the distal articular surface of the metacarpal is uninvolved.

#### TIME OF OPERATION

The time of operation in the cases reported was earlier than has been customary. Rarely was any plastic work attempted before the wounds had been healed two months. After this period had elapsed, the area of injury was subjected to intensive mechanical irritation; and if no reaction appeared in the skin or subcutaneous tissues, pain and tenderness being absent, it was felt that the problem might be attacked surgically with impunity.

A few infections occurred, but the percentage was so low that early operation is to be encouraged in order that the soldier may be restored to usefulness as soon as possible.

Case 10.—A soldier, admitted, Dec. 26, 1918, had received a perforating gunshot wound of the palm of the hand, Oct. 27, 1918. Infection followed immediately. On admission a large irregular scar was present in the palm with a contracture



Fig. 13 (Case 21)—Eight weeks after fixation of hand in a position of dorsal flexion, with rapid return of function of the digits under therapeutic measures that were unavailing before the correction of the palmar flexion deformity.

causing an adduction deformity of the thumb and flexion of the index and middle fingers. The flexor longus pollicis tendon and the tendons of the flexors profundus and sublimis digitorum to the index and middle fingers were divided. There was a distal articular fracture of the third metacarpal. Operation, March 22, 1919, after wounds had been healed

eight weeks. The flexor tendons to the thumb, index and middle fingers were repaired and the entire mass of scar tissue excised. A transplant of skin, fascia and fat was transplanted into the palm by the two stage method. The flap was cut loose ten days later. At present, five weeks



Fig. 14 (Case 28).—Roentgenogram taken five weeks after repair of metacarpal defects by autogenous bone transplants.

following operation, the skin transplant is healed and there is distinct flexion power in the thumb, index and middle fingers. Repair of the extensor tendons is to be done later.

CASE 16.—A soldier received a machine gun bullet wound of the right hand, July 28, 1918, resulting in amputation of the four fingers at the metacarpophalangeal joints. There was normal motion in the thumb but there was difficulty in apposing it to the stump, which was covered by a tender granulating surface with surrounding skin poorly nourished. Operation, Dec. 5, 1918, when the entire scar over the end of the stump was excised and a thick double pedicle skin flap from the abdomen was sutured in place. The flap was cut loose nine days later and the skin of the flap was sutured to the hand. The skin flap was entirely healed three weeks after operation; on the patient's discharge, two months later, there was a narrow linear scar encircling the transplant with a good tough pad, to which he could appose the thumb.

CASE 21.—March 15, 1918, a soldier accidentally cut himself with a knife on the left palm. Infection followed which was treated by multiple dorsal incisions. When admitted, July 23, 1918, there was a bony ankylosis of the wrist in extreme palmar flexion, with ulnar deflection, and no motion in the metacarpophalangeal joints. Massage, manipulations under ether, and plaster-of-Paris wedging were tried with no improvement. Operation, Feb. 6, 1919, when wounds had been healed six months. A wedge of bone was removed from the lower end of the radius, scaphoid, and semilunar to allow the hand to be brought up into dorsal flexion. The wound healed by first intention and at present, ten weeks after operation the wrist is in a position of 30 degrees dorsal flexion, and there is no ulnar deflection. There is also marked improvement in the range of motion of the fingers, each of which can be apposed by the thumb.

CASE 23.—A soldier, admitted, Oct. 25, 1918, had been wounded July 18, 1918, by a fragment of a shell. The thumb and first finger were amputated leaving the proximal half of the second metacarpal bone. On admission the wound was not healed. Nov. 27, 1918, the remaining part of the second metacarpal bone was removed. The wound healed, Feb. 1, 1919. Motion was limited in all of the joints of the remaining fingers. March 19, 1919, the scar was excised and manipulation allowed free motion in all of the joints except that of the third metacarpophalangeal joint. A posterior capsulorrhaphy was done at this joint allowing free motion. Five days following operation, active motion was possible at these joints. The wound healed by first intention and at present, seven weeks after operation, the patient can flex the metacarpophalangeal joint 60 degrees and he has good motion in the interphalangeal joints.

CASE 24.—A soldier received a perforating gunshot wound of the right hand, July 15, 1918. On admission the wound was healed. The index finger with the distal end of the second metacarpal was amputated, and there was an ununited fracture of the shaft of the third metacarpal with a flail middle finger. Operation, Jan. 15, 1918, when the wound had been healed four months. The scar was excised and the shaft of the second metacarpal was transplanted between the remaining ends of the third metacarpal. The divided extensor tendon to the middle finger was sutured. One week after operation there was a separation of the skin edges of the wound. The wound healed in two months with ankylosis of the metacarpophalangeal joint, but the whole middle finger, which was abducted, was a decidedly useful member. There was good union in the fractured third metacarpal.

CASE 28.—A soldier, admitted, Feb. 19, 1919, had received a perforating gunshot wound of the left hand, Oct. 1, 1918. The wound became septic and drained about one month. On admission he showed a small healed scar on the palm and a large stellate scar on the dorsum of the hand. There was laceration of the extensor tendon to the ring finger. The extensor tendons to the middle and little fingers were bound down in scar tissue resulting in complete loss of function of the middle and ring fingers. There was only slight power of extension in the little finger. There was also a comminuted fracture, ununited, of the shaft of the third and fourth metacarpals, with marked overriding. Operation, March 22, 1919, when the wound had been healed ten weeks. The tendons of the middle and little finger were liberated from the scar and the extensor indicis tendon was transplanted into the distal end of the extensor tendon of the ring finger. Bone grafts, 4 cm. long, from the left tibia were transplanted between the fractured ends of the third and



Fig. 15.—Front view of efficient elastic traction splint used to obtain flexion of the small joints of the hand, first suggested to us by Major M. S. Danforth, M. C., Providence, R. I.

fourth metacarpals. The wound healed by first intention, and at present, five weeks after operation, there is good union in the fractured metacarpals and almost complete power of flexion in the middle and ring fingers.

CASE 38.—A soldier received a gunshot wound of the right forearm, Nov. 1, 1918, which divided the belly of the extensor

communis digitorum muscle and destroyed the nerve supply of the extensor longus and brevis pollicis, resulting in loss of power of extension of the thumb and third and fourth fingers. The wound healed four weeks after injury. Operation, April 9, 1919, four months after wound had healed,



Fig. 16.—Side view of elastic traction splint.

when the muscle belly of the extensor communis digitorum was repaired and the extensor carpi radialis brevis was freed at its insertion and transplanted into the distal tendinous portion of the extensor longus pollicis. Eight weeks after operation, the soldier had almost complete return of extension in the thumb, third and fourth fingers.

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## THE GASTRIC HYPERMOTILITY ASSOCIATED WITH DISEASES OF THE GALLBLADDER, DUODENUM, AND APPENDIX

A CLINICAL AND EXPERIMENTAL STUDY\*

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The stomach in a general way is recognized by the diagnostician as the spokesman for disease anywhere within the abdominal cavity, but particularly for organic disturbances of the gallbladder, duodenum and appendix. It is not only very difficult to ascertain which of these three organs is afflicted, but it is often impossible to free the stomach entirely from suspicion of disease. It becomes, therefore, of the utmost importance to the abdominal surgeon to have some system of classifying gastric motor pictures by which a pathologic condition of the stomach is established or eliminated, so that he may determine what organ is pathologic if the stomach is normal, and to what extent the diseased organ is involved.

There are obviously two means of studying the reflex activity of the stomach: the review of recent hospital records, and the duplication, as far as possible, of the human disease equations in the experimental laboratory. The reports of gallbladder, duodenum, and

appendix cases in the Third Division, Bellevue Hospital, from 1911 to the present time, have been reviewed, and from these have been selected only those cases with full roentgenographic reports based on complete gastro-intestinal examination confirmed or modified by direct inspection of the open abdomen. In those few instances in which the roentgenographic diagnosis did not correspond to the actual findings at operation, the error, which was one of inference and not of observation, was corrected. For example, a persistent irregularity in the outline of the stomach has been called organic and, at operation, the stomach appears absolutely normal; this same stomach is known to functionate normally in terms of emptying and of secreting; it is obvious that the "irregularity" described as organic may be either organic or inorganic; and, on the foregoing basis, the roentgenographic description is changed from "probable adhesion" or "scirrhus involvement" to gastrospasm. The pathologic findings have been purposely omitted; their significance, as far as the stomach function is concerned, may be the measure of the stimulation or depression of the stomach.

From these surveys, it appears that the percentages of hypermotility, hypomotility and normal gastric function in gallbladder disease (meaning cholecystitis with or without cholelithiasis) are: hypermotility, 68.4; hypomotility, 0; normal, 31.6; in diseased duodenums (duodenal ulcers): hypermotility, 75; hypomotility,

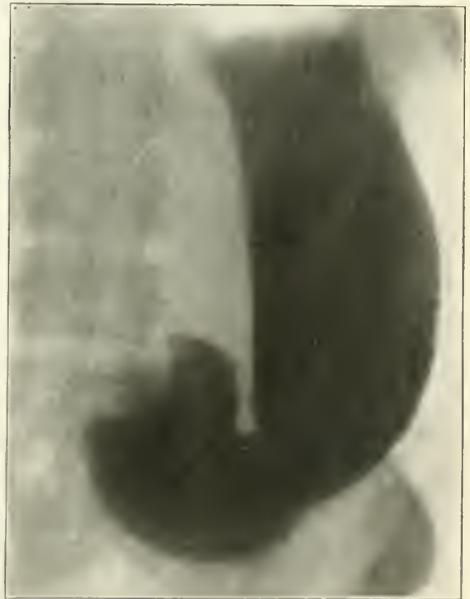


Fig. 1.—Diffuse pylorospasm secondary to postappendical obstruction. There was no bismuth to be seen beyond the obstruction in the pylorus. The bowel was wholly free from bismuth.

12.5; normal, 12.5; and in "chronic appendicitis": hypermotility, 55; hypomotility, 0; normal, 45.

There are in this, as in any similar review of case statistics, many sources of error. A few of these are: the general condition of the patient; the emotional state of the patient at the time of the roentgen-ray examina-

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tion; the irritability of the stomach at the time of the examination, and the presence or absence of other diseased foci in the body. These factors should enter into the accompanying tables as variables; and the extent to which they affect the motor pictures of gallbladder,



Fig. 2.—Duodenospasm secondary to postappendical obstruction, with retention in stomach and duodenum, as shown by the retained lumina.

were either normal or functionally inactive. This attitude is well depicted in Moschowitz' report<sup>1</sup> on chronic appendicitis (1,500 cases) in which the reality of chronic inflammation of the appendix existing at all is questioned. On this basis, the 55 per cent. of appendixes giving hypermotile stomachs in Table 3 represent acute exacerbations of appendicitis. "Chronic appendicitis" in a fair percentage of instances is accompanied by adhesions or scar tissue from previous attacks of acute appendicitis which, in themselves, have been shown to influence the tone and motility of the duodenum and stomach. A very recent example

duodenal and appendix-stomach cases should appear in the variations in each set of cases. Hypermotility is evidently the rule in each group; hypomotility and normal stomach, being variables, indicate, for example, malnutrition, depression, a phase of gastric inactivity,

(Fig. 1) of postappendical adhesions involving the terminal ileum, cecum, uterus and right ovary, associated with spasm of the second portion of the duodenum and with diffuse pylorospasm giving a twenty-seven-hour end-ileal retention and a six-hour gastric residue, illustrates this relationship. It is, no doubt, fair to conclude that the probabilities of gastric hypermotility as described above in the presence of diseased gallbladders, duodenal ulcers, and chronic appendicitis of the mean case, as seen at Bellevue Hospital, are, respectively, 68, 4, 75 and 55.

TABLE 1—SURGICAL GALLBLADDERS

Case No.	Operation	Roentgen-ray Finding for Stomach
1 C	10 Cholecystectomy *	(W) Hyperperistalsis
2 C	13 Cholecystectomy	(S) Normal
3 G.D.	8 Division of Adhesions	(D) Hyperperistalsis
4 C	15 Cholecystectomy	(S) Hyperperistalsis (1st exam.) Gastrospasm (2d exam.)
5 C	19 Cholecystectomy	(S) Hyperperistalsis
6 G.D.	20 Cholecystectomy	(S) Normal
7 G.D.	22 Cholecystectomy	(D) Hyperperistalsis
8 C	7 Cholecystectomy	(D) Pylorospasm (diffuse)
9 C	8 Cholecystectomy	(D) Gastrospasm
10 C	17 Cholecystectomy	(S) Normal
11 C	11 Cholecystectomy	(S) Gastrospasm
12 C	1 Cholecystectomy	(S) Hyperperistalsis
13 C	1 Cholecystectomy	(S) Pylorospasm
14 C	7 Cholecystectomy	(S) Normal
15 C	9 Cholecystectomy	(D) Pylorospasm
16 C	1 Cholecystectomy	(D) Normal
17 C	1 Cholecystectomy	(D) Normal
18 C	1 Cholecystectomy	(D) Pylorospasm
19 C	1 Cholecystectomy	Hyperperistalsis

\* In Cases 1, 2, 3 and 4, the capitals enclosed in parentheses refer to Stewart, Douglas, Crump, Barber and Walker, respectively; D, G, B, and W, respectively.

TABLE 2.—SURGICAL DUODENUMS

Case No.	Operation	Roentgen-ray Finding for Stomach
1. U.D.	67 Gastro-enterostomy	(S) Hyperperistalsis
2. U.D.	70 Gastro-enterostomy	(D) Hyperperistalsis
3. U.D.	71 Gastro-enterostomy	(S) Normal
4. U.D.	74 Gastro-enterostomy	(S) Hyperperistalsis
5. U.D.	47 Gastro-enterostomy	(S) Hyperperistalsis
6. U.D.	51 Gastro-enterostomy	(S) Hyperperistalsis
7. U.D.	54 Gastro-enterostomy	(S) Hyperperistalsis
8. U.D.	55 Gastro-enterostomy	(D) Hyperperistalsis



Fig. 3.—Stomach hyperperistaltic and to the right in the presence of gallbladder disease.

Occasional experience with the contracting stomach in the open surgical abdomen has been greatly supplemented by similar experimental studies on the mammalian stomach. A recent paper<sup>2</sup> records a late sum-

or the presence of two or more associated lesions. Some of these appear on the hospital charts; many, obviously, do not and cannot. A possible effect of two simultaneous lesions may be seen in Table 4.

The appendix group represents the greatest degree of variation. Hirsch, whose opinion is based on an enormous experience in such cases, holds that the rule is hypermotility for the stomach after chronic appendicitis. The "normal" percentage of 45 is probably due to the fact that a large proportion of the appendixes

1. Moschowitz, E.: Ann. Surg. 63: 697-714 (June) 1916.  
2. Barber, W. H.: Ann. Surg. 69: 271-277 (March) 1919.

mary of these observations. Table 5 comprises a list of canine experiments. Each dog, which was to all appearances a normal animal, was prepared for operation by having breakfast withheld and by being given a hypodermic injection of morphin; he was etherized by means of the Janeway intratracheal apparatus, which keeps the subject evenly under the anesthetic during

ility, 66.7; hypomotility, 0; normal, 22.2; retrostalsis, 11.1; and after clamping of the appendix (cecum) (four cases): hypermotility, 100; hypomotility, 0; normal, 0; retrostalsis, 0.

In comparing the two series, it will be noted that the variables: general condition of the patient, the emotional state, the gastric irritability, and the possibility of other diseased foci occurring at the same time, enter into both the human and the canine groups, although it is no doubt true that in the latter these elements are better controlled. This is particularly applicable to the appendix cases in which the potential appendix even after pathologic examination, in many instances, in the hospital series remains problematic, while there is no doubt of essential injury to the dog's cecum which is held in a tightly locked crushing clamp. Retrostalsis appears in the experimental but not in the clinical series. This is probably accounted for by the fact that

TABLE 3.—SURGICAL APPENDICES

Case No.	Operation	Roentgen-Ray Finding for Stomach
1. C.A. 246	Appendectomy	(B) Hyperperistalsis
2. C.A. 255	Appendectomy	(S) Normal
3. C.A. 256	Appendectomy	(S) Hyperperistalsis
4. C.A. 264	Appendectomy	(S) Normal
5. A.A. 471	Appendectomy	(D) Gastrospsasm
6. C.A. 234	Appendectomy	(C) Hyperperistalsis
7. C.A. 201	Appendectomy	(W) Normal
8. C.A. 207	Appendectomy	(D) Normal
9. C.A. 107	Appendectomy	(S) Normal
10. C.A. 112	Appendectomy	(D) Normal
11. C.A. 121	Appendectomy	(W) Normal
12. C.A. 122	Appendectomy	(S) Hyperperistalsis
13. C.A. 90	Appendectomy	(D) Hyperperistalsis
11. C.A. 145	Appendectomy	(S) Hyperperistalsis
15. C.A. 151	Appendectomy	(S) Pylorospsasm (?)
16. C.A. 153	Appendectomy	(S) Normal
17. C.A. 155	Appendectomy	(S) Normal
18. C.A. 60	Appendectomy	(C) Hyperperistalsis; pyloro-spasm
19. C.A. 64	Appendectomy	(C) Gastrospsasm (?)
20. C.A. 76	Appendectomy	(S) Hyperperistalsis

the course of the experiment; and his abdomen was opened in the upper half so as to expose the stomach and duodenum with the least possible trauma of handling and of instruments. Under these conditions, the stomach was watched for the appearance of the normal two-cycle contractile phase. When these contractions appeared, which might be at once or after the lapse of half an hour, or if the organ was not properly irritable or not irritable at all (these animals had to be excluded), the stomach was considered to be approximately normally contracting, and any changes in these contractions produced by parietal and visceral traumas were carefully noted. In one instance, a non-irritable stomach was made to contract by gently blowing air into it through an esophageal catheter. This relation of the stomach contractions to rise in intragastric pressure is especially represented in the paper mentioned.<sup>2</sup> In these experiments, the latency of gastric response to extrinsic stimulation corresponded roughly to the latent period of contraction for involuntary muscle. This interval was often three minutes, but varied from less than one minute to ten minutes. In a fair proportion of the animals, it was impossible to describe normal contractions for the stomach at all

TABLE 4.—SURGICAL GALLBLADDER AND APPENDIX

Case No.	Operation	Roentgen Ray Finding for Stomach
1. (V.6) C.18	Appendectomy; cholecystectomy	(S) Normal
2. C.19	Appendectomy; cholecystectomy	(S) Normal

or to arouse in them any reaction to extragastric stimuli. These animals are not included in Table 5.

It should be added that all these experiments were carried out before a review of the hospital records was undertaken—which should add weight to the striking correspondence in the two data. On the basis of these experiments, the motor functions of the stomach after gallbladder stimulation, in percentages (eleven cases) are: hypermotility, 61.5; hypomotility, 0; normal, 15.4; retrostalsis, 23.1. After traumatization of the duodenum (six cases), the gastric motility is: hypermo-

TABLE 5.—EXPERIMENTAL SERIES

Experiment No.	Organ Irritated	Effect on Stomach	Effect on Duodenum
10	Stomach	Gastrospsasm	
11	Parietal peritoneum Cecum (appendix) Gallbladder	Peristalsis inhibited Pylorospsasm Pylorospsasm	Duodenospsasm
18	Gallbladder Stomach Duodenum	Retrostalsis; hypermotility; gastrospsasm Hypermotility Hypermotility	
20	Cecum (appendix) Gallbladder	Gastrospsasm; pylorospsasm Retrostalsis	Duodenospsasm
21	Stomach	Gastrospsasm	
12	Gallbladder Duodenum	Retrostalsis Hypermotility	
32	Intestine Duodenum Gallbladder	Hypermotility Hypermotility Pylorospsasm	
33	Stomach Duodenum	Retrostalsis; pylorospsasm	
33	Gallbladder	Retrostalsis; hypermotility	
35	Parietal peritoneum Gallbladder	Dilatation Hypermotility; pylorospsasm	pylorospasm
	Small intestine Duodenum	> Hypermotility; pylorospsasm; incisure	pylorospasm
40	Parietal peritoneum Gallbladder	Dilatation >	
	Appendix Gallbladder	Hypermotility Hypermotility	
61	Parietal peritoneum Gallbladder	Peristalsis inhibited Hypermotility	
68	Appendix; duodenum; gallbladder	Hypermotility	
69	Appendix; duodenum; gallbladder	Hypermotility	

patients who are vomiting are not submitted to roentgen-ray examination, although Hirsch reminds us that occasionally he has seen this phenomenon take place during fluoroscopic examination of the stomach. On the other hand, if vomiting did occur at the moment the roentgenogram was taken, it is probable that the direction of the wave from the pylorus toward the cardia could not be ascertained. Antistalsis is seen in the canine group because the animals are studied under conditions of acute traumas which provoke vomiting in the anesthetized creature. The human cases were chronic; the mammals correspond to acute types; but when it is remembered that the patients present themselves during their periods of acute suffering, this apparent dissimilarity loses weight.

It is apparently impossible, in the light of our present knowledge, to exclude absolutely, without direct examination, a pathologic condition of the stomach in the reflex type of individual under discussion. The roentgenologists are working on this problem, and it is hoped

that something will come of it. From experience with the surgical stomach, as presently outlined, one is led to conclude that the incisura or localized gastrosplasm, which may be a response to direct or to extragastric traumas, should practically always be associated with the gastric lesion and should relatively infrequently accompany the diseased gallbladder, duodenum and appendix. Given the pathologic grouping of individuals that the roentgenologist sees, it is probably true that the incisura is not infrequent after lesions of the gallbladder and duodenum, and not uncommon after appendicitis. What has been said of the incisura probably largely applies to spasm of the pyloric sphincter. On the other hand, diffuse pylorospasm very infrequently follows clinical and experimental disease of the gallbladder, duodenum and appendix.

To estimate in advance from a study of gastric motor physiology to what degree the suspected organ is diseased may not be out of the range of human possibility. A closer cooperation between the roentgen-ray and experimental laboratories, operating room, and pathologic laboratory may work to this end. There are two investigations that throw some light on a means of indicating the diseased organ and the extent of disease: one is that of antistalsis in the stomach, and the other is the selective response of the fundus and pylorus to extrinsic stimulation. Both of these problems are undergoing further study.

#### SUMMARY

1. For the past eight years, the records of chronic cholecystitis, with or without cholelithiasis, duodenal ulcer, and chronic appendicitis bearing roentgen-ray notes on the gastric motor function and verified by open operation, disclose gastric hypermotility for gallbladder disease in 68.4 per cent., for duodenal ulcer in 75 per cent., and for chronic appendicitis in 55 per cent. of cases.

2. Experiments purposely carried out in the open surgical abdomen antedating this clinical review give hypermotility for gallbladder disease in 61.5 per cent., for duodenal trauma in 66.7 per cent., and for appendix disease in 100 per cent. of experiments.

3. The motor characteristics of surgical lesions of the stomach are the incisura, and pylorospasm (pyloric-sphincter-spasm) in that they probably more frequently occur in the presence of essential disease. Diffuse pylorospasm appears very often "reflexly."

#### ABSTRACT OF DISCUSSION

DR. ANTHONY BARBER, New York: Gastro-enterologists seem to have a very hazy idea as to what tonus really is. Some work in this has been done recently by Dr. Byrne of Louisiana University, presenting tonus in a way which is both a practical and understandable. Tonus may be defined as the part of a postural status, which may be maintained by the act of the muscle. As I stand here you are making an effort my muscles are in a state of jel. There is an afferent element, the element that is actually the nervous system, mainly the cerebrospinal system, that represents the active part of tonus. I am going to speak particularly in the subject of hypermotility. I notice that in the statistics here, there are in the first instance, gallbladder 68 and appendix 55 per cent., whereas in the second instance, the gallbladder is reduced to 61 per cent. and the appendix elevated to 100 per cent. In my opinion, hypermotility is of no diagnostic significance in gallbladder pathologies. It is of significance in disease of the stomach, duodenum and appendix. The reason it should

not be considered in gallbladder cases is anatomic as well as clinical. The nerves of the stomach come from both pneumogastrics and sympathetics, containing medullated and nonmedullated fibers. Here the sympathetic system is a complex of both kinds of fibers. The nerves that supply the stomach come from the gastric plexus and these also supply the upper level of the duodenum—thus hypermotility in duodenal ulcer. The right vagus is the more important in this connection, in that it supplies fibers to the posterior wall of the stomach, the solar plexus, spleen, pancreas, intestine, midcolon and suprarenal. Thus the stomach has direct connection with the appendix as is the fact with the duodenum. The nerves of the gallbladder come from the solar plexus through the hepatic plexus, which is in the lesser omentum in company with the bile ducts, hepatic artery and portal vein. It innosculates with the left vagus but this only supplies branches to the anterior surface of the stomach over a very limited area of the stomach—thus the gallbladder is very indirectly connected with the stomach and then only in small part. I feel definitely that the roentgen-ray teaching of hypermotility of the stomach as a symptom of gallbladder pathology should be eliminated.

DR. R. WALTER MILLS, St. Louis: I do not understand what Drs. Stewart and Barber mean by hypermotility, whether they speak of total gastric motility, initial motility, or fractional motility, which, by the way, may be the method of the future. In a series of 2,500 cases in which I determined the exact time of total gastric motility after a standard roentgen-ray test meal to within seven minutes, no such findings as have been given by the present investigators were obtained. For instance, in that series there were fifty-three cases of gallbladder disease and 25 per cent. of them showed hypomotility instead of hypermotility, as indicated by a six-hour residue after the barium meal. In a series of 203 cases of duodenal ulcer, 49 per cent. showed hypomotility in the sense of total motility. In appendicitis, motility was practically that of a series of one thousand cases without any organic or marked functional disturbance. A great factor in estimating gastric motility is the type of individual. For instance, in the two extremes of bodily habits, the stomach of the asthenic often will not clear of an average contrast meal in six hours. I have seen the same meal emptied from the stomach of the other extreme of type, the hypersthenic, in one and one-quarter hours. These are extremes. All motilities between these two form a gradient. If all persons are grouped in four types, hypersthenic, sthenic, hyposthenic and asthenic, their stomachs will be found to empty about as follows: The hypersthenics in four hours, the sthenics in four and one-half hours, the hyposthenics in five hours and the asthenics in five and one-half hours. The work of Dr. Alvarez on visceral neuromuscular activity as related to peristalsis and motility indicates that many gastric hypomotilities where the lesion is within the stomach, are the result of inhibition rather than of crippling of the gastric expulsive mechanism.

DR. J. O. PALEFSKI, New York: The conclusion reached by the authors is generally recognized among roentgenologists—that hypomotility is usually found in intestinal cases. However, I do not believe we can take that as a clinical application, because usually gallbladder cases that come under observation show that the predominating feature is that of gastro-intestinal stasis. At Bellevue Hospital, it has been my invariable experience from the clinical point of view that the reports showed hypomotility; while after a really mixed meal there is, perhaps, in about 80 per cent. of cases a residue after six or seven hours. I do not believe we can test the gastric motility through barium. In order to test the motility we must take into consideration the factors which enter into motility or the evacuation—the normal acidity, the normal stimulation. I feel that this is a very important point in gastro-enterology and it requires team work on the part of the gastro-enterologists as well as the roentgenologists to come to a conclusion.

DR. VAN VALZAH HAYES, New York: It seems to me that we do need a more thorough method, a more satis-

factory method of testing the motility of the stomach. Just one example:

Recently a patient came to my office. I took an ordinary test breakfast and to my surprise found present pieces of vegetable eaten at dinner the night before. The patient was then sent for roentgen-ray study and the barium was given. The roentgenologist reported that "the stomach evacuates itself rapidly and is almost completely empty at two hours."

DR. G. A. FRIEDMAN, New York: I would like to ask Dr. Stewart whether he has had occasion to examine his patients roentgenographically after their appendixes or gall-bladders were removed, and whether the roentgen findings in regard to motility of the gastro-intestinal tract were different from those found before operation. If the disturbance in motility was due to the diseased appendix or to the diseased gallbladder, normal motility should have established itself after the surgical procedures. If, however, the postoperative roentgen findings were identical with the preoperative findings, it may then be questionable whether the altered motility discovered previous to operation was really due to the pathology in the appendix or gallbladder. May it not be possible, then, that the disturbance in nerves regulating the musculature was the primary factor for the disturbance in motility?

DR. WILLIAM HOWARD BARBER, New York: In regard to the connections of the extrinsic gastric nerves with "reflex" gastric motility: keeping in mind the anatomy, as Dr. Bassler has described it, it is very difficult to interpret the effects on stomach tonus produced by traumatizing, clinically or experimentally, extragastric tissues; it is difficult to affirm positively that such effects are vagus or splanchnic. These nerves have been divided in the chest and in and about the stomach. From these experiments, it appears that the vagus nerve carries motor fibers to the fundus and inhibitory branches to the pyloric part. Appendical, duodenal and gallbladder irritation in the present series is most often associated with gastric hypermotility. One occasionally sees in the course of an operation, gastric motor waves followed (as the traumatism of handling continues) by fundic relaxation and, later, by pyloric relaxation or total dilatation. These changes may be due to the loss of vagus control or to the stimulation of the sympathetic.

Under the head of hypermotility are included the gastric spasms. Pylorospasm may be confined to the anatomic sphincter or to the pyloric end of the stomach. It is believed that the spasms are qualitatively identical with hypermotility. Increase in force characterizes the spasmodic contractions, but increase in rate characterizes the cycles in hyperperistalsis. Hypermotility must be differentiated from "emptying time" for it is evident that a forcibly contracting stomach may be associated with early emptying or retention accordingly whether there is pyloric relaxation or obstructive pyloric spasm. For this reason, the gastric "motor" meal is not a motor meal at all but significant of the time of gastric emptying. Of course, the anatomic types, spoken of by Dr. Mills, are to be considered among the variables influencing the tone and motility of the mean stomach. The choice of the opaque meal and the interpretation of the roentgenograms have been left with the roentgen-ray department. The gastric motor function following operation was largely a personal equation. It is to be expected that this improves as the general condition of the patient improves.

**Report on After-Care of Poliomyelitis.**—The annual report of the New York committee on the after-care of infantile paralysis patients has just been made public, and shows that during the past year 8,253 patients have been cared for. The report shows that regular after-care has resulted in great improvement in most cases and in many instances in permanent cure. It finds, however, that there is still a great deal to be done, and a survey now under way indicates the necessity of complete records of cripples, additional clinics, and increased means of transportation, and the development of field agencies to help those in need of orthopedic assistance.

## BLOOD TYPE CLASSIFICATIONS, WITH A SLIGHT MODIFICATION OF TECHNIC

REPORT OF THE RESULTS OF MORE THAN A THOUSAND CLASSIFICATIONS

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During the year ending Feb. 1, 1919, 1,122 blood type classifications were completed in the laboratory of the U. S. Army General Hospital No. 6 and the Department Laboratory, Southeastern Department, U. S. Army, Fort McPherson, Ga.

The whole blood, slide method was employed, the technic of which, having been slightly modified by this laboratory, is herewith reported.

The blood of the individual to be typed is collected from the finger tip in a leukocyte counting pipet. The pipet is not washed out with sodium citrate solution before taking the blood, as is usually advised; but the citrate solution (2.5 per cent.) is drawn to the 0.5 mark

### RESULTS OF CLASSIFICATIONS

Types	Number	Per Cent.
1. ....	54	4.8
2. ....	601	53.6
3. ....	70	6.2
4. ....	397	35.4

of the pipet tube and the blood then drawn up until the bulb is half filled, when the blood remaining in the tube is drawn up about 1 mm. from the tip or point of the pipet and the citrate solution again drawn to the 0.5 mark. As a result of drawing the blood up to about 1 mm. from the tip of the pipet, a small space of air is placed between the blood and the solution, preventing admixture of the two fluids in the tube so that the solution may be drawn to the 0.5 mark without difficulty. Without this little bubble of air, it is impossible to observe the surface of the citrate solution in the tube since it mixes with the blood.

It has been observed that by drawing the citrate solution twice to the 0.5 mark instead of once to the 1.0 mark, a clot never forms in the bulb, since the solution and blood are more thoroughly mixed.

Several bulbs of blood are collected and blown into a small tube, such as a Wassermann tube. Blood from a known Type II individual (several of whom are on duty in this laboratory) is similarly collected.

The admixture of the unknown and known bloods is made by using the white blood counting pipet instead of a capillary tube. The Type II blood is drawn to the 0.1 mark and then the unknown is drawn up until the 1.0 mark is reached. This admixture is blown on a slide and thoroughly mixed by being drawn up and down in the pipet several times; any bubbles are broken by being blown on through the pipet. The entire amount of mixed blood is then drawn into the leukocyte pipet tube and blown on a drop of physiologic sodium chlorid solution on another slide (near one

end), and any bubbles are broken as before and a cover slip dropped on it.

The same process is repeated, one part of the unknown being used and nine of the Type II, which after being mixed is placed in a drop of saline on the opposite end of the same slide. The agglutination is observed with the low power of the microscope and is complete in ten minutes, sometimes in a much shorter time.

An agglutination at only one end means a Type I or Type IV, the latter if nine of the unknown agglutinates the known II, Type I if nine of the known II agglutinates the unknown.

No agglutination on either end of the slide commonly means a Type II, but there is an exception to this, as will be shown below, and agglutinations at both ends indicate a Type III with the following exception: Some Type IV bloods possess such high agglutinating power that the one tenth amount causes agglutination in the nine tenths of the Type II, giving agglutinations at both ends of the slide. It so happens that the agglutination occurring in this manner is generally somewhat weaker or less pronounced at one end than at the other, but this is not always the case. It is therefore customary in this laboratory to verify all Type III agglutinations with a known Type III, and also to corroborate the result further by agglutinating with known Types I and IV.

The exception to the statement that no agglutination on either end of the slide indicates a Type II is due to the fact that some bloods are apparently lacking in some substance or agent which, in a manner similar to the action of complement in fixation reactions, causes or permits the agglutination to proceed. When two bloods in both of which this ingredient is wanting are brought together, no agglutination results regardless of the type they may be. The accidental occurrence of such phenomena on several occasions in this laboratory has led us to confirm all results which indicate Type II by agglutination with a known Type IV.

## NOTES ON DIGITALIS MEDICATION

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### I. THE RATE OF DISAPPEARANCE OF DIGITALIS FROM THE BODY

When we try to maintain a patient under the full therapeutic effect of digitalis, we have always been hampered by the fact that we do not know the rate at which the body can dispose of this substance by excretion or destruction. It seems likely from recent research by Hatcher and Eggleston that both of these processes occur.<sup>1</sup>

The patient is either unable to pass gradually out from under the influence when too small a dose is given, or with over-administration of the drug to have a series of symptoms which give the impression that the patient is essentially susceptible to the vomiting.

It is evident that a final experiment would not give a definite answer to the question of the rate of disappearance of the drug, because of the marked variations that were found between different species.

The question was therefore applied directly to the patients by the following method: The drug was given so as to produce one of the mild toxic symptoms and then stopped entirely for a number of days. It was then given again until the same toxic sign reappeared. The amount of the drug used in the second course, divided by the number of days between the two toxic points, would give the daily average of the drug that had disappeared from the body in the interval, assuming that there is no change in the patient's tolerance for the drug, a fair assumption, as will be pointed out later.

The initial course was given so that the toxic symptoms appeared in from two to six or eight days, usually starting with doses of 30 minims of the tincture every four hours, or even 1 dram for the first three doses, and continuing with 15 or 20 minims every four hours. The second course was usually given in a similar way, starting with large doses and continuing with 20, 15 or even 10 minims every four hours, or three times daily. The second course was completed in an average of six days, though in a few cases it was prolonged, by using smaller doses, to ten, fourteen or seventeen days.

### SIGN FOR DISCONTINUING DRUG

Vomiting was the symptom that was most frequently used as a sign for stopping the drug, as it was felt that this was a quite definite end-point. In one case the appearance of dropped beats due to heart block was used, electrocardiographic records confirming the clinical diagnosis, and in two cases severe nausea without vomiting caused the stopping of the drug at the end of each course.

The patients included ten cases of chronic cardiac valvular disease, three cases of chronic myocarditis, and one case each of chronic adhesive pericarditis, chronic parenchymatous nephritis and chronic interstitial nephritis. At the time of the first course they all showed signs of a rather marked degree of heart failure, but by the time of the second course, most of them were in better condition. The same lot of tincture of digitalis was used throughout this series. It was standardized by the cat unit method through the kindness of Prof. R. A. Hatcher and was found to be about an average strength tincture, having 1.25 c.c. per cat unit.

The details and results of the administration of the test on twenty-two occasions are shown in Table I. The figure that represents the average rate of disappearance of the drug from the body is 22 minims of the tincture per day. In half of the cases the figure was below this and in half above it, the maximum variations being from 55 per cent. below to 82 per cent. above the average. The rate of disappearance seems to be independent of the amount of digitalis present in the body at the time, for it does not vary with the number of days elapsing between the first and the second points of toxicity. Nor was any relation noted between variations in the rate of disappearance and either the weight of the patient, the size of the doses of the tincture at the time vomiting occurred, the rapidity of administration of the total dosage, or the degree of heart failure shown by the patient at the time of the test. Susceptibility of the patient to the drug did not appear to influence the result either, for the rate of disappearance of the drug bore no relation to the quantity of digitalis per pound which was required to produce toxic symptoms in the patient's first course.

<sup>1</sup> Hatcher and Eggleston, *J. Pharmacol. & Exptl. Therap.* 12: 405 (1919).

In five cases (2, 4, 6, 8 and 9 in Table 1), the test was repeated after an interval and in one case twice repeated, so that we have a total of six repetitions. In three of these the difference between the first and the later figures is not great, but in one case it is 9 minims, in another 10 minims and in another 17 minims. This variation does not seem to depend on the dosage used or on the length of time elapsed between the days on which digitalis was stopped in the successive courses. It does, however, vary with the days of administration

return of the vomiting. Ten minims of the tincture<sup>2</sup> three times daily will lead to vomiting in the majority of cases, since fifteen of our twenty-two tests showed a slower rate of disappearance than this. Our results also demonstrate a new phase of the variability, from one individual to another, in the action of digitalis, a variability in the rate of disappearance from the body.

II. THE THERAPEUTIC DOSE OF TINCTURE OF DIGITALIS

In the course of the previous work it was possible to determine the amount of digitalis that was necessary to produce those early toxic manifestations (nausea, vomiting or dropped beats due to heart block) which are commonly encountered when the drug is given in sufficient dosage to obtain a prompt therapeutic effect. Sixteen suitable cases were found, nine of which were included in the previous series also. There were seven cases of chronic cardiac valvular disease, two of chronic myocarditis, two of chronic adhesive pericarditis, two of chronic parenchymatous nephritis, and one each of chronic interstitial nephritis, acute fibrinous pleurisy and carcinoma of the mediastinal glands. The noncardiac cases were included for the purpose of comparison; and since they did not give figures at either extreme of our results, it was felt that this was evidence that the handling of digitalis is not essentially different in cardiac and noncardiac cases.

TABLE 1.—THE RATE OF DISAPPEARANCE OF DIGITALIS FROM THE BODY

Patient	Condi- tion	Days Elapsed between Two Points of Stopping Digitalis	Minims. (Total) in Course	Days of Administration of Course	Dosage During Last Day	Minims per Day Disappearance
1	A	9	90	1	30 m q4h	10
2	C	17	360	17	10 m q4h	15.3
3	C	13	160	13	20 m tid	12.3
4	C	6	105	6	10 m tid	17.5
5	B	18	240	4	20 m tid	13.3
	A*	29	1,170+	39	10 m tid	30 +
5	B	10	135	3	15 m q4h	13.5
6	B	20	280	6	10 m q4h	14
	H	13	235	7	10 m q4h	18
	A*	24	550+	18	10 m tid	23
7	B	18	310	10	10 m tid	17
8	C	6	140	4	20 m q4h	23.3
	C	20	360	2	20 m q1h	18
9	C	10	200	3	20 m q4h	20
	H	19	570	14	10 m q4h	20
10	C	8	180	3	20 m q4h	22.5
11	C	10	270	6	15 m tid	27
12	C	15	450	4	30 m q4h	30
13	C	15	460	6	20 m q4h	30.6
14	B	7	240	3	20 m q4h	34
15	B	13	320	6	20 m q4h	40
16	B	11	440	6	20 m q4h	40
Average.....		13		6		22

A indicates that the patient shows only slight signs of heart failure, B indicates that the patient shows moderate signs of heart failure, C indicates that the patient shows marked signs of heart failure. \* These two patients had not yet reached the toxic stage with the dose recorded.

of the last course, being higher in a given patient when the course covers a greater number of days. This variation is not proportional to the number of days, nor can any explanation for it be offered.

The results of this investigation resemble those of other work on digitalis in the variability of the figures, but nevertheless in eighteen of the twenty-two tests the result lay between 12.3 and 30.6 minims per day, while in eleven tests, half of the total, it was between 13.3 and 27 minims, the latter a total variation of only 62 per cent. of the average. It is evident from this that the average figure of 22 minims per day would afford a fairly satisfactory basis for long continued digitalis medication, since in only half of the cases would it be much more or much less than the patient's ability to dispose of the drug.

BEARING OF RESULTS OF INVESTIGATION ON ADMINISTRATION OF DIGITALIS

These results seem to have two important bearings on the administration of digitalis over long periods of time. They demonstrate the approximate efficacy of the dosage of 10 minims of tincture of digitalis twice daily, which has commonly been considered sufficient to maintain the digitalis effect which has been already produced by larger doses. Only after a considerable number of days will a patient on this dosage come to be much below the grade of digitalization at which he started, and only occasionally will this dosage lead to a

TABLE 2.—THERAPEUTIC DOSE OF TINCTURE OF DIGITALIS

No. of Patient	Diagnosis	Condi- tion	Minims Total Dosage	Days of Administration	Minims Dosage During Last Day	Minims per Day	
9	Chronic myocarditis	C	150	3	20 m q4h	7.14	
11	Chronic myocarditis	B	110	240	4	15 m tid	2.14
		B	420	9	15 m tid	3.8	
6	Chronic adherent pericarditis	B	123	2	20 m q4h	2.23	
22	Chronic valvular disease	C	125	283	3	30 m tid	2.26
1	Chronic valvular disease	B	115	260	6	15 m tid	2.26
16	Chronic valvular disease	C	130	430	6	15 m q4h	3.53
10	Chronic parenchymatous nephritis	C	130	430	8	15 m tid	3.3
21	Acute fibrinous pleurisy	A	126	360*	6	30 m tid	3.3
23	Chronic pericarditis	B	150	610	7	20 m q4h	3.35
3	Chronic valvular disease	C	134	490	6	15 m q4h	3.58
2	Chronic valvular disease	C	100	360	6	15 m q4h	3.6
12	Chronic valvular disease	C	200	760	7	30 m tid	3.9
20	Carcinoma	A	151	620	8	20 m q4h	4.0
19	Chronic valvular disease	C	172	690	8	30 m tid	4.06
18	Chronic parenchymatous nephritis	C	160	740	7	30 m tid	4.17
24	Chronic interstitial nephritis	B	130	610	8	20 m q4h	4.9
Average.....			140	466	6		3.33
25	Chronic valvular disease	B	51	66	22	30 m tid	6.1
26	Chronic valvular disease	B	1.5	830	31	20 m tid	6.61

\* Did not vomit after this dose.

THE AVERAGE PERIOD OF ADMINISTRATION

None of these patients had received digitalis previous to this experiment for a period of at least three weeks. The drug was given as previously described for the first course, the average period of administration being six days, never over eight days except on one occasion, which was a repetition of the test after a thirty day interval (Patient 11, Table 2).

In this repetition of the test we see the influence of a lengthened period of administration. The first test

2 It must be remembered that 10 minims is equal to ten 1/2 drops of tincture of digitalis, according to the dropper used.

was complete in four days and the second in nine days. Allowing for a daily disappearance from the body of 22 minims of the tincture for each of the five extra days, the figure for minims per pound of body weight is reduced to 2.8 minims, which is not very different from the 2.14 minims of the first test in this case. The time factor has a much more evident effect in the last two cases in Table 2, neither of which are included in the average for the series. The figures of 6.1 minims and 6.64 minims per pound of body weight represent the amount of the drug given over periods of twenty-two and twenty-one days respectively. When these are corrected to allow for a daily disappearance of 22 minims per day for each day over the average time of administration for the series, namely, six days, they are reduced to 2.23 and 4 minims per pound, respectively, which makes them quite comparable with the rest of the series.

Table 2 gives the data for these experiments, the average for the seventeen courses being 3.3 minims per pound of body weight. The variation is from 36 per cent. below this to 50 per cent. above it.

The only work with which this may be compared is that done by Eggleston,<sup>1</sup> who also found marked variations from the average dose of the tincture, variations from 38 per cent. below to 71 per cent. above the average. Since he used larger doses of the tincture, toxic effects appeared in his series after an average of only three days. His results, moreover, were reduced to a standard strength of tincture such that one cat unit equals 1.00 c.c., a stronger tincture than ours. If Eggleston's figure of 2.2 minims per pound of body weight is corrected for the difference in strength of the tinctures it is raised to 2.75 minims; and if further corrected for the three days longer that were required to produce toxic effects in our experiments, considering that 22 minims per day were disposed of and taking into account that the average weight of his patients was 140 pounds, the figure becomes 3.23 minims per pound, which is quite in agreement with our figure of 3.3 minims.

#### THREE IMPORTANT POINTS

Three things among these results seem to demand special mention. The importance of the period of administration is very great, for each day some of the drug is destroyed or excreted from the body. The average amount of tincture required to produce a full therapeutic or early toxic effect is found to be in agreement with Eggleston's figure, and the variations from one individual to another are of the same considerable magnitude that he found.

#### IMPORTANCE OF A KNOWLEDGE OF THE VARIABILITY OF THE INDICATED DOSE

The variability of the dose of digitalis for different individuals is of great importance in therapeutics. Realizing that a variability has also been found in the rate of disappearance of the drug from the body, it will be plain how complicated the problem of digitalis medication must be. Two things, however, are quite plain: when the patient has received enough digitalis for his own special organism he will show one of the early toxic effects, usually nausea or vomiting. If after this he continues nauseated while the drug is being given, it means that he is receiving too much, that is, an excess over his average daily rate of disap-

pearance. We must carry these facts of variable susceptibility and variable disappearance clearly in mind, and combine with them the fact that digitalis is continually being disposed of by the body even during the period of administration, in order to avoid two common errors of clinical observation which may arise when digitalis is given. When a patient does not react to a usual dose of tincture of digitalis, it does not necessarily mean that the tincture is weak. It is possible that the patient may have a high susceptibility, and may require perhaps 4 or 5 minims per pound of body weight instead of the usual 2 or 3 minims, or the drug may have been given at such a slow daily rate as to little more than keep pace with the disappearance. On the other hand, the reappearance of vomiting a short time after resuming digitalis does not mean that the patient is one whose stomach cannot tolerate the drug. The time that has elapsed since the last vomiting must be considered, as well as the daily dosage.

#### FACTORS MAKING FOR A LOW VENEREAL RECORD IN THE AMERICAN EXPEDITIONARY FORCES

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The venereal disease incidence in the American Expeditionary Forces is considered as probably much lower than that ever obtained in our own army or in any other army operating in Europe. This opinion is not susceptible of proof as regards the armies in Europe, as the methods of reporting cases and estimating rates are not comparable. In the American army, cases were found largely as the result of physical inspections held at least twice a month, while in most other forces only those cases in which excuse from duty was granted or hospitalization occurred became known.

#### THE VENEREAL DISEASE RATE

The American incidence rate, based on inspection and stated in annual rates per thousand, varied for the greater part of the time during which American troops were present in large numbers in France between 62 and 31, averaging in the neighborhood of forty-five cases per thousand men per annum. This rate was never before closely approached in the U. S. army. It rose rapidly as troops were being sent home, but this rise was partly fictitious, and the true rate at that time was undeterminable. The corresponding incidence rate in the United States was always reported as higher than in France, averaging above 60 even after the armistice. It is thought that this was an error, as there is no sufficient reason known to account for a higher rate in the United States. Ignoring that rate, however, and considering only the low rate in the American Expeditionary Forces, this appeared the more remarkable for the following reasons:

(a) Many men in the United States were sufficiently near their usual safe sources of sexual gratification, whether wives or mistresses, to enable them to indulge occasionally and so avoid the call set up by prolonged abstinence.

(b) One of the most potent influences affecting conduct is the public opinion of a home community. While

<sup>1</sup> Eggleston, C. C. *Digitalis Dosage*. Arch. Int. Med. 16:1 (July) 1917.

in America most men were within reach of that opinion, in France they were away from it. Furthermore, public opinion in France differs radically from that in America in regard to male chastity. Notorious lack of such chastity certainly carries reproach in the United States. It does so to a much less degree, if at all, in France.

(c) Discomfort, overcrowding, mud, wetness, lack of fuel and lack of amusement were more marked in France than in the United States, and the comparative luxury and comfort of the prostitute's room was greater in France.

(d) Solicitation by prostitutes is nowhere in America anything like so common, so open, so attractive, as it was almost everywhere in France. In cities like Paris, Tours, Nice and Marseilles, real virtue was necessary to resist it at all times.

(e) Alcohol was much more easily, cheaply, abundantly and openly obtainable throughout France than in the neighborhood of any camp or post in the United States. Alcohol has always been considered an aid to prostitution and an important factor in the spread of venereal disease.

#### CAUSES FOR THE LOW INCIDENCE RATE

An effort was therefore made to obtain information which would account for the low incidence rate and which would furnish data for formulating answers to certain important, but at that time, wholly unanswerable, questions, namely, What proportion of Americans remained chaste in France? What proportion of exposures were followed by the use of prophylaxis? What is the average number of unprotected exposures per case of infection? What is the average number of exposures with prophylaxis per case of infection?

With this object in view a questionnaire was sent out in order to secure information on the following subjects:

1. What is the percentage of chaste men among soldiers?
2. What is the average number of nonprotected venereal contacts to each case of venereal disease?
3. What proportion of men have been exposed to venereal disease (that is, what proportion have had sexual contacts in France) without using prophylaxis?

The suggestion was given that information on these subjects might be obtained by having organizations of white soldiers addressed by urologists, who would set forth the need of this information and state to the men that their aid was desired in obtaining it. The urologists could then ask the men to fill out and turn in without signature a mimeographed questionnaire card giving the following information:

1. Have you had sexual intercourse in France? If so, approximately how often?
2. Have you always used prophylaxis after intercourse? If not, how many times have you failed to use it? (If the exact number of times is not known, make an estimate or state average frequency.)
3. Have you had venereal disease? If so, did it follow intercourse with prophylaxis? Did it follow intercourse without prophylaxis?

It was requested that an inquiry of this nature on a scale as large as was readily practicable be made and that the results be promptly reported.

The questions were answered more or less completely by 13,648 men located in four base sections, principally at Bordeaux, St. Nazaire, Brest and Tours.

The men's own papers from Bordeaux and St. Nazaire were unfortunately not sent to me; only compilations of the replies were sent. But the papers from Tours and Brest, more than 3,000 in number, I received myself and have analyzed carefully, and certain deductions are based on that analysis only, for the reason that that was the only material available for an analysis of the sort. The total replies covered more than 104,000 illicit exposures and 215 acknowledged cases of venereal disease. Among the Tours and Brest papers there were 7 per cent. in which the men failed to answer the question as to whether they had had venereal disease; and the compilations sent from Bordeaux and St. Nazaire did not give information on that point. It is probable that the majority of men refusing to answer this question had had venereal disease in some form.

In addition to the foregoing material, the deductions set forth are based on a questionnaire put out by Col. George Walker, which was answered by 614 men who had contracted venereal disease, on reports of prophylaxis and on all reports concerning venereal disease incidence in the American Expeditionary Forces. From these sources I have drawn information that seems to me to justify the conclusion that antiveneal measures are effective in the following order:

1. Those that keep men chaste.
2. Those that diminish the opportunities for sexual contact, especially efforts at the suppression of prostitution.
3. Those that diminish the dangers of contact, especially venereal prophylaxis.
4. Those that exact punishment.

#### INFLUENCES THAT MAKE FOR CHASTITY

Thirty-four per cent. of 13,648 white men taken at random in the service of supply, abstained from sexual intercourse while in France, a period varying from eight months to two years and probably averaging about ten months. One third of all men were thus practically excluded from the possibility of obtaining venereal disease, and one third of the possible venereal rate was thus eliminated. As to what induced this proportion of men to remain chaste, I can advance only opinions, not proof.

My opinion, based on conversations with men, gratuitous information inserted in replies to questionnaires, and my observations of the men, is that by far the most important factor were those inherent in the men rather than in the antiveneal campaign, factors such as character, religion, love, loyalty and self-respect.

The most common reasons advanced by men to account for their own chastity were loyalty to a wife<sup>1</sup> or a sweetheart at home, or a resolution of abstinence before sailing and pride in keeping it.

Another third of all men indulged in intercourse so infrequently as to make their chances of acquiring disease quite small; and relative continence was probably next in importance after real chastity in keeping down venereal disease.

As to how powerful the vigorous and extensive antiveneal campaign waged in all camps and cities of the United States from the time we entered the war was in leading men to avoid prostitutes there is no means of knowing; but there is ample reason for supposing that it was a very potent factor. Well reared boys

<sup>1</sup> The Second Report of the Provost Marshal General, page 11, indicates that 11 per cent. of 614 freed men reported as never married.

and men in general desire to do what they know to be right; and when it is difficult to do so, a little encouragement from the outside is of the greatest value. Such encouragement was certainly afforded by the campaign of propaganda.

Another, and in France even more powerful, encouragement and aid was General Pershing's well known stand in regard to venereal diseases and prostitution. The effect of that stand and of the vigorous action based on it was to make every line officer in the American Expeditionary Forces, from generals down to second lieutenants, realize as never before that he had a great responsibility for the occurrence of venereal disease among his men; and there grew up a disapprobation of venereal contacts and of prostitution that eventually became so general as almost to deserve the name of public opinion.

After self-respect and duty, public opinion, especially that of his own locality, is one of the most powerful factors in influencing the conduct of a man. The two things just discussed, the campaign of propaganda in the United States and the official attitude of the high authority in the American Expeditionary Forces in regard to immorality and prostitution, together influenced army public opinion most favorably and usefully, especially in bringing home to inexperienced line officers their responsibilities for the instruction and control and the standards and public opinion in their organizations, and for the resulting bearing and behavior of their men. The obvious facts that the acquisition of venereal disease was purely an affair of individual conduct, and that the company officer was in a better position than chaplain, physician or any other staff officer to influence the conduct of his men, had not been seen or appreciated by many of them.

The influence of work, play and amusements in keeping men away from prostitutes cannot be expressed in figures; but it was great, and the Red Cross, the Y. M. C. A., the Knights of Columbus, the Y. M. H. A., and similar organizations that so liberally provided amusements, did a very valuable work in keeping down venereal disease, as in many other respects.

#### FREQUENCY OF EXPOSURE IN RELATION TO PREVALENCE OF VENEREAL DISEASES

It is self-evident that not nearly all exposures to venereal disease are followed by disease. The same thing is true of all diseases. Furthermore, some, if not all, of these diseases can be introduced only through a lesion of the skin or the mucous membrane, thus greatly lessening the danger. The fact that I was unable to obtain from other sources any information as to what proportion of exposures are followed by infection was one of the principal reasons for sending out my questionnaire. However, the information furnished by the stragglers is somewhat difficult to classify. If the answer of only those men who had conducted themselves properly enough to indicate pretty strongly that they avoided prostitutes rather than mistresses, and who achieved acquiring venereal disease by contact, the number of unprotected exposures per case of infection varied from eleven at Brest to thirty at Tours, while the number of exposures followed by prophylaxis per case of infection ranged from twenty-five at Brest to seventy at Tours.

If the replies of all men whose intercourse was so infrequent as to suggest employment of prostitutes, and who answered the questions as to whether or not

they had acquired venereal disease be included, the Brest rates rose to 115 and 118, while if total admitted venereal disease be divided among total reported contacts, making no allowance for the 7 per cent. of men who do not state whether or not they had venereal disease, the St. Nazaire rates rose (or fell) to 312 unprotected or 1,180 protected exposures per case of infection, while in the whole series the rate was 204 unprotected or 615 protected exposures per case.

From an analytic study of replies in my possession and from collateral evidence, I think that in France there were about thirty unprotected contacts with women of promiscuous sexual habits for each case of resulting venereal disease, while prophylaxis as used in France reduced the incidence to about one third of what it was without prophylaxis or, roughly, to ninety exposures with prophylaxis for one infection.

This proves up, in a way, since from one fourth to one third of contacts are not followed by prophylaxis, while half of all venereal disease followed the neglect of prophylaxis.

The one third as many exposures is balanced by the three times greater liability to infection.

#### EFFECT OF OPPORTUNITIES FOR CONTACT

A fact that stands out clearly, from whatever angle of approach the inquiry be made, is that venereal disease incidence rises and falls with the rate of contacts or the intercourse rate. This is one of the strongly condemning facts about licensed prostitution or permitted houses of prostitution. Orders issued from general headquarters placed all prostitution under a ban and all known houses of prostitution "out of bounds;" but various influences, among them an honest belief on the part of some officers that regulation of prostitution was the best means of controlling venereal disease, led to occasional and sometimes frequent neglect or violation of this order, so that there were many opportunities for observing the effect of open or tolerated houses. Always, so far as I could learn (and I made diligent inquiry), the result was an increase in the contact rate, manifested by a rise in the prophylaxis rate and followed by a rise in the venereal rate. So, in addition to being condemned as a sin against marriage and against a society grounded on monogamous marriage, and as a corrupter of police and public morals, the house of prostitution is condemned by its fruits and as a producer of venereal disease.

One third (approximately) of all men in France indulged in sexual intercourse less than ten times each, many of them only once or twice. If, as I believe, there were thirty unprotected contacts or ninety protected ones for each case of venereal disease resulting in the respective classes, it may be seen at once that the chances of any one man in this third of the total acquiring venereal disease were very small and that, after chastity, relative continence was probably the next most important factor in keeping down the incidence rate.

An interesting sidelight is thrown on this question by a consideration of the incidence rates of the armies as compared with those in the service of supply. The rates of the former group were for several months only one third to one half as high as those of the latter group, owing principally to the fact that the opportunities for exposure were relatively exceedingly limited in the territory occupied by the armies. Later, as the armies moved into Luxembourg and Germany

and the men became acquainted with the people, but particularly as large and larger numbers of men were sent back to leave areas, the contacts increased and the venereal disease incidence rose until it almost equaled that of the service of supply.

#### BAD INFLUENCE OF LEAVES ON VENEREAL RATES

The experiment of sending men to leave areas, an experiment based on most praiseworthy desires to interest and educate the men, had a deplorable influence on the venereal rates. The release from strict discipline and in many respects from military control, the transition from a busy life to a wholly idle one, from one wherein women scarcely entered to one in which their seductions were very appealing, and the pocketful of money that the leave men carried, were sufficient to account for much disturbance of conduct; but, in addition to that, some men actually expressed the opinion that the purpose of the leaves was to allow them to have a good time with the girls after a prolonged forced abstinence. The unfortunate result was that the contact rate among men on leave was high, and in a short time the army rates began to rise. Investigation of each individual case then showed that from 50 to 70 per cent. of the venereal disease in the armies was coming from leave areas and towns en route thereto.

As indicating the high contact rates in the areas, it may be stated that, although the men stayed for only one week, the official reports of prophylaxis showed 128,637 treatments given to 430,646 leave men, a prophylactic rate of 29.8 per cent. *per week*. The rates in different areas varied from 5.6 per cent. in the Pyrenees area of Eaux Bonnes, where the population and prostitutes were scarce, to 104.7 for Nimes, a relatively large city with only a small number of leave men.

Financial condition naturally has a great influence on the contact rate, which rises at and immediately after pay days, yet 27 per cent. of 614 men who acquired venereal disease in France asserted that they had done so without money and without price; and from places so widely separated as Antwerp and Biarritz, it was officially reported that most sexual contacts with American soldiers did not involve a money consideration.

Season has an influence, and both contact and incidence rates rose markedly in the late spring and early summer. How much of these increases was due solely to seasonal influences and how much to psychologic states related to the approach of peace and the prospect of return home is undeterminable.

That entertainments or other occupation had a great influence in keeping men out of mischief is not to be doubted. Many facts indicate that a majority of venereal contacts were most casual happenings, due often to temporary lack of other occupation or interest. That they were easily and surely prevented by a tactful word in time is clearly shown by the results of the work of a very remarkable woman in the service of the Y. M. C. A. in Paris, who, at the time when I last had reports of her work, had successfully separated 1,100 American soldiers from French street walkers between the hours of 8 p. m. and 2 a. m., without one failure and with but one insult from a soldier.

According to statements made by 614 soldiers with venereal disease, alcohol seems to have played a smaller part as a factor predisposing to venereal disease in the

American Expeditionary Forces than would be supposed. Of the 614 men, only 215 admitted the use of alcohol before exposure, and only eighty-five admitted intoxication. Considering the ready accessibility of alcohol in France and its well known reputation as an attendant and promoter of venery, these figures are surprising; but as the percentage of abstainers from alcohol in the American Expeditionary Forces is not known, their significance cannot be fully appreciated.

#### INFLUENCES THAT DIMINISH THE DANGERS FROM ILLICIT CONNECTIONS

The most important of the influences tending to diminish the dangers from illicit intercourse are (1) inspection and detection of diseased persons and their segregation in such a manner as to prevent their transmitting their diseases, and (2) venereal prophylaxis, which, as prescribed in the American Expeditionary Forces, was simply an intelligent and controlled effort to disinfect a person and part already exposed to infection.

Inspection, if followed by segregation of infected persons, should do great good; and as applied to soldiers it is thought to accomplish much. In our army the practice is of several years' standing, and inspections must be made at least as often as twice monthly. Men found to have venereal disease are placed under treatment, and supposedly under restriction of movements until freed from infectious lesions. There is some evasion of the orders, but the enforcement and results are generally good. The men are kept from spreading their diseases and are given early and good treatment. Inspection of prostitutes should theoretically likewise be of great value. That it is so is extremely doubtful. There is no doubt as to the wisdom of segregating a prostitute found suffering with transmissible venereal disease; but that routine inspection, especially inspection followed by certification as to freedom from disease, does good is very doubtful; that it does harm is certain. The doubt about the good resulting is based on these facts:

(a) The inspections furnished are usually so imperfect as to be mere formalities in many instances, and without value. I know of no more striking evidence of this than that furnished by Col. George Walker, namely, that in *five years* only five cases of syphilis were detected in inmates of houses of prostitution in all the city of Paris.

(b) The inspections for many reasons, mainly economic, cannot be made nearly so frequently as exposures, and a woman found free from disease on one day may develop it the next and have intercourse with a hundred or more men before the next inspection.

(c) The prostitute has many reasons for wishing to escape segregation and withdrawal from her business and pleasure, and she also acquires skill in passing inspections.

(d) A thorough and efficient inspection is a time-consuming and skilled procedure, and it must be paid for accordingly. If the state or municipality pays, the cost is considered prohibitive. If the woman pays, there is at once established a fair presumption of partiality.

Harm is done by examination and certification of good health because such certificates, when shown, create a feeling of safety that is unjustified.

For these reasons, examination of prostitutes should not be relied on as a sound measure of venereal dis-

ease control, and it should not be followed by certification of good health; but, if used, it should be followed by prompt segregation and treatment of women found diseased. It was a measure almost entirely ignored in the American Expeditionary Forces, and was without influence on the low disease rate.

#### VENEREAL PROPHYLAXIS

Venereal prophylaxis stands on a somewhat similar but different basis. There is some reason to fear that too great confidence in the value of prophylaxis, and especially of a prophylactic measure taken in advance of connection, may relieve inhibiting fears and so tend to promote illicit connections. On the other hand, the duty of trying to protect a soldier from his own folly and to save his services to the government, and to disinfect him and prevent his acquiring venereal disease to which he has been exposed, is analogous to the duty of vaccinating him after his wilful exposure of himself to smallpox, or that of treating him to prevent the possible loss of an eye injured in a drunken fight of his own seeking. The use of prophylaxis, after the exposure, is justified and a duty in that sense. As stated above, prophylaxis as it was used in France, that is, without making allowance for errors in technic or delay in seeking it, reduced the liability to venereal disease to about one third of what it would have been otherwise. It is probable that improvement in administration and elimination of delays would further improve results.

The much greater relative frequency of chancroid in France, approximately two fifths of all venereal disease as compared with less than 4 per cent. of the total venereal disease brought in with the draft, and the lesser relative frequency of gonorrhoea, two fifths as compared with four fifths, taken in connection with the fact that the relative proportions were not greatly different in France among men who had contracted venereal disease after use or after neglect of prophylaxis, makes it very difficult to state in what degree prophylaxis is effective against the individual diseases. However, our impression in France was that, as used, it was less effective against chancroid than against gonorrhoea or syphilis.

#### PUNISHMENT AS A FACTOR IN PREVENTING VENEREAL DISEASE

In America the man excused from duty because of venereal disease not acquired in line of duty receives no pay for the time he is so excused. Furthermore, if he has acquired venereal disease from an exposure not allowed by prophylaxis, he is tried by court-martial for neglect of prophylaxis. In the American Expeditionary Forces the acquiring a venereal disease was in itself a military offense to be tried by court-martial, and neglect of prophylaxis as a separate count. Furthermore, for a part of the time, all infected men were sent to venereal camps and there segregated, a measure amounting to punishment in some respects, and during another part of the time collective punishments, for example, restrictions as to passes, were inflicted on organizations having high venereal rates.

These collective punishments were effective in bringing down venereal rates and influencing public opinion against sexual offenders within the organization, but they were regarded as unjust because they punished the innocent with the guilty, and they were therefore ordered stopped.

It is wholly just and fair to stop pay for time lost from duty because of the man's own misconduct; otherwise a premium is placed on misconduct and a man could escape much disagreeable and hard work and still draw his full pay by the expedient of acquiring venereal disease. Furthermore, the result of this policy in reducing venereal disease justifies it.

Good arguments can be advanced for making the acquisition of venereal disease and the neglect of prophylaxis military offenses and demanding trial for the offenders.

It is probable that the knowledge that punishment will follow the acquisition of venereal disease cause some men to abstain from intercourse; but it is probable that this influence is less potent than those previously discussed, for the reason that most men do not themselves expect to "get caught" at any specific time, and the additional reason that, as stated above, a large proportion of illicit contacts are very casual affairs and are brought about by circumstances that lead to the forgetting or neglect of prudent counsel of "safety first." What can most be depended on to stand against the alluring circumstances of a temptress occasion are fixed principles, and fixed habits of thought and character. These are the effects of reading and of lifelong education rather than of sporadic efforts spent on adults.

#### STUDIES ON HYPERTHYROIDISM\*

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This report is based on the study of thirty men whose physical findings were suggestive of hyperthyroidism. They had rapid pulse, enlargement of the thyroid gland, fine tremor of the hands, moist, clammy palms, and some of the eye signs usually associated with exophthalmic goiter. The object of the observations was to determine if possible whether the thyroid gland was the basis of these physical findings.

#### METHOD OF STUDY

In addition to the usual routine physical examination and laboratory work, blood sugar determinations were made following the administration of glucose by mouth. The response to epinephrin and the effect of thyroid feeding were also noted.

*Technic of the Sugar Tolerance Test.*—The test was made in the same manner as that recently described by Janney and Isaacson<sup>1</sup> except that the blood sugar determinations were made by the Lewis-Benedict method.<sup>2</sup> The patient was not allowed breakfast. About 8 a. m., a sample of blood was taken for the initial blood sugar determination. The patient was then weighed, after which he was given a glucose drink containing 1.75 gm. of glucose per kilogram of body weight, dissolved in from 250 to 300 c.c. of water. Early in the work, blood was withdrawn for sugar determinations at one-half, one, one and one-half, two and three hour periods following the administration. Later, however, as we were interested only in whether the blood sugar returned to the fasting value within two hour period, blood sugar readings were made in

\* From the Medical Service, Base Hospital, Camp Travis, Texas.

1. Janney, N. W., and Isaacson, V. L.: Blood Sugar Tolerance Test. *J. A. M. A.* **70**: 1131 (April 20) 1918.

2. Lewis, R. C., and Benedict, S. R.: *J. Biol. Chem.* **20**: 61, 1917.



of 5 c.c. of 1:1,000 epinephrin (adrenalin) solution was made into the deltoid muscle. Records were made of the pulse, respiration, and blood pressure every two minutes for ten minutes, and then every five minutes for one hour. Following this, observations were made at ten minute intervals for one half hour. In the meantime, any subjective symptoms that might arise were carefully noted. We considered a reaction positive when there was an increase of from fifteen to twenty points in the pulse rate and blood pressure, accompanied by an exaggeration of the tremor of the hands, nervousness, palpitation of the heart and arterial pulsations.

**Method of Thyroid Administration.**—The men were put to bed and isolated in one end of the ward. Other convalescent patients were instructed not to disturb them. The desiccated thyroid gland of sheep was used (Lilly's preparation). The initial dose was one-fourth grain morning and evening. This dose was increased one-fourth grain each day and was continued until there was a response or the patient was getting 5 grains a day. The pulse was taken four times a day. The nurse was instructed to take the pulse, whenever possible when the men were asleep. A definite increase in pulse rate while asleep, associated with increased nervousness and irritability, was regarded as a positive reaction and the thyroid discontinued.

In Table 1 are given the physical findings, differential blood count, blood sugar determinations, response to epinephrin and thyroid, final diagnosis, and the disposition of the thirty cases studied.

#### GENERAL HISTORIES AND SYMPTOMS

Most of the men gave Texas as their native state. Illinois was represented by four; Pennsylvania and Arkansas by two each; Mississippi, New York, Oklahoma, Colorado, Wisconsin and Missouri by one each.

Fifteen men had been in service from two to six months, and nine from six to twelve months. Four had given one and one-half years of service; one, practically three years, and one, four years. The majority of these men had responded well to military service. Only four gave a history of being unable to do their work.

Practically all of them were convalescing from influenza. They had been retained in the hospital because of their rapid pulse. In eight instances the influenza was complicated by pneumonia; in two, the pneumonia developed during the course of measles.

The predominating symptom was nervousness. Twenty-four made this complaint. Ten men had, in addition, palpitation of the heart, shortness of breath, dizziness, and a feeling of exhaustion on exertion. The remaining six men had no complaint other than slight weakness, which is to be expected during the convalescent period of any serious illness.

In eight men, these symptoms were not noted prior to their recent illness. In fifteen instances, the onset dated back to two, three, four, six years or even childhood. As far as could be determined, the army service had not aggravated these symptoms except in three instances. These three men had become more nervous and had lost from 10 to 15 pounds in weight in the last two months. They still, however, were able to do their work fairly well.

#### PHYSICAL FINDINGS

All of the men except two had a lagging of the upper lids (von Graefe's sign). This sign was variable: one

day it might be marked, and the next day not demonstrable. In ten cases there was an apparent widening of the palpebral fissure (Stellwag's sign). None had a distinct exophthalmos.

**Thyroid Gland.**—In every case the thyroid gland was distinctly enlarged. In most instances this enlargement was recorded as being slight. The right lobe was the portion that was involved in the majority of cases. On palpation the gland was found to be of soft consistency, with the exception of an occasional firmer area in either the upper or the lower pole.

**Pulse Rate.**—The pulse reading was made in each instance after the patient had been quiet in bed for several minutes. In practically all of the cases it ranged from 90 to 100 under these conditions. One of the noticeable features was the marked increase in the rate of the pulse under the least excitement. The true rate could not be obtained until the men became acquainted with their physician and became accustomed to having a stethoscope placed on the precordia, or the radial artery palpated.

**Blood Pressure.**—The blood pressure was based on several determinations made under uniform conditions. In twenty cases, it was about normal for men between 20 and 30 years of age. In ten, the systolic pressure ranged from 130 to 155, and in one case it was as high as 170 mm. of mercury. In none were there any evidences of kidney lesions.

TABLE 2.—BLOOD SUGAR VALUES IN CONTROL CASES

Case Number	Before Glucose, per Cent.	Two Hours After, per Cent.	Three Hours After, per Cent.
1.....	0.086	0.084	0.084
2.....	0.090	0.090	0.084
3.....	0.084	0.092	0.086
4.....	0.087	0.090	0.084
5.....	0.091	0.087	0.090
6.....	0.080	0.080	0.087
7.....	0.093	0.090	0.084
8.....	0.088	0.083	0.081
9.....	0.092	0.096	0.094
10.....	0.084	0.082	0.092

**White and Differential Blood Count.**—The blood counts were always made in the morning, from two and a half to three hours after breakfast. In a few cases, there was a slight polymorphonuclear leukocytosis. In four men, this was accounted for by a slight tonsillitis which disappeared in a few days. In the other cases, we were unable to give a satisfactory explanation. In nine cases, there was a relative increase in the small mononuclear cells above 30 per cent.

**Blood Sugar.**—We were particularly interested in whether the blood sugar returned to the fasting level within a two hour period following the administration of 1.75 gm. of glucose per kilogram body weight. Consequently, only the values prior to and at two and three hour periods after the administration of glucose have been tabulated (Table 1). In Cases 1, 3, 7, 16, 22 and 30, the blood sugar value ranged from 0.102 to 0.117 per cent. at the two hour period. In Case 1, this was 0.012 per cent.; 3, 0.024 per cent.; 7, 0.03 per cent.; 16, 0.036 per cent.; 22, 0.006 per cent., and 30, 0.027 per cent. above the fasting level.

Table 2 shows the blood sugar values in ten convalescing men from a general medicine ward taken as controls. They had no symptoms or findings suggestive of hyperthyroidism or other endocrine disturbance. It is noted that the blood sugar two hours

after the administration of glucose varied very little from that of the fasting level.

**Response to Thyroid Feeding.**—Six men were definitely sensitive to small doses of desiccated thyroid gland. This was manifested by an increase in pulse rate, flushing, nervousness, and palpitation of the heart. In other words, there was a definite aggravation of the symptoms that these men presented. In two cases, the reaction was noted when they were getting

influenza was most probably a big factor in the production of their condition.

Five of the men diagnosed as having irritable heart were returned to duty. These men had a tolerance for exercise equal to that prior to their illness. The two remaining patients were discharged on a surgeon's certificate of disability. Their disability was not incurred in line of duty, and graded exercise and general treatment did not appreciably improve their tolerance for work.

Those men that were diagnosed as having simple tachycardia were all returned to duty. They were able to do strenuous exercise. The symptoms that some of them presented disappeared. None of the men considered in this report returned to the hospital within the two months' period during which they were followed. As far as we were able to ascertain, they were giving good service.

COMMENT

**Value of the Sugar Tolerance Test.**—It is well known through the work of Geyelin,<sup>4</sup> Janney and Isaacson,<sup>5</sup> Hamman and Hirschmann,<sup>6</sup> Wilder and Sansum,<sup>6</sup> and others, that there is a disturbed carbohydrate metabolism in a large percentage of cases of hyperthyroidism. This is manifested by a delayed blood sugar curve, as illustrated in Chart 1. This represents the blood sugar values at stated periods in a hyperthyroid case following the administration of glucose. The urine contained sugar at the one, one and one-half and two-hour periods.

The value of the test for sugar tolerance in the diagnosis of early hyperthyroidism has not been definitely determined. Janney and Isaacson seem to think that

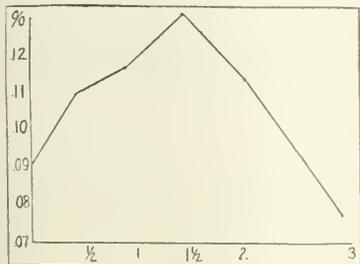


Chart 1.—Blood sugar values at stated periods in a hyperthyroid case following the administration of glucose. The urine contained sugar at the one, one and one-half and two-hour periods.

1 1/2 grains a day; in one, 2 grains, and in three, 2 1/2 grains. In the remaining cases, doses of 5 grains a day had no appreciable effect.

**Epinephrin Test.**—Eleven men responded positively to the epinephrin test. In two other cases, there was a reaction which we did not think was sufficiently definite to record as positive. The six cases that were hypersensitive to desiccated thyroid gave a positive response to epinephrin.

DIAGNOSIS

The diagnosis of hyperthyroidism was made in six cases. The most convincing evidence in favor of this diagnosis was the response to thyroid feeding. There was also in these cases a suggestion of disturbed carbohydrate metabolism and a hypersensitivity to epinephrin. The latter two facts might be considered as supporting evidence.

Seven cases were diagnosed as irritable heart. All of these patients had the symptoms of shortness of breath, feeling of weakness, and palpitation of the heart on exertion. In five instances, this condition had existed prior to their entrance into military service. In the remaining two cases, the trouble resulted from influenza. Three patients gave a positive response to epinephrin. None reacted to thyroid.

The remaining seventeen cases were diagnosed as simple tachycardia. One of these men had a subacute bronchitis following influenza. In the remaining sixteen patients no etiologic basis was established for the tachycardia. Four gave a positive epinephrin response.

DISPOSITION OF PATIENTS

Two of the men diagnosed as having hyperthyroidism were recommended for "a surgeon's certificate of disability." The condition of these men had definitely existed prior to their entrance into the army, and it did not seem likely that they would be able safely to do full duty again. The remaining four were returned to duty. They had given good service prior to their recent illness. At the time of their discharge from the hospital their general condition seemed very good. The

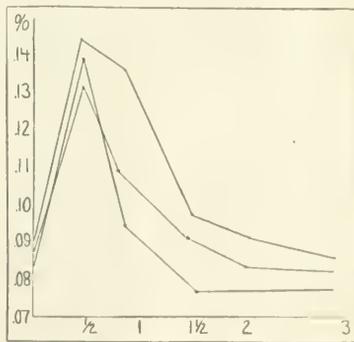


Chart 2.—Blood sugar curve in control cases. The urine was negative for sugar in each instance.

it is of considerable value even at the stage when the fasting blood sugar concentration is normal. These investigators state that the difference between the fasting blood sugar level and that two hours following the administration seldom exceeds 0.01 per cent. Five of

4. Geyelin, H. R.: The Carbohydrate Metabolism in Hyperthyroidism as Determined by Examination of Blood and Urine, *Arch. for Med.* **14**: 975 (Dec.) 1915.  
5. Hamman, Lou, et al.: *Studies in Blood Sugar*, *Arch. Int. Med.* **20**: 61 (Nov.) 1917.  
6. Wilder, R. M., and Sansum, W. D.: *Glucose Tolerance*, *Ill. and Trans., Arch. Int. Med.* **10**: 111 (Feb.) 1917.

the cases considered in this report ranged from 0.012 to 0.036 per cent. above the fasting level at the two hour period. When compared with the results of the remaining thirty cases and with those of the controls, they are at least suggestive of a disturbed carbohydrate metabolism. These results might, therefore, be considered confirmatory evidence in favor of the diagnosis of hyperthyroidism if associated with other reliable positive findings.

**The Epinephrin Test.**—It seems to have been fairly conclusively proved by Cannon<sup>7</sup> and his associates that there is a hypersensitive sympathetic in the cases of hyperthyroidism. Goetsch,<sup>8</sup> working on this basis, devised the epinephrin test employed in this work. His conclusions, that this test is of considerable value in the diagnosis of borderline cases of this condition, seem convincing in view of the operative results in his series of cases.

May we not have a hypersensitive sympathetic which is not associated with hyperthyroidism? Frazier and Wilson,<sup>9</sup> Peabody,<sup>10</sup> and I<sup>11</sup> have obtained a positive test in men with irritable heart in whom the thyroid has not been established as the etiologic factor. The men considered in this report who had a possible disturbed carbohydrate metabolism and who reacted to small doses of thyroid gland all responded to threshold doses of epinephrin. Seven other men, however, who had a normal blood sugar curve following the administration of glucose and did not respond to thyroid feeding also reacted positively to the epinephrin test. Further investigation is necessary to clear matters.

**Thyroid Feeding.**—Even though the theory that hypersecretion of the thyroid is the cause of hyperthyroidism is questioned, it is admitted that a large percentage of these patients are very sensitive to small doses of thyroid gland, so sensitive, in fact, that the use of thyroid in doubtful cases of hyperthyroidism is considered a dangerous procedure. Musser<sup>12</sup> and Forchheimer<sup>13</sup> cite cases of hyperthyroidism in which a small dose of thyroid caused death. In the experiments here reported, possible harmful results were borne in mind and the desiccated thyroid stopped as soon as a definite reaction was noted. No ill effects resulted.

#### HYPERTHYROIDISM AND IRRITABLE HEART

The part that the thyroid plays in the etiology of irritable heart has been a much debated question. This was especially true in England during the early years of the war, and to a less extent later in this country. Goodall,<sup>14</sup> in the Chadwick lecture, based on the study of 2,250 cases of irritable heart, thought the thyroid was responsible in a large percentage of the cases. Sir James Barr,<sup>15</sup> White and Herman-Johnson,<sup>16</sup> and others held similar views. Lewis<sup>17</sup> and his co-workers, on the other hand, reported a thyroid enlargement in only 4 per cent. of 504 cases studied. They seemed to be convinced that hyperthyroidism was an unimportant

factor. A number of their men were tested with thyroid extract.

In this country, Harlow Brooks<sup>17</sup> believes that the thyroid plays an important rôle in the cause of irritable heart. Friedlander and Freyhof<sup>18</sup> take an opposite stand. Other very reliable medical men who have expressed themselves in my presence are divided on the question.

These studies I have made go to show that in some cases that might ordinarily pass for irritable heart, the thyroid plays an important rôle, though its hyperactivity may be unmasked only after most searching inquiry into the history, careful physical examination, and special investigation by such means as the sugar tolerance, epinephrin and thyroid feeding tests.

#### CONCLUSION

1. Thirty men were studied in whom the physical findings were suggestive of hyperthyroidism. In six instances, this was the final diagnosis. This diagnosis was based on the response to thyroid feeding, the reaction to epinephrin, and the blood sugar curve following the administration of glucose. The results of the thyroid feeding were considered the most reliable evidence in favor of the diagnosis made. This was further substantiated by positive response to epinephrin and a suggestive disturbed carbohydrate metabolism.

2. Seven cases were diagnosed irritable heart. In five instances this trouble had existed prior to the entrance of the patients into military service. In two cases, it seemed to be the result of influenza.

3. Seventeen cases were diagnosed simple tachycardia. In sixteen instances, no cause for the tachycardia was found. None of the cases diagnosed irritable heart or simple tachycardia responded to doses of 5 grains of desiccated thyroid, nor was there any suggestion of disturbed carbohydrate metabolism.

122 South Michigan Avenue.

#### PROGNOSIS OF SPECIFIC AORTITIS

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In January, 1909, the first case of syphilitic disease of the aorta appeared in the necropsy records of the Massachusetts General Hospital. In this case the spirochetes were first successfully demonstrated by Professor Wright, and thus the clinical entity of specific aortitis was given pathologic confirmation in this country. A recent informal discussion disclosed the fact that no one really knows much about its prognosis, and it was suggested that the medical records should be analyzed to see what light could be thrown on the subject. The importance of specific aortitis is the more apparent when we note that, since the above-mentioned case of January, 1909, the disease has been found in 5.5 per cent. of the hospital necropsies, and in 4.5 per cent. it was in an advanced stage or was the primary cause of death.

In pursuance of the foregoing suggestion, I have carefully examined the 105 records from the outpatient department in which the diagnosis of specific aortitis has appeared. For the purposes of this study the

7. Cannon, W. B., and Cateh, M. K.: *Am. J. Physiol.* **11**: 58 (July) 1911.

8. Goetsch, E.: *N. Y. State J. Med.* **18**: 279 (July) 1918.

9. Frazier, J., and Wilson, R. M.: *Br. M. J.* **2**: 97 (July 13) 1918.

10. Peabody, E. W., Clough, H. D., Sturris, C. C., Wearn, J. T., and Thompson, E. H.: *Lectures on the Injection of Epinephrin in Soldiers with Irritable Heart*, J. A. M. A. **7**: 1912 (Dec. 7) 1918.

11. Cannon, W., in Meigs and Kelly, *Practical Treatment*, 1: 307.

12. Lewis, Frederick: *Transactions of Internal Diseases*, 3: 902.

13. Goodall, J. S.: *Lancet*, 1: 962 (June 23) 1917.

14. Barr, Sir James: *Br. M. J.* **4**: 344 (April 15) 1916.

15. White, C. P., and Herman-Johnson, F.: *Lancet* **1**: 78 (Jan. 8) 1916.

16. Lewis, Thomas: *Special Report Series 8, British Medical Research Committee, London, 1918.*

17. Brooks, Harlow: *Am. J. M. Sc.* **156**: 726 (Nov.) 1918.

18. Friedlander, A., and Freyhof, W. L.: *Intensive Study of Fifty Cases of Neurocirculatory Asthenia*, *Arch. Int. Med.* **22**: 653 (Dec.) 1918.

investigation has been limited to cases in which the diagnosis was made before a definite aneurysm was present, as it was in these presumably earlier cases that the information as to prognosis was desired. It was felt that aneurysm may better be studied by itself. Believing that some readers might hesitate to accept the diagnosis in some of the cases, I have further excluded all records in which the diagnosis was not confirmed by a positive Wassermann reaction, roentgenographic findings, or both, or at least supported by repeated examinations made by more than one member of the visiting staff.

It is evident that a study with a view to obtaining data as to prognosis is attended with serious handicaps. Three of the more evident difficulties are:

1. Ignorance of the gravity of the disease and sheer inability to leave their work prevented some patients from attending the clinic frequently enough to be given treatment in its best form.

2. The patients were not all given identical treatment, owing, no doubt, to the fact that the exhibition of arsphenamin and allied arsenicals has been in process of evolution. During its first years, I recall, it was not considered proper to administer arsphenamin in cardiac cases, and since it has been extended to such, the administration has varied in size and number of doses.

3. A trouble that directly affects my own attempt to find out results is the failure to trace patients who are no longer attending the clinic. Thus, I obtained only twenty-two answers to follow-up letters.

THE MATERIAL STUDIED

As the primary purpose of this paper is information as to prognosis, I shall not go deeply into the signs and symptoms; but some statement is necessary in order to give a picture of the material on which I am basing my findings. Resort to the medical literature has purposely been avoided, so that, if possible, I might bring a fresh point of view to the subject.

I selected sixty-one cases, of which fifty-six were men, and five women, with the average age of 43.7 and 44.4 years, respectively. The female group is too small to make it appear practical to separate further the statistics by sex.

*History of Syphilis.*—In thirty-five cases, previous syphilis was admitted, in eighteen it was denied, and in eight there was no statement on the record. The average number of years, in the thirty-five cases in which the disease was admitted, was 16.

*Wassermann Reaction.*—The reaction was recorded as strongly positive in twenty-five, and varied from positive to suspicious in twenty-three other cases. In two of the patients the reaction was negative at first and later became positive.

*Symptoms.*—Shortness of breath, pain in the chest, or both, were present in all of the cases. Cough was present in fifteen cases, and cardiac palpitation in nine. The duration of the symptoms before reporting to the hospital was recorded in twenty-five cases, the shortest being two weeks and the longest five years, with an average of one and a quarter years.

*Physical Findings.*—Supracardiac dulness was increased in twenty-seven cases. In twenty-three patients there was a diastolic murmur best heard in the typical aortic areas, and in nineteen there was a systolic murmur in the same location, while in twenty cases both murmurs were present. The heart was

enlarged laterally in twenty-nine cases and downward in nineteen, respectively. In one of the patients an aneurysm of the right subclavian artery developed while under treatment.

*Röntgenographic Findings.*—The average width of the aorta, in the twenty-two cases in which orthodiagraphy was employed, was 7.5 cm. The greatest width recorded was 10.3 cm., and the least 6 cm.

RESULTS

Twelve patients are known to be dead, ten living, and thirty-nine untraced.

*Dead.*—Twelve patients died, of whom five were given arsphenamin, and seven received merely mercury and potassium iodid. Table 1 gives the age, dosage of arsphenamin, number of doses, the year in which the treatment was given, date of death, and the duration of life, in years, after the diagnosis of aortitis was established, respectively.

TABLE 1.—DURATION OF LIFE IN PATIENTS TREATED WITH ARSPHENAMIN

Age	Dose, Gm.	Number	Date	Death	Duration Years
37	.3	2	1913	1917	4.5*
47	.45	5	1914	1919	5.
38	—	3	1915	1915	—
34	.3	5	1918	1918	4.5†
35	.15	5	1918	1919	1.1
Average age, 38		Average duration, 3.07 years.			

\* Committed suicide because of pain in the chest and general poor condition.

† Aortic arch broadened to 10.5 cm. (by percussio) at time treatment was started.

‡ Case already under treatment four years.

The seven patients treated with mercury and potassium iodid alone may be represented in Table 2, in which are given the age of the patient, and the duration of life after the onset of symptoms and after the commencement of treatment, respectively.

TABLE 2.—DURATION OF LIFE IN PATIENTS TREATED WITH MERCURY AND POTASSIUM IODID

Age	After Symptoms	After Treatment
47	3.5	.2
50	3.5	.45
51	4.	2.5
52	3.	.5
59	—	4.
21*	5.5	.5
39	2.5	1.
—	—	—
45 Average	3.6	1.3

\* Note age.

It is suggestive that the length of life among these twelve fatal cases, after establishment of the diagnosis of aortitis is about 3 to 1 in favor of those receiving arsphenamin.

*Living.*—Of the ten patients whose present condition is known, nine have received intensive treatment, that is, arsenical and mercurial injections. The number of doses varies from three to fifteen, with an average of seven and a half per patient, and the dosage employed ranges from 0.1 to 0.4 gm. with an average of from 0.15 to 0.2 gm. Alternating with these are courses of mercurial injections, such as mercurial (gray) oil, 1 grain for from eight to ten weeks. In addition, potassium iodid is given by mouth.

The tenth patient, whose trouble was diagnosed in January, 1919, is not at present attending the clinic, but her condition is known to be worse.

The improvement noted in symptoms and not in physical signs. It should be observed that a dilatation of the aortic arch to more than 9 cm. is not, in two cases, incompatible with relative freedom from symptoms and ability to work.

TABLE 3—PRESENT CONDITION OF NINE PATIENTS

Age	Duration, Years	Condition	Physical Status	Width of Arch (by Roentgen Ray), Cm.
41	6	Good*	Able to work	9.1
44	5.5	Good	Able	7.5
4	5	Good	Able	...
4	4	Good	Able	...
4	4	Good	Able	6.0
4	2.5	Dyspnoic	Unable	...
4	1.75	Dyspnoic	Unable	...
4	1	Good	Able	9.5
4	1	Dyspnoic	Unable	7.5

Average age at which treatment was started, 47.8 years.

Average duration, 3.2 years.

\* The term "good" is used in the sense of relatively free of symptoms.

† Condition good, but patient is in an institution under treatment for general paresis.

*Untraced.*—An examination of the cases in which persons were under treatment for a time but with whom I was unable to establish contact shows twenty-four cases treated five months or less and therefore not deemed worthy of further analysis, and fifteen cases which I shall list (Table 4) according to the physical findings present at the initial examination. The inference, if any, which may be drawn from the findings is the tendency toward better results among the cases in which treatment was started before the more serious physical changes were present.

TABLE 4—PHYSICAL FINDINGS IN FIFTEEN CASES AT INITIAL EXAMINATION

a) Double murmurs: 8 cases.			Time	Results
Diastolic Murmur	Mercury	Potassium Iodid		
2	+	+	40 served	Slight improvement
1	+	+	7 months	Worse
2	+	+	10 months	Worse
6	+	+	7 months	Unchanged
—	+	+	6 months	Unchanged
3	+	+	2 years	Improved
—	+	+	13 months	Unchanged
—	+	+	5 months	Worse
—	+	+	1 year	Unchanged
c) Systolic murmur at aortic area and cardiac apex.			Time	Results
—	+	+	4 years	Unchanged
—	+	+	3 years	Much improved
—	+	+	5 months	Improved
d) Cardiac enlargement only: 2 cases.			Time	Results
—	+	+	3 years	No signs of disease
—	+	+	7	Improved
—	+	+	1 year	Improved
e) Diastolic murmur and cardiac enlargement.			Time	Results
—	+	+	1 case.	Improved
f) Heart negative.			Time	Results
—	—	—	2 years	About the same

## COMMENT

In the study of these records, certain impressions have come to me. For instance, of the sixty-one patients, thirty-one are not now under treatment at the hospital, and of those, twenty-two were in attendance for less than five months or made only two or three visits. Some, of course, may have continued treatment elsewhere, but I fear far too few. This suggests that insufficient attention has been paid to emphasizing to the patient the importance of adequate therapy. The value of our increased power to diagnose syphilis of the aorta is certainly slight if it does not lead to treatment. Perhaps the following up of these patients, afflicted with a disease of progressive nature but who are not appearing for treatment, can be undertaken by the social service department.

These patients were first under treatment in various departments of the clinic: mostly the skin and syphilis, the neurologic, the medical, and occasionally elsewhere. It is evident, therefore, that those treating patients for the nonvascular manifestations of syphilis should bear in mind the possibility of this complication and, if necessary, refer them for medical examination.

A very satisfactory improvement in the character of the records has been noted since about 1915, making it apparent that the problem is becoming better understood. Thus, data are given as to the Wassermann reaction, supra-cardiac dullness, and roentgenographic mensuration of the great vessels. Of the latter we are hopeful that in the future there will be more cases roentgenographed a second time or more, as from these, more accurate conclusions may be drawn as to the effect of any particular therapeutic measures and as to prognosis.

The disease is progressive, as evidenced by the fact that in many of the cases one may read of the development of the physical signs from practically normal to a slight diastolic or systolic murmur in the aortic area, later both murmurs, and gradually cardiac enlargement outward and downward.

A slight analogy may be drawn between the diagnosis of appendicitis and of pulmonary tuberculosis, which, formerly tardily made and followed by bad outcomes, now are made in an earlier stage of the affections and with a much brighter prognosis. For example, we have been trained to make the diagnosis of pulmonary tuberculosis before the appearance of the tubercle bacilli in the sputum. Undoubtedly some mistakes are made as a result of this dictum, but who can doubt that the institution of treatment early has been a vast gain? If we can have the courage to diagnose specific disease of the aorta before it and the heart are irretrievably damaged, a long stride will have been taken toward improving its prognosis.

## CONCLUSIONS

Specific aortitis is a disease of progressive character and of serious prognosis.

The weight of evidence is against the power of mercury and potassium iodid alone to produce an arrest of the disease. Intensive antisyphilitic therapy is now being administered with promising results.

Every case presenting the symptoms of substernal pain and shortness of breath, not definitely explained by other cause, should be promptly studied as to the presence of specific aortitis. Early diagnosis is imperative.

The cases in this study which have received adequate treatment and in which the present condition is known are as yet too few to justify positive conclusions as to prognosis. After a few more years, another study of the records should obtain material of more value as to the end-results.

510 Commonwealth Avenue.

**The Right to Marry.**—A careful student of the literature and of the facts of eugenics realizes the complexity of the problem and the reason why we should be cautious about pushing everything to the point of legislative regulation. It is in the interest of civilization to provide principles and customs rather than laws, and to give the plain sense of the individual a chance to develop and to become effective. Give the people the facts and some help to think and the right sources of advice, and there will surely be results.—A. Meyer, *Canadian J. Mental Hygiene* 1:148 (July) 1919.

A CASE OF RAYNAUD'S DISEASE  
ASSOCIATED WITH  
SCLERODERMA

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Up to the present time we are still without definite knowledge regarding the etiology and pathology of Raynaud's disease and allied conditions. The present case offers some interesting features, for which reason it is



Fig. 1.—Nodules occurring over middle joints of fingers

thought advisable to add it to the literature. It has been frequently noted in Raynaud's disease that there is a hereditary tendency. This, however, has not been determined in the present instance, and from our observations no definite etiologic factor could be established. Occupations and various trades have been mentioned as possible causes; but in the light of more recent investigation it does not seem that they have any definite relation to the disease. In the case here presented the factor of exposure enters; but it is questionable what part it played in the etiology. We have had this patient under observation from February, 1919, until a very recent date.

REPORT OF CASE

*History.*—The history as given by the patient is practically negative. There is no indication of any similar trouble in the family. Alcoholism is denied; there have been no cases of epilepsy, migraine or other nervous disorders either in antecedents or collaterals.

The patient was born in 1889 in New Mexico. As a child he was healthy and strong. He attended school up to the age of 18, after which he was employed in several positions, always making good money and never being discharged. He has been a moderate drinker, but never indulged to excess; a moderate smoker, and absolutely denies any venereal infection. He is married and has one living, healthy child. His wife is in good health and has had no miscarriages. Prior to entering the service, he was employed as a special officer for a trust company. In November, 1916, he was accidentally shot in the left thigh, making a speedy recovery. There is no history of tropical disease or other serious ailment. He has had no operations. In September, 1917, he entered the service, at which time he was in very good health, going to France in the spring of 1918.

*Present Trouble.*—The first indication of any trouble appears to have been evidenced by the man early in August, 1918. At that time his organization was in "support," having been in the trenches a few days before. It was during one of these days as he was writing a letter that he noticed a queer feeling in his fingers, and it appeared rather difficult

to hold a pencil. On close inspection, he found that the knuckles of both ring fingers appeared somewhat swollen and blue. He gave this condition no special attention, considering it some passing and harmless ailment. August 5, a few days after he had noticed the first trouble, he was gassed and sent to the hospital because of some lung disturbance. He apparently recovered within a few days and was returned to duty, feeling about as well as usual. He believes, however, that following this experience his hands and fingers caused him more trouble. It seems that his hands would become cold and blue, and if he got chilled, the fingers would turn white and become numb. This condition continued for some months. At times it would bother him considerably, and again he would go days without any apparent difficulty. Oct. 7, 1918, he sustained a so-called shell shock, when he was confined to the hospital for one month. He returned to this country early in 1919 and has been under observation since that date.

Following his shell shock in October and while in the hospital, he believes that his symptoms gradually became more marked, that the other joints of his fingers became involved, and would become stiff, cold, swollen, and at times white. During his stay in the hospital, he developed a small mass on the sole of the left foot which was opened and a serum expressed. At the same time the heel of the left foot became black and numb, two small bluish white spots appearing in the center of this black mass. An incision was made, and apparently the discoloration vanished without any sloughing of the skin. He denies that he sustained any injuries to his extremities while in France, and does not believe that he was ever exposed to extreme cold, at least no more so than any of his comrades.

*Examination.*—The man was well built, and there was no general deformity. The skin and mucous membranes were normal with the exception of the condition here noted. Physical and neurologic examinations were negative except for the findings here recorded. There were to be noted over the joints of the fingers on both hands, as shown in the accompanying illustrations, symmetrically placed indurated nodules which were adherent to the skin, but independent of the bone. These nodules occurred at the junction of the second and third phalanges. These were not painful, but



Fig. 2.—Induration along tendon sheath of middle finger.

appeared to cause a certain stiffness in the joints. Immediately over the masses, there was a slight impairment of sensation to touch and pin prick. There was to be noted in the palms of the hands an apparent thickening along the tendon sheaths of the third fingers which felt firm and indurated. There was also a mass on the sole of the left foot, while on the right foot there seemed to be the beginning of a similar condition. On several occasions, it had been noted that the fingers had become cyanotic, while at others, especially following a cold bath, the distal portions of the fingers had become white, during which time they would feel numb. Objectively, however, no definite change could be determined. The urine examination revealed a faint trace of albumin on a few occasions. The blood was

sermann reaction was negative on repeated examinations. The blood count was practically normal. Nasal smears on several occasions were reported negative. A section removed from one of the masses over the fingers showed a marked increase of fibrous and connective tissue, very much in the nature of a fibroma. Along the margins, which were rather vascular in character, many small bundles of connective tissue were noted. There was very little cell infiltration, and no acid-fast bacilli were found.

At the last examination, July 15, it appeared that the patient's physical condition remained about the same. There were occasional headaches, and at times he seemed somewhat restless and irritable. The condition of his hands had gradually grown worse. The nodules had increased somewhat in size, and they were painful and caused considerable stiffening of the joints. As a result of this the thumb of the right hand could hardly be moved. The thickening, which confined itself to the palmar side of the hands and plantar side of the feet, gradually increased, and the mass that had made its appearance on the right foot was now fairly prominent. There were no added sensory changes. A roentgen-ray examination was probably negative.

#### COMMENT

The diagnosis of this case seems fairly certain. As to etiology, no positive factor can be ascribed. The history of exposure enters very strongly, but with so many individuals experiencing the same hardships, it does not seem fair to assume exposure as a causative factor. Thus, in spite of a negative history one may have to assume a neuropathic groundwork and an unknown exciting cause.

### AUTOTRANSPLANTATION OF THE KIDNEY \*

CARLETON DEDERER, A.B., M.D., M.S.  
BAY CITY, MICH.

In 1917, after devoting several months to an experimental study of the elements of vascular suture, I attempted the autotransplantation of a kidney into the



Fig. 1 (Dog B 976).—Autotransplanted kidney, removed from its site of transplantation in the neck in the one hundred and twenty-fifth day.

neck in the dog. After five partially successful operations, complete success was attained.

\* Extract from thesis accepted by the Graduate Faculty of the University of Minnesota in partial fulfillment of the requirements for the degree of Master of Science in Surgery, June 19, 1919.

May 2, 1917, the left kidney of Dog B 976 was transplanted into the neck by uniting the renal artery at its bifurcation with the common carotid artery, and the renal vein to the external jugular vein. Some of the details of this experiment have been published.<sup>1</sup>



Fig. 2 (Dog B 976).—Cross section of the normal ureter on the one hundred and twenty-fifth day after operation; paraffin, hematoxylin and eosin;  $\times 15$ .

Two weeks after transplantation, right nephrectomy was performed. The dog lived more than four months; it died as a result of hydronephrosis.

#### EXTRACT FROM PROTOCOL

Dog B 976.—Aug. 18, 1917, three months and sixteen days after the transplantation, and three months and two days after the second nephrectomy, analyses were made for comparison of the stream urine and of that which ran down



Fig. 3 (Dog B 976).—Cross section of the transplanted ureter on the one hundred and twenty-fifth day after operation, showing enormous hypertrophy in the transplanted ureter due to the obstruction at the meatus in the skin; magnified the same as Figure 2.

the animal's neck. The results of these analyses are given in the accompanying tabulation.

1. Dederer, Carleton: Studies in the Transplantation of Whole Organs, I. Autotransplantation of the Left Kidney to the Neck with Right Nephrectomy in the Dog, J. A. M. A. 70:6-9 (Jan. 5) 1918.

August 27, the ureter protruded about 6 mm. Every ureteral contraction shot a stream of urine. Four c.c. of urine could readily be obtained by pressure on the kidney.

August 30, a detailed examination was made of the state of the hydronephrosis:

8:15 p. m., the animal was quiet, not alert. The outside diameter of the kidney in the neck was 7.7 cm.

8:16 p. m., the ureter was opened by a slit about 1 cm. long. This resulted in the escape of more than 25 c.c. of urine, which was tinged with blood from the incision.

8:25 p. m., the size of the kidney (external measurement) was 4.7 cm. including skin and fascia; the kidney was in its proper place in the neck.

8:34 p. m., 5 c.c. of urine were excreted in one minute (57 drops), and a stream about 1 mm. in diameter could be pressed out.

8:58 p. m., the dog was standing quietly, not alert.

9:01 p. m., a specimen of urine (3 c.c.) showed it to be clear and alkaline with a faint trace of albumin, and to contain a few erythrocytes. There were no casts and no epithelial cells; there were triple phosphates.

rhage); nitrogen of urea and ammonia, 5.69 mg. per cubic centimeter. A specimen taken forty-five minutes later (3 c.c. in one minute) showed a few erythrocytes and triple phos-

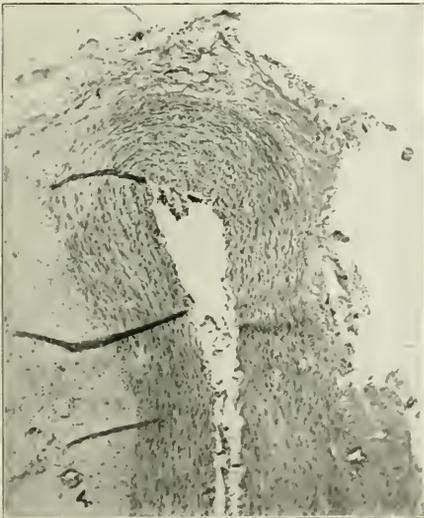


Fig. 4 (Dog B 976).—Renal artery at site of anastomosis. Paraffin, hematoxylin and eosin;  $\times 50$ .



Fig. 5 (Dog B 976).—Silk suture material at the site of anastomosis on the one hundred and twenty-fifth day after renal autotransplant. Paraffin, hematoxylin and eosin;  $\times 900$ .

phates, a trace of albumin, nitrogen of urea, and ammonia, 12.18 mg. per cubic centimeter.

After this the dog wasted away, and after an unsuccessful attempt to homotransplant a kidney the animal was killed,

9:09 p. m., its weight was 7.8 kg.

9:36 p. m., the weight was 7.7 kg. The dog had lost 0.1 kg. in twenty-seven minutes after the obstruction in the ureter had been slit open.

COMPARISON OF URINE

Surface Urine	Stream Urine
Amber	Amber
Cloudy	Clear
Slightly alkaline	Very slightly alkaline (less change in the litmus paper)
No albumin	No albumin
Few leukocytes	No cells or detritus
Epithelial cells	
Triple phosphates	
Amorphous detritus	

10:26 p. m., the dog came out of the dog house and stood around for a time and then returned. The urine was flowing freely and was clear.

Examination of a specimen of urine (25 c.c.) taken from the hydronephrotic autotransplanted kidney, after the removal of the obstruction to the urinary flow, revealed many erythrocytes (from the incision); albumin (due to hemor-

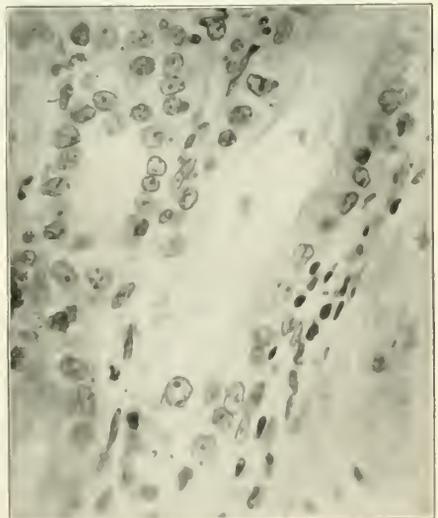


Fig. 6 (Dog B 976).—Cortex of autotransplanted kidney on the one hundred and twenty-fifth day. Paraffin, hematoxylin and eosin;  $\times 500$ .

Sept. 3, 1917. The transplant was made in the femoral region, and no function resulted, probably owing to venous stasis from unavoidable vein kinking, and venous constriction.

Necropsy revealed that the autotransplanted kidney in the neck had a dilated pelvis and a markedly hypertrophied and dilated ureter (Figs 1-6)

## CONCLUSIONS

In experimenting with the transplantation of a dog's kidney to the neck, the question of hydronephrosis may become of importance. The signs of a developing hydronephrosis are quite characteristic. They consist of an apparent enlargement of the kidney which has been secreting satisfactorily, as can be easily observed in the neck, and hypertrophy of the ureter, which is evidenced by a strong squirting of a stream of urine away from the dog.

DERMATITIS FACTITIA COMPLICATING  
HYSTERICAL PARALYSIS\*

SAMUEL AYRES, JR., M.D.

BOSTON

## REPORT OF CASE

*History.*—Miss M. G., aged 28, unmarried, white, was referred by her physician to the Massachusetts General Hospital with a diagnosis of osteomyelitis because of pain and paralysis of the leg with a cutaneous lesion involving the foot and leg.

The present illness, as told by the patient, began eight years before when she and her cousin were "fooling" around with a male boarder at the cousin's home. As the patient was walking down the front steps, the man stretched out his foot, tripping her and causing her to fall three or four steps. She remained unconscious all night, and the next morning found that there was soreness in the left hip and sharp localized pain on attempted motion. She felt "sick all over" and was kept in bed for two weeks. Then on attempting to walk she experienced severe pain in the left leg. She felt determined to be up and around, however, and in order to lessen pain, held the left leg stiff and dragged it. The pain persisted and after a time she found that the leg was becoming rigid and could not be bent easily. About a year after the fall her physician applied a wire splint, which extended from the waist to the ankle and immobilized the entire left leg. This was worn continuously for two years, the pain being present only at times. Since wearing the splint she had never been able to walk without crutches, and the leg had been stiff at the knee and ankle and to some extent at the hip. During the previous year the pain had extended from the hip and now involved the entire leg. The pain was described as deep, sharp, and interfering with sleep. Cutaneous sensibility in the entire leg had been impaired almost from the beginning of the present illness.

About three years ago, the patient experienced a nervous breakdown, which her physician said was probably due to the monotony of sitting still and sewing. This began with increasing irritability and crying spells, which later developed into what was called "meningitis." This so-called meningitis came on gradually at first, with pain in the lower spine which worked up to the head. The entire duration of the nervousness was about two years, the patient being confined to bed continuously for fifteen months. She had many convulsions, at all, accompanied by unconsciousness and vomiting. She had epileptiforms, and she was catheterized frequently. She did not recall whether she had any fever, or any manifestations of urine or feces during convulsions. She never had her bowels. Toward the latter part of her illness she had frequent severe abdominal pains directly after eating, followed by vomiting. She said that she had many "attacks" up and down her spine. During those two years of "nervousness" almost daily hypodermic injections of morphine were given by her physicians, and for the latter five or six months sometimes twenty or thirty injections a day. They had for the relief of pain and for spasms.

During the past ten months the patient had lived at a sanatorium in Maine where she went for the relief of morphin-

ism, and it was from there that she was sent to this hospital for the skin condition, pain in the leg, and vomiting. During the past three weeks she had vomited after nearly every meal.

According to the patient the skin eruption on the left foot, leg and thigh had been present for the past two or three months. Her description of its development is enlightening in view of our own findings:

"It began first on the big toe and looked like purple blotches. These spread over the foot and up the leg, usually purplish at first, sometimes red. Sometimes the blotches would persist for several days, and then little drops of blood would ooze out." The patient stated that on several occasions she had witnessed the drops of blood "ooze out." There was some soreness in the skin lesions, but no pain or itching.

The family history revealed that the mother had a nervous temperament, one paternal aunt had nervous attacks of choking and spasms, and the father had congenital nystagmus; otherwise it was negative.

The patient had had an appendectomy ten years previously; had always had occasional headaches; had had nystagmus since birth; had worn glasses for near-sightedness since the age of 9; had had transitory blurring of vision for ten years; had had double otitis media following measles five years previously; had worn upper and lower false teeth since the age of 18 because her teeth decayed; had had pleurisy during childhood; had always been constipated; had had attacks of vomiting ever since she could remember; had had irregular, painful and scanty menstruations, the last period occurring six months previously; had had nocturia for four or five years, and two years before had passed stones by the urethra accompanied by pain and hematuria; had had occasional fainting spells since childhood, and had never weighed over 100 pounds.

*Examination.*—The left leg was the interesting feature of the physical examination. The extremity was almost rigid in extension, only slight flexion was permitted at the hip because of pain; the knee allowed only the slightest possible movement, and the ankle was slightly movable. There was complete anesthesia to touch from the hip down; a pin prick, however, was perceived as a tactile sensation. The sensory disturbance was less marked on the posterior aspect of the leg.

Sense of position in the toes was completely lost. The knee jerk was not obtained, and the plantar reflex was sluggish. Reflexes elsewhere were normal. Over the dorsum of the foot, extending just beyond the base of the toes and upward over the medial, anterior and lateral aspects of the lower leg, also on the inner aspect of the heel, there were areas of vertical, parallel, short scratch marks, some with adherent crusts of dried blood. Over the foot, especially, there was a diffuse background of dull red or purplish discoloration, which, however, was absent higher on the leg. On the lateral aspect of the thigh there was a discrete area, the size of a half dollar, consisting of vertical parallel scratches without any discoloration.

The skin elsewhere was normal; there were no scars or other evidence of abscesses over the spine such as the patient described. There were no other neuromuscular disturbances except for the nystagmus, which was congenital, and paralysis of the external rectus muscle of the left eye, of uncertain duration. The remainder of the physical examination was essentially negative.

Röntgen-ray examination of the involved leg disclosed some atrophy of all the bones but no involvement of any of the joint surfaces. The systolic blood pressure was 155, diastolic 100. Temperature and respiration did not vary from normal. The pulse averaged 90. The urine showed a very slight trace of albumin, many white blood cells and epithelial cells, but no casts. The Wassermann reaction and the white count were not taken, but there is no reason to believe that they would have added any information of importance.

A steel phonograph needle was found in the patient's hand bag. On the point of the needle there was a small red

\*From the Department of Neurology, Massachusetts General Hospital.

stain, which was demonstrated both chemically and morphologically to be blood. When the stain was dissolved in physiologic sodium chlorid solution, hemin crystals were obtained, and red blood corpuscles could be seen under the microscope.

When confronted with our evidence the patient denied that the dermatitis had been self-inflicted. The facts, nevertheless, are interesting, especially the objective appearance of the skin with the obvious scratch marks, as contrasted with the patient's description of the development of the lesions.

*Treatment and Result.*—Our treatment consisted largely of psychotherapy, together with active exercise and passive movements. Dr. Robert F. Loeb, who had the immediate care of the patient during most of her nine days' residence in the hospital, explained in detail the nature of her disorder, and endeavored to rationalize it for her. We were unsuccessful in discovering any repressed emotion as a cause for the hysterical manifestations during the past eight years, but from the circumstances attending the onset, it is not improbable that the patient told us only part of the story. However, we did not insist on learning the details, but advised her to confide in some one who was sympathetic and who could be trusted whenever situations arose with which she was unable to cope. In spite of her "severe pain" we found it necessary to give chloral hydrate only once, and acetylsalicylic acid only on a few occasions. No treatment

undoubtedly has a neurotic predisposition as shown both by her family history and her past history. It is quite understandable how a mental conflict lodging in such a soil can produce the hysterical picture described.

The lesson to be drawn from the cutaneous lesions is that, first, the appearance of the lesion is more to be trusted than the history, and second, a lesion that is obviously artificial in appearance is probably artificial in etiology. Such self-inflicted injuries may be done to excite sympathy, to escape duty, to assist in winning damage suits, or occasionally, as is probable in this case, they may be done in a state of amnesia or semi-consciousness.

As illustrating that the neurologic condition described above is not rare, a companion case was recently discharged from this hospital relieved of a spastic paraplegia with anesthesia of over two years' duration. The history, examination, and treatment were essentially similar to the foregoing case, except that there were no cutaneous lesions. On entrance the patient was entirely unable even to stand; she did not feel the floor under her feet. After remaining in the hospital two months, she was able to walk unassisted,



Dermatitis factitia produced by a steel phonograph needle

aside from cleanliness was needed for the skin lesions. The patient, herself, requested not to be given morphin. She seemed intelligent and desirous of getting well.

It is always gratifying to know that our measures have been successful. The patient was sent back to the sanatorium in Maine, and both she and her physician were told that there was no organic trouble and that she would recover complete use of her leg by following rational treatment—active exercise, passive movements, massage, and above all a proper mental attitude, realizing that her paralysis was due to functional inhibitions and that the skin lesion was self-inflicted, even though she herself may not have been actively conscious of the act. Two weeks later one of the nurses of this hospital received a letter from her, which reads in part: "I'm getting on fine—can get about my room without crutches, although I often lose my balance and my strength leaves me, but I shall persevere until I can do better."

#### COMMENT

This case illustrates a condition that is well recognized, but not as generally, apparently, as it should be. It brings out the contrast between treatment and mistreatment. In other words, a patient who has been an invalid, unable to walk without crutches for eight years, finds herself in the course of three weeks under rational treatment perfectly able to use her "paralyzed" leg and to walk without crutches. This patient

and sensation had returned. A few weeks after discharge a letter was received in which she stated that her improvement had continued, and that she could go up and down stairs and could walk almost as well as ever—and this after two years of invalidism, treated by her local physician for "incurable spinal trouble."

**Striking the Source of Infection.**—A knowledge of the physical conditions and the regulation of the personal hygiene of the individuals making up a unit or closely associated group is fundamental in all community health activities. It is the custom nowadays for a municipality or state to pass drastic laws regulating garbage disposal, the location of corrals and pig styes, the cleanliness of slaughterhouses, and the distribution of milk and foodstuffs. . . . While such laws may be rigidly enforced, a typhoid carrier, a victim of tuberculosis, or one who has a mild case of any one of the serious communicable diseases, may sow these diseases broadcast. One tuberculous person or typhoid carrier in a community may do as much harm to the individuals therein as lax enforcement or even non-enforcement of the laws pertaining to sanitation. It is not difficult to see the incongruousness of a regulation which requires the screening of foodstuffs and at the same time makes no provisions whatsoever for determining whether the person who prepares the food or distributes it is a typhoid carrier—John Sundwall, *Pub. Health Rep.*, Nov. 7, 1919.

## Clinical Notes, Suggestions, and New Instruments

### EMPHYSEMA OF THE CECUM

REPORT OF A CASE

ELMER D. TWYMAN, M.D., KANSAS CITY, MO.

**History.**—Mr H. C., aged 22, white, American, a coast guard, chart No. 1,574, was admitted to the U. S. Marine Hospital, Port of New York, Nev. 9, 1918, complaining of a dull pain in the right iliac fossa. The complaint had lasted for four days; he was nauseated but he had not vomited. The dull ache, which had no connection with eating, was continuous. The patient complained of diarrhea.

There was nothing significant in his past illnesses or family history. He denied venereal disease. His parents and three sisters were living and well.

**Physical Examination.**—The only abnormalities noted were diffuse tenderness in the right hypogastric region and a slight rigidity of the rectus muscle. No signs of tenderness were elicited by pushing gas around in the colon; moderate tenderness was noted in both lumbar regions posteriorly. There was gross abdominal distention; but deep palpation revealed a mobile mass, the size of a small kidney in the right iliac fossa. It was of a doughy consistency suggesting a fecal impaction. Movement was elicited by manipulation and by the patient's breathing.

**Operation.**—Under ether, a high rectus incision revealed a mass, injected with blood, bound with adhesions, and distended in the subperitoneal layers by bubbles of gas. It was crepitant to the touch, like lung tissue. At one point on the outer side of the cecum, among a mass of subperitoneal gas bubbles, was something that gave an appearance of milklines, such as a thymus or a leukocytic infiltration. The small tatty tags were highly distended with small gas bubbles. After the separation of a few adhesions of the omentum to the colon and of the colon to itself, the mass was thus analyzed:

The transverse colon was normal. At the hepatic flexure was a sharp angulation marking the limit of the gaseous distention. Proximally the ascending colon was markedly thickened in size and apparent thickness of its walls (three times normal). The ascending colon was followed caudad to the ileo-cecal junction and to the caecum. At this point, reversing its direction, but not so sharply angulated, it was followed into the cecum. It was seen that the cecum and lower portion of the ascending colon lay side by side with the proximal portion first described, but in the antiparallel direction. The appendix was given off at the extreme distal end of the cecum, lying in immediate contact with the gallbladder. It was inflamed, but not adherent to the cecum. It was not crepitant. It was knotted into a double U by fibrous bands in its mesentery arising profusely from the tissues of the renal sulcus. Cutting the appendiceal mesentery and a number of bands in the peritoneum to the outer side of the cecum permitted the restoration of the cecum and ascending colon to their ordinary

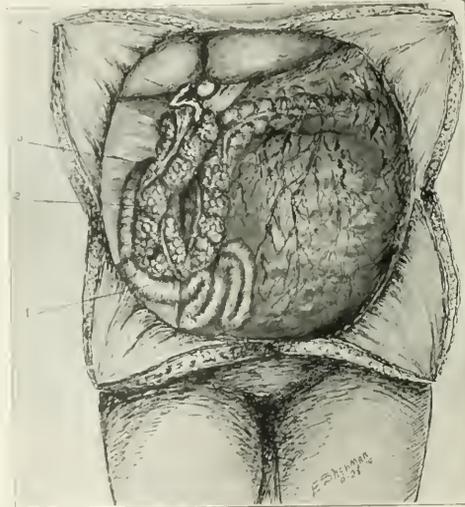
position. The fixed portion of the iliac mesentery was then sought, and the terminal 8 inches of the ileum isolated and followed caudad to the ileocecal valve. It was found that 4 inches cephalad to the valve, the ileum was bound down broadly and tightly over the psoas muscle for an inch and a half. The appearance was of a congenital arrangement plus additional bands of inflammatory origin or due to traction. The ileocecal valve lay on the outer and distal side of the loop described by the cecum and ascending colon. The arrangement was such that the terminal portion of the ileum from the ileocecal valve to the ileopsoas attachment was under tension, which tended to increase with functional movements of the colon. This tension was completely relieved by the division of the bands and the replacement of the colon in its normal position. The two angulations of the colon appeared also to be sufficiently relieved. The degree of distention of the ileum cephalad to the psoas adhesion was judged to be so small and the symptoms, that is, the obstructive symptoms, so mild as not to justify a separation of this broad and well functioning adhesion, especially considering the dangerous proximity of the iliac vessels. No attempt was made to cover the raw surface on the outer side of the colon or to dictate the final position of the cecum

(other than its replacement by hand. The appendix was removed and the stump buried. The wound was closed without drainage. Three small bits of gaseous injected tissue were removed and sent to the laboratory, and direct smears and aerobic and anaerobic cultures ordered.

**Laboratory Reports.**—The first smear, stained with methylene blue, contained many polymorphonuclear leukocytes with intracellular diplococci. In the second smear, fewer numbers were observed and the diplococci were stained positive by the Gram method. All cultures were reported negative after one week's growth. As the laboratory was rushed with work incident to the epidemic, I have not regarded this result as legitimate but simply as an unavoidable misfortune.

**Progress of the Case.**—The patient left the house in two weeks. On full diet, he experienced no trouble. He stated that he was then conscious that there had always been something wrong with his abdomen. The mass had disappeared, and there was little postoperative abdominal reaction.

416 Argyle Building.



Emphysema of the cecum: 1, ileum under a hand; 2, emphysema of the cecum; 3, ileocecal junction; 4, appendix and bands of adhesions.

**Experimental By-Products.**—The first voyage of Columbus was an experiment. It is not always that experiments may be performed in the laboratory, for many of them must be on a national or world-wide scale, as is true today of many social experiments. Sometimes the by-products of an experiment are themselves of great value, an illustration of this is Columbus' discovery of the variation of the magnetic declination. Not always, of course, are the by-products of the main experiment so evident as they were in this case of Columbus' first voyage; nor are they so overshadowed by the importance of the main result. In such by-products may be the greatest value of the experiment. While the result of the main experiment is usually the reward of clear thinking and precise manipulations of the experimental apparatus, the by-products are usually the reward of a comprehending observation.—Mills, "The Realities of Modern Science."

A HOME-MADE ORTHOPEDIC TABLE

LOYD M. BERGEN, M.D., HIGHLAND PARK, ILL.

There is often need of an orthopedic table where the small volume of work does not justify the purchase of elaborate

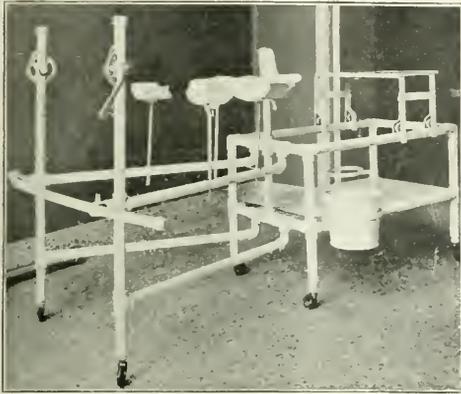


Fig. 1.—Sacral and shoulder supports removed with table set for roentgenography or operation.

and expensive apparatus; the home-made table here illustrated will supply this need.

I made a small model in a few hours, and the table itself was constructed by the janitor of the Highland Park Hospital, chiefly from pieces of scrap piping. The illustrations demonstrate clearly the construction and application.

The patient being placed in position, the small steel cables are attached to the ankles, and traction is applied. The four padded leg supports are then dropped out of the way by simply pulling out the four pins with which they are transfixed.

The post supporting the sacral rest is made of slightly smaller piping, slides easily through the "four-way" fitting, and rests in the T socket below. In this way the post and saddle are



Fig. 2.—Shoulder, sacral and leg supports in place to receive patient.

simply lifted out when the apparatus is to be used as an ordinary table. The chest and shoulder support is made of wrought iron strips with ordinary ball bearing roller skate wheels, obtainable in any good hardware store. The ratchet

wheels are part of a Ford motor car, and cost one dollar apiece at the dealer's. They require some turning down in a lathe, as in the original they are too thick to go through the slots in the piping.

The cross bar for arm extension rests on the table frame, and bolts are dropped through perforations in the two pipes. It is lifted off when not in use.

SEROUS MENINGITIS FOLLOWING INJECTION OF ANTITETANIC SERUM

OSCAR BERGHAUSEN, M.D., CINCINNATI

A boy, aged 3½ years, who had been in the best of health, stepped on a nail two weeks before I saw him, Sept. 26, 1919. The wound was indifferently treated by one physician so that Dr. George Sikes of Pleasant Ridge was consulted two days later. The wound was then opened, cleansed and properly cauterized. The little boy was given 2,000 units of antitetic serum; the wound healed perfectly. A week after the serum was given, a typical serum rash developed but soon subsided. Four days later the child was playing in the yard as usual, when he began to drag the injured leg. That afternoon he was taken sick rather suddenly, and fever developed, but there was no nausea or vomiting. The mother noticed that the child could not move the injured (right) leg or the left arm. He seemed to hold his head toward the right side. Dr.

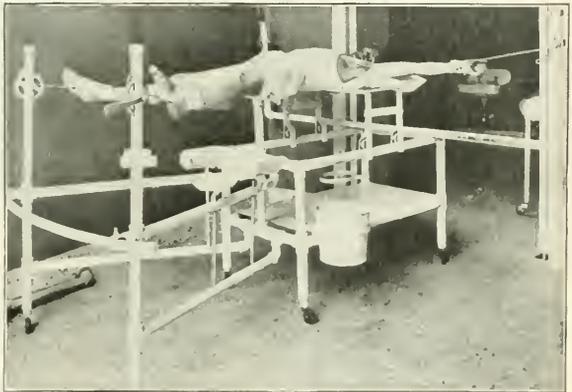


Fig. 3.—Patient suspended, with leg supports dropped out of the way.

George Sikes was called and decided not to use antitetic serum, giving the child a dose of castor oil instead. The next morning the child was no better so it was brought to a hospital in this city where I saw him just two weeks after the original injury.

The child was crying. The skin was covered with a profuse reddish macular eruption, confined mostly to the lower extremities. He apparently did not move the left arm. The pupils were equal; there was no involvement of the cranial nerves. The heart and lungs were apparently normal; the examination of the abdomen was negative. The child held himself rigid. There was Kernig's sign, but no opisthotonus. The temperature was about 102; the pulse was rapid. I told the family that in my opinion the symptoms could not be due to tetanus, and expressed the opinion that it possibly was due to the injection of horse serum, although the typical serum rash had disappeared four days previously. In the afternoon the temperature rose to 104; the pulse was 128, and the respiration 36. While sleeping, the child would twitch its face. I had Dr. Robert Ingram see the child with me.

In addition to the symptoms and signs that I have mentioned, he found an ankle clonus of both legs, mostly right, and an edema of the right upper lid. He diagnosed the condition as cerebrospinal meningitis according to the syndrome,

the cause of which was unknown. He advised a spinal puncture. The fluid came out under great pressure, was clear, contained no cells, no increase in globulin, and gave a negative Wassermann reaction. Within two hours' time the child was quiet, fast asleep, and the temperature was nearly normal. All symptoms apparently had disappeared, the child could move both legs and arms, and the edema was decreasing. Within two days' time the child apparently was well, and went home. Since then it has been free from a recurrence of the symptoms. To my mind the foreign protein (horse serum) had produced an anaphylactic reaction which was later complicated by the development of an acute serous (edematous) meningitis.

19 West Seventh Street.

#### FOREIGN BODY IN RECTUM

EDWARD A. DOWNS, M.D., SAN FRANCISCO  
SURGEON, U. S. Army Transport "Logan"

The note on a glass tumbler in the rectum brings to mind a somewhat similar case that I observed in 1907:

A marine engineer, after an exploit on the "Barbary Coast" in San Francisco, was the victim of rowdy companions. Next day, while searching within the rectum to determine the cause of certain unusual symptoms, he located something that felt like the edge of a glass. Manual manipulations failed to dislodge the intruder, so he tried thumb forceps. The result was that a particle of the edge of the glass was snipped off with each grasp of the instrument, leaving a serrated edge, as shown in the accompanying illustration, around the top of the glass.

Examination in the knee-chest position, with the vaginal speculum and long dressing forceps, revealed the base of the glass 9 inches within the rectum.

Pieces of gauze bandage were dipped in plaster-of-Paris paste and inserted with long dressing forceps repeatedly,



When applied to the glass, and glass packed with plaster-of-Paris paste, the gauze bandage, containing pieces of the jagged edge of the glass, formed a cylinder.

until the glass was packed overfull. The last strip was sufficiently long to leave more than 12 inches free for traction. Within half an hour the plaster was solid. As traction was made, small particles of loose, hardened plaster preceded the glass, and fragments and splinters were incorporated with them. No difficulty was experienced in bringing the glass to the sphincter. This was dilated with the vaginal

speculum, and the foreign body was withdrawn with little resistance and no bleeding.

The object proved to be a common 5-ounce "high ball" glass. The victim returned to duty next day. There was no after-pain or complications.

#### A CASE OF BILATERAL CONGENITAL FUSION OF THE RADIUS AND ULNA

JULIUS KAUFMAN, M.D., BROOKLYN

This case is, I believe, of sufficient interest from a developmental standpoint to warrant its being recorded. Whether



Fig. 1.—Lateral view of left forearm. Fig. 2.—Lateral view of right forearm.

it is just one of the freaks of development that we encounter so often, or whether it has some atavistic significance, I am not prepared to state.

Private A. J. L., white, aged about 24<sup>1</sup>, was admitted to our hospital area at Mars-sur-Allier, France, complaining of "joint trouble." As long as he could remember, he had had only limited motions in both his forearms. The condition had been becoming progressively worse. Flexion and extension were somewhat limited and painful. There was only a minimum of pronation and supination.

Clinically, both the arms were held in the position of mid-pronation. Extension and flexion of the forearm on the arm was but little limited, the patient complaining of slight pain during these motions. That there was true ankylosis could easily be inferred by the complete loss of active and passive pronation and supination. Actions that involved these motions were compensated for by using the shoulder joint.

Roenigenograms of both forearms revealed an exactly symmetrical fusion of the upper extremities of the radius and ulna, with rather incomplete development of the radial head. Following the course of the radius from below upward, with the forearm fully extended on the arm (by means of stereoscopic plates), one saw that the radius crossed the ulna from within out, anterior to it, fusing with it in its upper extremity, the radial head lying at about the level of the capitellum, but slightly posterior to it.

There can be little doubt that the condition was a congenital one. Its long-standing history, the absence of trauma or any other etiologic factor, and the symmetrical involvement all point to this.

<sup>1</sup> See also, Orval, A Glass Tumbler in the Rectum, J. A. M. A. 72: 1-5 (May 1) 1919.

<sup>1</sup> It was impossible to obtain complete data, owing to the patient's immediate evacuation from this area.

## Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY,  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS \*

(Continued from page 1769)

#### AGAR

Having shown that there existed a variety of constipation, characterized by the passage of a scanty amount of fecal matter in the form of dry, hard lumps, and that this was due to excessive bacterial digestion of cellulose, Adolf Schmidt<sup>1</sup> suggested the use of agar, well known as a bacterial culture medium employed because it is not liquefied or digested by micro-organisms. This substance, a dried mucilaginous material (hemicellulose) extracted by hot water from certain Japanese algae, is almost indigestible in our alimentary tract. Hence it passes through the intestine, adding bulk to the feces and softening them by virtue of its property of retaining moisture.

Agar generally occurs in bundles of translucent pieces, but is best obtained for medicinal use in the form of shreds or coarse powder. When finely pulverized, it may produce colic. It has a slight odor and an insipid mucilaginous taste; it is insoluble in cold water, but slowly soluble in hot water, a 1.5 per cent. solution producing quite a stiff jelly on cooling.

Agar is indicated in those cases of chronic constipation in which it is considered desirable to increase the bulk of the feces, and in which bran is not well borne or does not act well. Persons in whose intestine cellulose is digested to an excessive degree are likely to find bran not only deficient in activity, but, like other fermentable cellulose, troublesome by the production of flatulence. For such, agar may be just the right dietetic corrective. As it is deficient in influence on peristalsis, it is likely to be useless in atonic constipation, such as in that of the aged; on the other hand, it may be used in spastic constipation and in mucous colitis.

As in the case of other evacuants acting chiefly in a physical manner, agar must be taken in large and liberal doses, and regularly for a long time. A dose of from 30 to 40 gm. may be required. Usually the patient is directed to take one or two heaping teaspoonfuls once a day, preferably with his breakfast. From two to four days may elapse before an effect manifests itself. If none appears, the patient should increase the amount ingested by taking additional doses with other meals. As much as four tablespoonfuls and even more may be needed. In such a case, it is best to employ some other evacuant instead, or in addition. Children of 4 or 5 may require two teaspoonfuls (4 gm.) daily. Once regularity has been established for a week or two, the patient should tentatively reduce the dose, to discover the smallest amount required by him; and this may have to be continued many months, perhaps indefinitely. As it, therefore, is really an article of diet, we must invoke the art of cookery to make the patient relish taking the remedy, or it will be discarded sooner or later, even though it produces a satisfactory result.

Adults usually prefer to take it in shredded form (cut agar). This may be eaten with cream and sugar.

\* This is the ninth of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

<sup>1</sup> Schmidt, Adolf: Neue Beobachtungen zur Erkennung und rationellen Behandlung der chronischen bakteriellen Obstipation, *Munchener, u. Wechschr.* 52: 1970 (Oct. 10) 1905.

Many prefer to eat it mixed with gruels or any of the ordinary cereal breakfast foods. It may also be added to cooked fruits, vegetables or thick sauces. For the adult, however, it should not be cooked with the food. Agar may be used, instead of bran, in the various cooking recipes given in connection with bran. When used in the making of cakes, biscuits or cookies, it should always be added just previous to baking.

Children require agar in finely granular or liquefied form. When shredded agar is given in their food, many of them will carefully separate each piece in their mouth and spit it out. To liquefy agar, it must be boiled with water until it has become thoroughly homogeneous. Several hours' hard boiling may be required. Thus it may be cooked up with cereal or in soup; but such dish must not be allowed to cool before it is eaten, otherwise it will gelatinize. Of course, agar may be eaten in the form of jelly. Strauss<sup>2</sup> gives this recipe for an agar jelly:

Wash 5 gm. of agar in cold water, then soak in hot water, and boil with from 300 to 400 c.c. of water until clear. Strain through gauze, and add any one of the following flavorings: wine, sugar and lemon peel, coffee, cacao, cream, yolk of egg, etc., and set aside to cool.

The limitations of agar as a laxative are perhaps best shown by the fact that Adolf Schmidt, who first proposed its use for this purpose, found it necessary to make it more reliable in its activity by adding 25 per cent. of aqueous extract of cascara sagrada. This combination of Schmidt's is being promoted as a proprietary medicine. One of the objections to such a combination is the impossibility of varying the relative dosage of its ingredients. If it is found necessary to supplement agar with an active cathartic, let the cathartic be given separately. Then it will be possible to adjust the dosage to the needs of the individual patient; and it will also be possible gradually to reduce the dosage of the active cathartic until the patient is finally weaned from it. While it may be admitted that little, if any, harm could come from using agar indefinitely, it is certainly true that the indefinite consumption of cascara sagrada, or of any other active cathartic, leads to habituation of this drug.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PECKNER, SECRETARY.

**HOYT'S GLUTEN SPECIAL FLOUR**—A gluten flour containing protein, 80 per cent. fat, 1 per cent. and starch less than 10 per cent.

*Actions and Uses.*—Hoyt's gluten special flour may be given when a diet relatively free from carbohydrates is desired, especially in diabetes. It does not make a satisfactory bread but may be used to prepare muffins, flat cakes or gruel.

The nutritive value of 500 gm. of Hoyt's gluten special flour corresponds approximately to 1810 calories, of which 1640 are due to protein, 45 to fat, and 125 to carbohydrate.

Manufactured by the Pure Gluten Food Company, Columbus, Ohio. No U. S. patent or trademark.

Hoyt's gluten special flour is prepared by washing a wheat flour dough with cold water until the entire content of the wheat flour has been completely freed from starch as is possible by mechanical means. The residual mass is then dried and ground.

<sup>2</sup> Strauss, H.: *Glutenpatte und Diäten*. In: *Gluten der Diäten*, Hamburg, Deutsch. med. Wechschr. 349: 1157 (Nov. 1) 1913.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 13, 1919

The Current Medical Literature and other departments in this issue are curtailed, owing to the shortening of the hours of labor to comply with the ruling of the fuel commission. The shortening occurs almost wholly in the middle section of THE JOURNAL—the last form to go to press. The precipitate nature of the ruling is responsible for this unevenness. Sympathetic readers will pardon the curtailment as well as any delay in the receipt of THE JOURNAL.

## DIET AND INTESTINAL BACTERIA

There are many indications in the recent literature of alimentary bacteriology leading to the conclusion that diet can play a significant rôle in determining the bacterial flora of the intestine. The attempts to establish specific types of micro-organisms in the enteric tract by feeding bacterial cultures have not proved successful in the way that the enthusiasts of the Metchnikoff school were led to expect. Despite the positive claims of the manufacturers of such products, the preponderant view at present is against the probability of success in the efforts to implant strains of bacteria in the intestine by feeding cultures of them. On the other hand, there is growing evidence that the flora in the bowel can be profoundly altered by changes in diet.

Torrey has demonstrated the striking effect of various high-calory diets on the fecal flora of typhoid patients. In some cases the addition of from 250 to 500 gm. (8 to 10 ounces) of lactose a day to the other ingredients of the ration brought about a transformation of the fecal flora from the ordinary type to one strongly dominated by *Bacillus acidophilus*. In more recent investigations on dogs, he has further established the promptness and uniformity with which they respond to diet by changes in their predominant alimentary bacteria. As Mendel has recently pointed

out, the determination of the conditions under which desired intestinal floras can be established opens up a fruitful field for the clinical investigator. This is further emphasized by the new observations of Porter, Morris and Meyer<sup>3</sup> of the University of California Medical School. They show that children whose diet is well balanced and whose nutrition is normal have an intestinal flora consisting of fermentative and putrefactive types of micro-organisms without preponderance of either; but when large quantities of cow's milk are fed, the flora becomes more complex and tends to include a predominance of facultative putrefactors. Putrefactive bacterial types are, furthermore, characteristic for children who suffer from certain forms of alimentary intoxication with malnutrition.

According to the San Francisco pediatricians, the return of such children to normal health is coincident with a regression of the intestinal flora toward predominantly fermentative types. Such a change, they further aver, can be brought about in the infant by withdrawing animal protein and persistently feeding large amounts of lactose and other carbohydrates—not, however, by mere administration of cultures of *B. acidophilus*. Since the progressive cessation of the symptoms of intoxication and a return of toxemic patients to nutritional health coincides, to cite Porter, Morris and Meyer, with the recognizable dominance of a fermentative flora, the therapeutic value of suitable dietary regulations is obvious. For years it has been customary, in the management of infants suffering from putrid diarrhea, to furnish cereal decoctions or carbohydrates like lactose and maltose to them. The wisdom of such dietotherapy in suitable cases is being established on a scientific basis by some of the studies like those to which we have just referred.

## BOTULISM: I

The striking symptoms and high fatality of botulism have given to this disease, as to rabies, an interest and a conspicuousness far beyond its relative importance as a cause of death. Two recent fatal outbreaks of "food poisoning," one in Ohio, the other in Michigan, have been attributed, it seems with justice, to botulism intoxication from ripe olives packed in California, and these tragedies have increased the uneasiness felt by some persons about the dangers from this cause. American investigators in the past few years<sup>4</sup> have added much to our knowledge of

3. Porter, L.; Morris, G. B., and Meyer, K. F.: Certain Nutritional Disorders of Children Associated with a Putrefactive Intestinal Flora. *Am. J. Dis. Child.* 18: 254 (Oct.) 1919.

4. Burke, Georgina S.: The Effect of Heat on the Spores of *Bacillus Botulinus*: Its Bearing on Home Canning Methods, Part I. *J. A. M. A.* 72: 85 (Jan. 11) 1919. The Relation of Forage Poisoning to Botulism, editorial, *ibid.* 73: 611 (Aug. 23) 1919; Spoiled Canned Food, 72: 914 (Sept. 20) 1919. Thom, Charles; Edmondson, Ruth B., and Culner, L. T.: Botulism from Canned Asparagus, *ibid.* 73: 907 (Sept. 20) 1919. Weinzirl, John: Bacteriology of Canned Foods, *ibid.* 72: 1031 (April 5) 1919. *Bacillus Botulinus* Poisoning in Detroit, *General News*, *ibid.* 73: 118 (Nov. 1) 1919.

1. Torrey, J. C.: The Precipitation of the Intestinal Flora of Dogs by Feeding. *Dis. J. M. Research* 34: 41 (Jan.) 1919.

2. Mendel, L. B.: Food Factors in Enteropathology. *Am. J. M. S.* 158: 27 (Sept.) 1919.

botulism, and several recent articles, especially, have helped to define the conditions under which this serious form of food poisoning may take place.

It has been shown that the name of botulism, or sausage poisoning, is quite inappropriate to this form of bacterial intoxication as it occurs in the United States. Canned string beans, asparagus, corn, apricots, ripe olives and cheese have been implicated at various times and places, while meat products have seldom been causally connected with such cases. Apparently the majority of outbreaks on record in this country have been due to household canned foods, and one of the points in dispute has been whether a similar danger is to be feared from factory canned foods. The difference of opinion among workers in this field is exemplified by correspondence recently appearing in THE JOURNAL from two correspondents.<sup>5</sup> Some of the points raised in the correspondence are of general interest.

There is no doubt that the early statements of van Ermengem, the discoverer of *B. botulinus*, about the low heat resistance of this organism are incorrect if applied to all conditions or all strains. Most of the American strains, so far from being killed by heating to 80 C. for one hour, will withstand much higher temperatures, some even resisting the temperature of boiling water for a considerable period. The history of the canned foods implicated in botulism poisoning shows that the spores of *B. botulinus* pass through the ordinary processes of household canning without destruction. It seems to be a fact that, as far as recorded cases go, only two or three instances of botulism poisoning have been traced to factory canned goods, as against a much larger number attributed to foods prepared in the household. Whether this difference is due to the superior germicidal efficiency of factory methods of heating or to the circumstance that spoiled or swelled canned goods are more likely to be eliminated in the course of ordinary trade procedures or to a combination of these factors cannot be definitely established at this time. It does not seem, however, that we are justified in asserting that a danger is entirely absent because it is exceedingly slight.

The main point of difference between the correspondents mentioned seems to hinge on the interpretation given by Weinzirl to the results of an extended bacterial examination of canned foods undertaken in the Department of Preventive Medicine at Harvard University.<sup>6</sup> The investigation forms part of a comprehensive study of canned foods, which is being carried out under the direction of Dr. M. J. Rosenau with the aid of a grant supplied by the National Canners Association. The conclusion drawn by Weinzirl to which particular exception has been taken is that

"food poisoning organisms, such as *B. botulinus*, *B. enteritidis*, etc., are not found in commercial canned foods."<sup>7</sup> It is unfortunate that this matter was not allowed to rest in the form in which it appears in the summary of results: "Members of the paratyphoid-enteritidis group were not found, nor was *B. botulinus* ever isolated." This plain description of findings becomes transmogrified by Weinzirl in his "conclusions" into a general statement which would hardly be justified even by a more extensive investigation than that here under discussion, and which in its present form might lead to serious misinterpretation.

On the other hand, it must be admitted that a rather too positive tone pervades portions of Mrs. Burke's letter. It is hardly justifiable to insinuate, however vaguely, that a group of workers is influenced by any consideration other than the desire to seek the truth and find it.

It seems hardly fair or wise to cast discredit on the work of a group of scientific investigators, comprising some of the best known names of the country, apparently on the ground that the money for the work has been provided by a commercial association. The word "commercial" is frequently used as a general term of opprobrium, but, as Roosevelt would have said, there is a "good" as well as a "bad" commercialism. It is not our understanding that money was given to Harvard University for the purpose of "exonerating" factory canned goods from any charge whatsoever, but simply for the purpose of discovering actual conditions and, so far as those conditions might be undesirable, of discovering and applying appropriate methods of improvement. It can hardly be assumed that the officials or any of the members of the National Canners Association would favor for an instant a plan to ignore or overlook any danger of botulism poisoning that might exist. Their interests, "commercial" as well as simply human, lie wholly in the direction of discovering what the danger is, how it arises, and how it can best be avoided or overcome. Denial or concealment is the last policy sound business judgment would dictate.

#### SECURING OFFICERS FOR THE ARMY MEDICAL CORPS

The Military Committee of the House of Representatives, it is reported, has agreed on a peacetime regular army of 300,000 men and 18,000 officers. The number of officers, in excess of the actual need in the army, was decided on in order to provide in training for the national guard and reserve officer's training corps units. Probably, therefore, from 1,800 to 2,000 regular medical officers will be needed. The problem of securing young men for the Regular Medical Corps has long been a difficult one to solve; the need for

<sup>5</sup> Burke, Georgia S. Spiced Canned Beans and Botulism, *J. A. M. A.* 73: 1978 (Oct. 4) 1919. Weinzirl, John. *Ibid.* 73: 1289 (Dec. 6) 1919.

<sup>6</sup> Weinzirl, John. The Bacteriology of Canned Foods, *J. M. Techn.* 34: 349 (Jan.) 1919.

<sup>7</sup> Weinzirl, John. *Quintette* 6: p. 111.

<sup>8</sup> Weinzirl, John. *Footnote* 6: p. 111.

a larger corps merely emphasizes the problem. At the present time the difficulty is increased because of the low pay, although undoubtedly this will be removed by a bill now before Congress which provides for a 30 per cent. increase in pay and emoluments. This means compensation which will compare favorably with the income of the majority of civilian practitioners. But the increase in pay alone will not be enough to attract a sufficient number of volunteers to the service under present educational conditions.

Many state licensing boards are requiring a year's hospital internship in addition to the four years' professional training, and an increasing number of medical colleges are requiring a fifth year of hospital work before granting the degree. This hospital year is a good thing; so far as the public is concerned, one of the most important advances in medical education. However, young physicians with such training are likely to see more allurements in private practice than in the army. In addition, there is the worry and work of passing the army examinations. Hence, if the army is to depend on this class of well-trained men to fill its medical corps—and it is this class that is wanted—it will take a long time before the Medical Corps will secure its full quota under present methods of taking in these men.

But why should the army wait for this complete training? Why should it not take the man when he has completed his fourth year and give him his hospital year as a noncommissioned officer in the Medical Department? The Walter Reed Hospital offers a splendid opportunity for such work as the hospital year is supposed to require; in addition, there are the available division hospitals. If such a method of recruiting were adopted, it would be a double advantage to the student: (1) He would be taken from an A-grade medical school on his record in that school, without having to go through the ordeal of an examination—this to some students would be an attractive feature, and (2) he would receive pay and subsistence during the hospital year, at the end of which he would receive his diploma, just as he would if the year had been spent in a civilian hospital. These factors, taken together, should appeal to the average fourth-year student.

There are two obstacles to this proposition, neither of which, however, is serious. First, the law requires that an applicant for the Medical Corps of the Army must have an M.D. degree from a reputable and well-recognized medical school, second, the medical school which requires the hospital year—and soon all medical schools of any standing will do so—would have to agree to recognize the army hospital as satisfying their requirements for the hospital year. The first obstacle could very easily be overcome by a slight modification of the present requirements, or by having the student go through his hospital year as a noncommissioned

officer. The second also can surely be overcome, for certainly medical colleges will willingly grant recognition to the divisional hospitals of the army—at least to the great Walter Reed Hospital.

## Current Comment

### THE FATE OF PROTEINS INJECTED INTO THE CIRCULATION

The fact that considerable quantities of blood, a fluid exceptionally rich in protein, can be introduced into the circulation without untoward effects and frequently with benefit has occasionally fostered the belief that other more easily obtainable protein solutions also could be infused occasionally with advantage. Before the rôle of digestion as a preliminary to assimilation was understood as well as it is at present, the possibility of direct nutrient benefit from proteins and other foodstuffs introduced directly by injection into the circulating medium of the body or less directly by the subcutaneous path seemed more plausible. Today it is the amino-acid digestion end-product, in the case of proteins, that counts as the real nutrient unit. The nitrogenous pabulum of the tissues is believed by the great majority of physiologists to circulate as amino-acids, which are the prime sources of constructive transformations in the tissues. If this hypothesis is correct, unaltered, that is, undigested foreign protein which finds its way into the blood stream may be expected to behave essentially like foreign material in the body. There are many experiments on record to indicate that this is true so far as the appearance of protein in the urine is evidence that protein introduced parenterally fails of utilization. Casein is, in a sense, not an entirely foreign protein, since it is actually manufactured in body cells by the mammary gland. Nevertheless, even this substance is not retained in the body when it is introduced through channels whereby digestion is avoided. Aaron,<sup>1</sup> who has repeated some of the earlier attempts at intravenous nutrition with proteins, has succeeded in recovering in the urine as much as 58 per cent. of the casein injected in animals. The futility of further procedures in this direction should henceforth be clearly understood.

### THE PREVALENCE OF SYPHILIS

It is difficult to obtain accurate figures showing the prevalence of venereal disease. Many observers have attempted to collate statistics, but certain inherent difficulties have always prevented satisfactory results. The disinclination of patients to give out information regarding these so-called "secret" maladies has always been a troublesome factor. The development of the complement fixation test has enabled us to reach conclusions regarding syphilis that are more definite than any obtained before the introduction of this method. Day and McNitt<sup>2</sup> have recently studied nearly 3,000

<sup>1</sup> V. Aaron, B.: Das Schicksal des intravenös verabreichten Caseins, *Ztschr. f. physiol. Chem.*, 98: 49, 1916-1917.  
<sup>2</sup> Day and McNitt: *Am. J. Syphilis*, 3: 595, 1919.

patients in the hospital and outpatient services of the Barnes Hospital of St. Louis. Among their well-to-do patients, a little over 6 per cent. gave a positive Wassermann reaction. Among the middle class, represented by patients in the pay wards, something over 13 per cent. gave evidence of syphilis, and in the lower class of white patients, nearly 20 per cent. gave evidence of the disease. Among the colored patients, 30 per cent. in the wards gave a positive Wassermann reaction. In the dispensary nearly 16 per cent. of the white and over 40 per cent. of the colored patients gave a serologic evidence of syphilis. These figures, covering a comparatively large series of patients, indicate the prevalence of the disease among the average sick and not among the average well. As the existence of a previous syphilitic infection predisposes to other diseases as well as sending many patients to the hospital with the late manifestations of syphilis in the internal organs, the figures cannot be considered applicable to the general population.

## Association News

### THE NEW ORLEANS SESSION

#### Announcement of Personnel of the Local Committee on Arrangements

The following Local Committee on Arrangements for the New Orleans session, April 26 to 30, 1920, has been constituted: chairman, A. E. Fossier; secretary, T. J. Dimitry; treasurer, Paul J. Gelpi.

#### CHAIRMAN OF SUBCOMMITTEES

Advisory.....	Charles Chassaingne
Sections and Section Work.....	Homer Dupuy
Registration.....	Hector E. Bernadas
Finance.....	J. W. Newman
Entertainment.....	Amedee Granke
Halls and Meeting Places.....	William Seeman
Hotels.....	J. J. Wymer
Scientific Exhibits.....	C. C. Bass
Commercial Exhibits.....	W. H. Block
Information.....	Allan Enstis
Publicity.....	Hamilton P. Jones
Printing.....	W. H. Knolle
Signs and Placards.....	E. L. Leekert
Transportation.....	H. W. E. Walther
Badges.....	J. Birney Guthrie
Golf.....	John B. Elliott
Membership.....	William M. Perkins
Clinics.....	Hermann B. Gessner
Women Physicians.....	Elizabeth Bass

## Government Services

### Personnel of the Medical Department

For the week ending December 5, the Medical Corps contained 2,280 officers; the Reserve Corps 3,398, an increase in the latter of eighty-one from the previous week.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

MINNESOTA	NORTH CAROLINA
Adrian—Tiedemann, I. D.	Linden—Bell, F. O.
NEW YORK	Racford, Dickson, J. G.
New York—Blandridge, W. S.	RHODE ISLAND
Postmaster—Herriman, W. J.	Newport—Merritt, E. L.

## Medical News

(PUBLISHERS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Joint Meeting.**—The Los Angeles County Medical Association held a joint meeting with the Southern California Medical Society, December 4 and 5, in Los Angeles. The address of the president, Dr. Edward W. Burke, Redland, was on "Medical Readjustments Following the War."

**Soldiers Honored.**—A banquet was given at Hotel Alexandria, Los Angeles, December 11, in honor of the members of the Los Angeles County Medical Association who have been in the military service during the world war. About 265 members gave up practice to enter the medical corps and of this number all but twenty-four have returned.

### DISTRICT OF COLUMBIA

**Changes in Faculty.**—General William H. Arthur, M. C., U. S. Army, has been appointed professor of military hygiene in the Georgetown University, Col. William O. Owen, M. C., U. S. Army, head of the department of anatomy, and Dr. William G. Irving, professor of orthopedics in the institution.

**Personal.**—A reception was tendered by Major-Gen. Merritt W. Ireland, Surgeon-General, U. S. Army, and Mrs. Ireland, at their apartment in the Wyoming, recently, to the faculty and student officers of the Army Medical School. —Matthew A. Delaney and William J. L. Lyster, colonels M. C., U. S. Army, were decorated by the Prince of Wales with the order of St. Michael and St. George, at the investiture, November 13.

**Testimonial to Dr. Kober.**—To express the admiration and gratitude in which Dr. George M. Kober is held by his pupils, friends and co-workers, it has been decided to issue as a testimonial to these sentiments an anniversary publication dedicated to him, on the occasion of his seventieth birthday, March 28, 1920. Dr. George Tully Vaughan has been selected as chairman of the organization; Mr. Felix Neumann of the Army Medical Museum, as secretary; Mr. John Joy Edson, as treasurer, and as members of the committee at large, Gen. Robert E. Noble, Drs. Charles D. Walcott, Wilfred M. Barton, J. W. Fewkes, Walter D. Hough, L. O. Howard, Ales Hrdlicka, Washington, and T. Michleson, Prof. W. H. Holmes, and Mr. N. M. Judd. The anniversary publication will be the issue of the *American Journal of Physical Anthropology*, which will be published in the latter part of March, and will be known as the George M. Kober Anniversary number.

### ILLINOIS

**Personal.**—Dr. Josephus J. Brown, for nearly forty-one years a practitioner of Troy, has disposed of his entire business and property interests and expects to locate in California. —Dr. Lee C. Harlan, Madison, is convalescent after a severe infection of the hand.

**Chiropractor Convicted.**—According to a news item, Dr. H. N. Mettler, a chiropractor of Rock Island, recently convicted in the circuit court for treating human limbs without a license, was fined \$200 and costs, amounting to \$220.30. His case has attracted much interest among chiropractors all over the state of Illinois and Iowa and is expected to set a precedent. It is understood that Dr. Mettler will qualify for a license and continue his practice in Rock Island.

### Chicago

**Election of Officers.**—Medical Department Post No. 31 of the American Legion announces the election of the following permanent officers: commander, Dr. John F. Van Pelt; vice commander, Dr. Henry C. Lampe and adjutant and treasurer, Dr. Thomas P. Foley.

**Personal.**—By the will of Robert L. Reid, who killed himself, December 1, his body is bequeathed to his friend and employer, Dr. Augustus G. Haefliger "for scientific purposes." —Dr. J. W. Hilbert has been appointed physician to the Studebaker Corporation, South Bend, Ind.

### LOUISIANA

**War Service Physicians Organize.**—The officers of the Louisiana War Service Physicians Organize, formed during the war, turned over to

the American Legion, November 28, electing the following officers: commander, Dr. John B. Elliott, Jr.; vice commander, Dr. Joseph A. Danna, and adjutant and finance officer, Dr. John F. Dicks.

**Personal.**—Dr. Walter J. Otis, formerly of Waverly, Mass., and more recently in the division of neuropsychiatry of the army, has located in New Orleans.—Dr. James T. Newman, New Orleans, has been appointed superintendent and surgeon in charge of Providence Hospital, New Orleans, an institution for colored patients.

**Case of Yellow Fever in New Orleans.**—The president of the state board of health reports that William H. Stevens of New York City, a passenger from Merida, via Progresso, returned on a steamer which arrived in New Orleans, December 2, and at 10 p. m., December 4, from yellow fever. The disease was promptly recognized and all precautions were taken.

**Hubonic Plague.**—The president of the dock board announces that all port facilities of New Orleans, save five wharves, are to be rat-proofed at an expenditure of about \$100,000. The other facilities of the board will gradually be made rat-proof, the necessary funds being borrowed.—The seventh case of hubonic plague reported this year in New Orleans is that of John Unger, a rat catcher in the Public Health Service, who was seized with the disease, November 25.—One death from hubonic plague occurred, November 25. The case was detected, November 22, and was sent to the isolation hospital, where serum was administered, but it was too late to save the life of the child.

#### MARYLAND

**Personal.**—Dr. Raymond Pearl, professor of biometry and vital statistics in the school of hygiene and public health at Johns Hopkins University, has been appointed statistician to the Johns Hopkins Hospital.

**Fire at Johns Hopkins.**—McCoy Hall and others of the old buildings of Johns Hopkins University were destroyed by fire, November 27. The loss is covered by insurance, but valuable libraries and records of the school of hygiene and public health which occupied the second floor of McCoy Hall were destroyed with irreparable loss. On the day before the fire Dr. Raymond Pearl, in charge of the department of biometry and vital statistics in the school of hygiene at Johns Hopkins, moved to McCoy Hall, his entire private scientific library, including about 15,000 reprints and pamphlets, and the accumulated unpublished records of his work for the last twenty years. These were entirely destroyed. Sir Arthur Newsholme lost many of his private papers in the fire.

#### NEW YORK

**Addition to Hospital.**—A twenty-five bed addition to the University Municipal Hospital for Infectious Diseases has just been completed. This addition consists of isolation rooms and two small wards, and gives the hospital a total bed capacity of more than 100 beds.

**Personal.**—Dr. Albert H. Garvin has resigned his position as superintendent for the State Hospital for Incipient Tuberculosis at Bay Brook to accept a similar position at a sanatorium for incipient tuberculosis, located near Detroit, at a salary of \$10,000 a year.—Dr. John J. Lloyd, Jr., superintendent of the Tuberculosis Sanatorium, Westchester has been elected superintendent of the Blue Ridge sanatorium, now under construction, near Charlottesville, Va.

#### New York City

**Academy Election.**—At a stated meeting of the New York Academy of Medicine, December 4, the following officers were elected for a one year term for three years, Dr. Rufus A. Cook, treasurer for five years, Dr. W. Gilman Thompson, secretary and committee of education for five years, Dr. Sidney Powers, librarian, member of committee of library, Dr. Cary York, president. The term of the president, Dr. George David Stewart, expires next year for another year.

#### OHIO

**Library Given Medical Society.**—Mr and Mrs. J. H. Himes, Canton, have given the Canton Medical Society a medical library in liquidation of a fund of \$1000 to be used in the purchasing of medical journals.

**Personal.**—Dr. Irwin A. Petersen, Cleveland, has been appointed director of department of health service of the American Red Cross.—Dr. Paul G. Woolley, Cincinnati,

professor of pathology of the University of Cincinnati, has resigned.—Dr. Robert B. Woodward, Somerset, has been elected mayor of the village. This is the fifteenth term he has served as executive officer of the village.—Dr. Van S. Deaton has been elected mayor of Troy.—Dr. Clarence W. Russell, Springfield, who has been ill with heart disease at the home of his sister in Burton, is convalescent and has resumed practice.—Mrs. Rena D. Reed, wife of Dr. Charles A. I. Reed, Cincinnati, died recently from cerebral hemorrhage.

#### PENNSYLVANIA

**Personal.**—Dr. E. Olivia White, Philadelphia, has been appointed assistant chief of the division of child hygiene of the state health department.—Dr. Frederick W. Coover, Harrisburg, has been elected surgeon emeritus on the staff of the Harrisburg Hospital.—Dr. J. Allen Jackson, Philadelphia, chief resident physician of the department for the insane of the Philadelphia General Hospital, has resigned to accept a similar position at the State Hospital for the Insane, Danville.

**Tuberculosis Night.**—A special meeting was held at the College of Physicians, December 10, and designated "Tuberculosis Night." Similar meetings were held at the branches of the Philadelphia County Medical Society, all open to the public. This meeting was for the discussion of a campaign against tuberculosis. Dr. Edward E. Martin, commissioner of health of Pennsylvania, spoke on the work of the state in its fight against this disease and Clifford B. Comelley, commissioner of labor of Pennsylvania, spoke of tuberculosis in its relation to the wage earners. Edward Keenan, president of the central labor union of Philadelphia, discussed union labor's interest and place in the tuberculosis crusade.

**Jefferson Establishes a Dietetic Center.**—The Tuberculosis Society of Philadelphia has established a dietetic center at the Jefferson Department of Diseases of the Chest at 238 Pine Street. The first class attended by state nurses took up the preparation of economical and nutritious foods and the ultimate plan is to establish dietetic clinics throughout the state. The nurses will be taught to instruct mothers of families and urge pupils to attend the classes. Ultimately it is hoped to establish regular dietetic clinics at all hospitals. Classes are under the supervision of Miss Idella G. Miller, a dietitian furnished by the Tuberculosis Society. These are held each afternoon and evening and consist of one and a half hour periods. Instruction will cover preparation of simple foods and the making of ideal menus designed to supply the greatest amount of strength. The Social Service Department, headed by Miss Eleanor Finken, is actively cooperating in this movement.

#### Philadelphia

**Society Honors Service Men.**—The L. Webster Fox Ophthalmological Society of the Medico-Chirurgical College of Philadelphia held its annual banquet at the University Club, November 22, in honor of its members who were in the military service during the war. Dr. John A. Brophy presided as toastmaster.

**Hatfield Lectures.**—Lecture No. 2 of the Nathan Hatfield Lecture series will be delivered at the College of Physicians of Philadelphia, December 16, at 8:30 p. m. by Dr. Harvey Cushing, Boston, professor of surgery in Harvard University, on "The Major Trigeminal Neuralgias and Their Surgical Treatment."

**Tuberculosis Days.**—Tuberculosis day was observed in the schools of the city, December 5, was observed in the synagogues, December 6, and in the Sunday schools and churches, December 7. Special attention was called to the sale of Red Cross Christmas seals, now being conducted under the auspices of the Philadelphia Tuberculosis Committee.

#### CANADA

**Personal.**—Dr. John A. Anyot, Toronto, deputy of minister of health for Canada, has left Ottawa to confer with Dr. Gordon Bell, provincial bacteriologist in Winnipeg, to discover the sources of the so-called sleeping sickness reported from western Canada.

**Public Health News.**—It is now definitely stated that the smallpox outbreak in Ontario has been traced to Toronto. Up to the end of November there was a total of 1,673 cases in that province with no deaths. Most of these occurred in Toronto, the figures being 1,356. The disease has occurred in thirty counties of Ontario. During November, the Ontario Board of Health supplied 240,000 individual doses of small-

pox vaccine. There has also been a considerable increase in Ontario of other communicable diseases. There were in November 438 cases of scarlet fever with seven deaths; diphtheria, 621 cases with 48 deaths; typhoid fever, 53 cases, 24 deaths; tuberculosis, 157 cases, 124 deaths. During the month there were 275 cases of venereal diseases as against 96 for the same month in 1918.—A deputation of Montreal physicians in the interests of public health is visiting Toronto and interviewing the medical officer of health with regard to the outbreak of smallpox.

#### GENERAL

**Personal.**—Frederick F. Russell, Col., M. C., U. S. Army, has been appointed official representative of the Medical Corps on the government division of the National Research Council.

**Biologists to Meet.**—The executive committee of the Federation of Biological Societies has called the annual meeting at Toronto, Ont., December 29 to 31. This federation includes the American Physiological Society, which at this time will hold its thirty-second annual meeting.

**New York Medical Weeklies Resume Publication.**—We congratulate our contemporaries, the *New York Medical Journal* and the *Medical Record*, on having resumed publication after a six weeks' vacation, the result of a strike. Both journals are issuing the belated issues as rapidly as possible, and, unless further troubles ensue, within a week will appear normally.

**Meeting of the Child Hygiene Association.**—At the annual meeting of the American Child Hygiene Association, held in conjunction with the convention of the Southern Medical Association at Asheville, N. C., last month, St. Louis was selected as the next place of meeting, and the following officers were elected: president, Dr. Philip Vanfingen; president-elect, Prof. Charles A. E. Winslow, New Haven; vice presidents, Drs. W. M. Chapman, Montreal, and Howard C. Carpenter, Philadelphia; secretary, Henry F. Helmholz, Evanston, Ill. (re-elected); treasurer, Austin McClanahan, Baltimore, and executive Miss Gertrude B. Knipp, Baltimore (re-elected).

**American Red Cross Wishes Fifty Physicians.**—The American Red Cross wishes to obtain fifty medical officers for service in Europe and elsewhere. Qualified practitioners who have had military experience are preferred. Captains and lieutenants will be given preference, but those who held the grade of major will be considered, provided they are young, active and efficient. The pay will be that which they received in the service, plus 10 per cent. for overseas, with a liberal allowance for commutation. The Red Cross does not desire to sign a contract for a period of less than one year, although when necessary in a few cases the contract will be for a period of six months. The qualifications must be similar to those required by the Army and Navy for entrance into these services. Young men, preferably not over 35 years of age, are preferred. They must be physically sound and of good moral character, as they will be representatives of the medical profession of the United States in a foreign country. The work will be interesting. For further information address Brig.-Gen. Robert E. Noble, Army Medical Museum, Washington, D. C.

#### FOREIGN

**Centennial of the French Académie de Médecine.**—As Dec. 20, 1920, is the centennial of the Académie de médecine at Paris, a committee of six members was recently appointed to have charge of the celebration of the anniversary.

**Harveian Festival.**—The Harveian festival was celebrated with full honors by the Royal College of Physicians of London, for the first time since 1913. The oration was delivered by Dr. Raymond H. P. Crawford, and dealt with the fore-runners of Harvey in antiquity. The speaker supported the thesis that in the matter of circulation of the blood Harvey's indebtedness to any but Aristotle was negligible. After the oration the president presented the Baly Medal to Dr. Leonard E. Hill.

#### LATIN AMERICA

**Red Cross Commissioner to West Indies.**—The American Red Cross has selected John A. Swan, Lieut.-Col., M. R. C., U. S. Army, as a commissioner to visit the Virgin Islands, Haiti, and Santo Domingo, and make a survey of the work to be done. There is now one Red Cross hospital in Santo Domingo, at Seibo, which is officered and manned by the Medical Corps of the Navy.

## Foreign Correspondence

LONDON

Nov. 19, 1919.

### The Medical Research Committee

The fifth annual report of the Medical Research Committee (a body appointed under the national health insurance act to undertake research) has issued its fifth annual report. This surveys the advances in medical science during the war, and indicates how they may be utilized in peace. Some very interesting researches are described. One is that of Dr. Benjamin Moore on "photosynthesis." He finds that in the presence of sunlight, but without the aid of bacteria, both fresh water and marine algae are able to take nitrogen out of the air and to "fix" it. The nitrogen is taken up probably as nitrites and nitrates formed by the action of light on nitrogen and oxygen in the air or dissolved in water. Evidence has been found that the so-called "active oxygen" of fresh country air is not ozone, but nitrogen peroxid, probably formed by ultraviolet light causing direct union of nitrogen and oxygen. The ultraviolet rays are largely filtered out of the light in city atmospheres. Further, there seems to be a relation between what is called the "ozonometric" chart and the energy of the sun.

An important investigation on the prevention of influenza by the use of gases has been undertaken by Dr. Alexander Gregor, health officer for Falmouth. He noticed that the employees in gas works did not suffer from influenza. This suggested that gases might be used as a prophylactic. Dr. Benjamin Moore collaborated with him in devising methods for the slow and safe discharge of nitrogen peroxid at a concentration fit for breathing and with other gases (sulphur dioxide, nitric acid and acetone). It was found that exposure to these gases caused a great diminution in the growth of bacteria obtained from swabs of the throat and nose. The application of these results is described in the *British Medical Journal* by Dr. Gregor. An outbreak of influenza took place in a camp, and it was resolved to try to disinfect the men *en masse* with nitrogen peroxid, which was generated by placing strips of copper in nitric acid. The concentration of the gas was so arranged that the odor was not irritating or disagreeable. The men were kept in the gas for ten minutes. No complaint was made as to any untoward effect or after-effect. About 400 were passed through the chamber in five days. Unhappily the battalion was in process of being broken up, for which reason accurate results could not be obtained. However, the fact was established that it was quite practicable to expose bodies of men to the fumes without either personal discomfort or ill effect. A gang of navvies living in a large shed in dock was then experimented on. Two men who contracted influenza were removed to the hospital. They were exposed to sulphur dioxide; half an ounce of sulphur per thousand cubic feet was burned slowly in their sleeping quarters while they were going to bed and rising in the morning. This caused no discomfort and little irritation, and was continued for fourteen days. No other case of influenza occurred.

### Anthrax in Shaving Brushes

The contraction of anthrax from infected shaving brushes imported from Japan has already been reported. Cases have again occurred, due to a consignment from that country. Two cases are reported in Norfolk and two in London. Dr. Andrews, bacteriologist to St. Bartholomew's Hospital, has found anthrax bacilli in six out of nine brushes examined.

### Memorials to Lord Lister

Two memorial tablets to Lord Lister have been unveiled, one at University College and the other at University College Hospital, where he was student and house surgeon from 1843 to 1852. A distinguished audience was present. Sir George Makins, president of the Royal College of Surgeons, delivered an address. He said that no memorial stone was needed to perpetuate Lister's fame. There was a splendid monument already in the collected edition of his scientific papers. Sir J. J. Thomson, president of the Royal Society, gave an address on Lister's connection with the society which claimed to have recognized his merits at a very early stage in his career. He was elected a fellow in 1860, when 33 years of age. His father and a brother were also fellows, as was a nephew now. In 1880 he was awarded a royal medal, and in 1902 the Copley medal, which the Royal Society considered the highest honor it had to bestow. (Cont.)

connection with the administration of the society began with his appointment as foreign secretary in 1893, a position he held until elected president in 1895. He held that office for five years, during which time many important branches of work were undertaken, including the setting up of a committee for the investigation of tropical diseases, and the establishment of the National Physical Laboratory. From his experience when serving on the council with Lister he had been impressed by his courtesy. Discourtesy in him was unimaginable. His personality seemed to banish the microbes of discourtesy from the committee room as effectually as his discovery had banished the germs of foul disease from the surgical ward. His kindness was conspicuous. In deciding on the bestowal of medals and prizes, he sympathized with the unsuccessful more than he rejoiced with the victors.

## PARIS

Nov. 6, 1919.

## Congress of Orthopedists

At the first congress of French orthopedists, a partial report of which was given in THE JOURNAL, November 29, two of the subjects discussed were: war spondylitis, and treatment of pseudoarthrosis.

## WAR SPONDYLITIS

In his communication, Dr. Froelich, professor of clinical pediatrics and orthopedic surgery on the Faculty of Medicine of Nancy, passed in review all the chronic lesions of the vertebrae that he has seen in soldiers. Among the non-traumatic affections, aside from Pott's disease, he mentioned particularly syphilitic lesions, the true character of many of which fails to be recognized; rheumatismal spondylitis occurring in young subjects and marked by rapid development; typhoid spondylitis, and acute osteomyelitis; furthermore, in young soldiers, acute kyphoscoliosis, result of over-exertion, attended with fever and a general debilitated condition, and the staphylococcal infection described by Kirmison under the name of "kyphoscoliosis of apprentices."

Among the traumatismas may be mentioned spinal lesions with loss of a portion of bone, and fractures caused by projectiles, often the origin of osteitis and of fistulas far removed from the original lesion. The internal traumatismas under various forms of spondylitis: "vertebral insufficiency" so called, described by Denecé, in which a simple wrench or sprain, without lesions discoverable roentgenographically, causes a great deal of trouble and often presents various aspects difficult to control; hystero-traumatic kyphosis, or camptocormia as it has been called, occurring in men who have been engulfed by the bursting of a shell, which often produces a vertebral sprain and consequent traumatic lesions. Examination of the roentgenogram for fractures is negative, but they are often present nevertheless, and the patients do not recover until they have worn a corset-shaped cast for a year. All too often such men have been regarded as malingerers; whereas, the fact is, some of them have not recovered yet, although there has been a cessation of hostilities.

Then there is the Verneuil-Kummel type of fracture of the spinal column, the evolution of which in three periods is well known: a brief period of pain after the injury, followed by a period with no symptoms, and then a progressive rigidity and renewed pain. These patients are often required to wear a plaster cast, which gives support to the spine, and effect a cure in many cases. Froelich thinks that it is possible to diagnose the case in the start by means of a lateral roentgenogram revealing a compression in the contact zone of the vertebral body, the Hilts or the Albee fracture would be indicated.

## TREATMENT OF PSEUDO-ARTHRITIS

All the speakers who took part in the discussion were agreed that the treatment of war pseudoarthrosis is much different from the treatment of pseudoarthrosis resulting from simple fractures (*fracture simples*). The reasons advanced for this difference were: the extent of the loss of bone, the nature, the long supuration of the wounds, the extent and the depth of the resulting scar tissue, latent abscesses which cause the wounds to become reinfected, and the state of extreme calcification found in the ends of the bones. Dr. Maffraire, surgeon of the Hôpitaux de Paris and agrégé professor on the Faculty of Medicine, remarked that there was, however, an enormous difference between the wound in the beginning of the war and the wounds in the last years of the war, after the practice of conserving adherent bone fragments and the primary and delayed

closure of wounds were introduced. In spite of this improvement the treatment was still much more difficult than in pseudoarthrosis in peace times, which explains the variety in the methods of intervention used during the war.

Dr. Judet of Paris stated that he was somewhat skeptical in regard to bone grafts (whether of dead bone or of live bone); likewise with respect to osteoperiosteal grafts. He cited two cases in which he had followed for a long time, by means of roentgenography, a dead osteal graft and osteoperiosteal grafts and had watched their resorption without reproduction of bone. He had seen roentgenograms of other grafts and the reproduction of thin transverse strips of bone, but he had never seen a large, solid bone.

Dr. Roche of Bordeaux took exception to Judet's statements. He thinks that the results shown in the roentgenogram are not always an accurate measure of the actual clinical results. Some cases of pseudoarthrosis present firm consolidation to the palpating hand, whereas the roentgenogram shows little or nothing of these changes. In fact, there are cases presenting absolute solidity of certain parts although no corresponding roentgenographic shadow is obtained. Personally, Roche has used the Albee graft or the total fibular graft without the periosteum. If a focus of osteomyelitis is found, osteosynthesis should be done. It is useless to try to apply a graft if the loss of substance is great; cicatrization should take place before a graft is applied. General treatment by means of organotherapy and heliotherapy; also treatment of a coexisting diabetes or syphilis, offer great aid. Methodical exercise helps to adapt and strengthen the graft. If the first graft is not a success, others may be tried and often prove successful. Before attempting operations of this kind the surgeon should be well equipped with instruments and should be well supplied with "bony armament." The graft should not be placed in a position "approximately correct," but should be wedged in and fitted tight, for osteogenic growth will thus be much facilitated.

Dr. Albee of New York City, in a long communication, told of the results that he had secured by the use of bone grafts in fractures and in pseudoarthrosis. The results have been published in his work on the surgery of bone grafts (1-15). In the last ten years he has performed 1,950 bone grafting operations. He emphasized the disadvantages of dead bone as a graft. Since 1911 he has used only live bone. The graft should include the whole thickness of the bone: periosteum, outer compact layer, cancellated tissue, endosteum and marrow. He emphasizes also the superiority of the electric twin saw over the hand chisel in preparing the graft. The advantages of this saw are: great rapidity (ten minutes being sufficient for most graft operations in fractures) and greater exactitude in the coaptation of the bone fragments. In pseudoarthrosis there are two essential features to be observed: (1) the use of grafts that are long enough to reach the healthy bone. It does not suffice that the graft is left in contact with the fibrous, decalcified ends of the sound bone. All the bad results that are not due to infection come from too short grafts. If the fractures are of old origin and if fruitless attempts at suture have been made, the grafts should be of greater relative length than otherwise; (2) the absolute adaptation of the graft to its site. Herein lies the advantages of the "inlay graft," a technic described by Albee. Such an inlay graft is resistant to infection and may be applied even to a suppurating bone. Immobilization of the member is indispensable, the apparatus varying with the conditions. Massage and mobilization are begun very soon, but restriction of movement should be continued for three or four months.

## Marriages

CHARLES MILLER HATCHER, Ass. Surg., Lieut. (j. g.), U. S. Navy, U. S. Naval Hospital, Las Animas, Colo., to Miss Janice M. Miller of Massies' Mills, Va., at Richmond, Va., October 21.

HALLIBURTON McCoy, Lieut., M. C., U. S. N. R. F., Asheville, N. C., to Miss Emma Louise Garnett of Charlottesville, Va., October 25.

HARLEY THOMAS CANNON to Mrs. Lillie Wright Lowere, both of New York City, at Greenwich, Conn., November 15.

THOMAS HARRISON FLESHER, Edmond, Okla., to Miss Margaret Elizabeth Cherry of Ardmore, Okla., October 18.

EMIL ARNOLD SCHLAGETER, Chicago, to Miss Agnes Clare McLHenry of New Richmond, Wis., September 18.

## Deaths

**Edgar Reid Russell** \* Asheville, N. C.; University of Maryland, Baltimore, 1895; aged 49; a member of the American Academy of Ophthalmology and Oto-Laryngology; one of the founders and formerly professor of diseases of the eye, ear, nose and throat in the North Carolina Medical College, Charlotte; a member of the surgical staff of the Meriwether and Presbyterian hospitals, Charlotte, and of the Charlotte Sanatorium, and president of the Charlotte Medical Society; died, November 27, from septicemia following a scratch of the hand.

**John Robert Tackett**, Meridian, Miss.; Tulane University, New Orleans, 1889; aged 50; captain, M. R. C., U. S. Army, and honorably discharged, Jan. 10, 1919; a veteran of the Spanish-American War; professor of theory and practice of medicine and internal medicine in Meridian (Miss.) Medical College; a member and once vice president of the Mississippi State Medical Association, and a member of the Mississippi State Board of Health; surgeon in the National Guard of Mississippi; died, November 25.

**James Milton Flint**, Medical Director, Rear Admiral, U. S. Navy (retired), Washington, D. C.; Harvard University Medical School, 1860; aged 81; who entered the Navy, April 14, 1862; was made medical inspector in 1893, and medical director in 1897; and was retired in 1900; he served as fleet surgeon of the Asiatic Fleet in 1894 and 1895; was honorary curator of the division of medicine of U. S. National Museum from 1881-1882, 1888-1891 and since 1895; died, November 21.

**Walter Seymour Reynolds**, New York City; University of the City of New York, 1892; aged 55; a member of the Medical Society of the State of New York; clinical assistant in genito-urinary diseases in the College of Physicians and Surgeons in the City of New York since 1898, and attending surgeon in the genito-urinary department of University and Bellevue Medical College since 1900; died, November 24.

**Willis Clark Noble** \* Montclair, N. J.; University of the City of New York, 1891; aged 65; for eighteen years a medical missionary in charge of the Mission Hospital of the American Board Commissioners of Foreign Missions at Paotingfu, China; physician, assistant attending surgeon and radiographer of the Mountsinide Hospital, Montclair, since 1902; died, November 21, from cerebral hemorrhage.

**Simone C. Adams**, Mexico, Mo.; Louisville (Ky.) Medical College, 1880; aged 67; for twenty years proprietor of the Mexico Hospital and Adams Institute for Treatment of Drug Addicts; formerly secretary of the Audran County Medical Society; died, November 23, at the Amanda Hospital, Mexico, a short time after a surgical operation.

**Leonard Basil Gapsinski**, Chicago; Chicago College of Medicine and Surgery, 1916; aged 26; first lieutenant, Medical Reserve Corps, U. S. Army, and honorably discharged, June 28, 1919; died, November 1, in St. Mary of Nazareth's Hospital, Chicago, from streptococcus infection following an accidental cut of the lip.

**Abraham Joseph Arbeely**, Washington, D. C.; Syrian Protestant College, Beirut, 1872, Imperial University, Constantinople, Turkey, 1878; aged 67; also a dentist; founder and president of the Syrian-Greek Orthodox Church and Beneficial Society; founder and publisher of the *Star of America*; died, October 30.

**William Gilbert Povey**, Detroit; University of Michigan, Ann Arbor, 1899; aged 46; formerly demonstrator of gynecology in the Western Reserve University, Cleveland, and a member of the staff of the Lakeside Hospital Dispensary; died, November 24, after a surgical operation.

**Maurice J. Vigneux**, Nelson, B. C.; McGill University, Montreal, 1911; aged 41; who had just returned after eighteen months' service in France, was accidentally drowned, August 22, while endeavoring to rescue a little girl who had fallen into the lake at Connaught Park, Nelson.

**William H. Perry**, Cartersville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 68; a member of the Illinois State Medical Society and president of the Williamson County (Ill.) Medical Society in 1913; died, November 15, from cerebral hemorrhage.

**Frank Dwight Crim** \* Utica, N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 63; a member of the staff of Faxon Hospital, Utica; from 1888 to

1895 a resident of Lincoln, Neb., and for a time coroner of Lancaster County; died, November 27.

**Jesse Yeager Scott**, Washington, Pa.; University of Pennsylvania, Philadelphia, 1875; aged 71; a member of the Medical Society of the State of Pennsylvania; surgeon to the Washington Hospital; a director of the Washington Trust Company; died, about November 28.

**Clayton Welch Seaman**, Buffalo; New York Homeopathic Medical College, New York City, 1896; aged 50; a member of the Medical Society of the State of New York; visiting physician to the Buffalo Homeopathic Hospital, and Ingleside Home; died, November 13, from tuberculosis.

**Oliver J. Gronendyke**, Newcastle, Ind.; Medical College of Ohio, Cincinnati, 1885; aged 55; a member of the Indiana State Medical Association; for eighteen years a member of the local school board; died at Martinsville, Ind., November 23, from pneumonia.

**Walter B. Helm** \* Rockford, Ill.; Northwestern University Medical School, Chicago, 1884; aged 60; president of the Tri-State Medical Association; consulting surgeon to Rockford Hospital; died in Wesley Hospital, Chicago, November 28, from pneumonia.

**Edward McLaren Darrow** \* Fargo, N. D.; Rush Medical College, 1878; aged 64; the oldest practitioner in point of service in North Dakota; died in St. John's Hospital, November 25, from carcinoma of the liver, after an exploratory operation.

**Robert Hanley**, Kingston, Ont.; Queen's University, Kingston, Ont., 1888; for eight years a member of the city council; surgeon at the Portsmouth Penitentiary; died in the Hotel Dieu, Kingston, September 18, after an operation for appendicitis.

**George Washington Coker**, Bartow, Fla.; College of Physicians and Surgeons, Baltimore, 1885; aged 58; a member of the Medical Society of Virginia; died in a hospital in Charlotte, N. C., November 12, after a surgical operation.

**Harmon Baker Gibbon** \* Tiffin, Ohio; Cincinnati College of Medicine and Surgery, 1877; aged 67; president of the Ohio State Medical Association in 1916 and 1917; died, November 23, from angina pectoris.

**David Hopper Warner**, Newmarket, Pa.; University of the City of New York, 1880; aged 57; a member of the Medical Society of the State of Pennsylvania; died, November 24, from cerebral hemorrhage.

**Alonzo H. Lothrop**, Lexington, Ind.; Kentucky School of Medicine, Louisville, 1876; Louisville (Ky.) Medical College, 1894; aged 77; a veteran of the Civil War; died, November 21, from tuberculosis.

**Louis F. Klemm** \* Milwaukee; Milwaukee Medical College, 1909; aged 49; physician of Milwaukee County from 1906 to 1915; died, recently, from chronic interstitial nephritis.

**Louisa Schlegel**, Brooklyn; New York Medical College and Hospital for Women, Homeopathic, New York City, 1889; aged 72, died, November 23, from arteriosclerosis.

**Alexander C. Smith**, Indianapolis, Indiana Eclectic Medical College, Indianapolis, 1881; aged 70; for forty-six years a practitioner; died, November 22, from heart disease.

**Byran A. Rabe**, San Francisco, Western Reserve University, Cleveland, 1871; aged 70; a veteran of the Civil War; died, November 23, from carcinoma of the liver.

**James Wesley Alexander**, Woodland Mills, Tenn.; University of Louisville, Ky., 1876; aged 64, also a banker; died, October 27, from carcinoma of the stomach.

**John M. Turk**, Canton, Ga.; Reform Medical College, Macon, Ga., 1858; aged 85; a Confederate veteran; died November 11, from cerebral hemorrhage.

**Jacob Heater**, Philadelphia; Penn Medical University, Philadelphia, 1840; aged 87; for many years a practitioner of Trenton, N. J.; died, November 24.

**Mason J. Skiff**, North East, Pa.; College of Physicians and Surgeons, Keokuk, Iowa, 1884; aged 70; died, October 21, from chronic interstitial nephritis.

**Samuel L. Adair**, New Washington, Ind.; Kentucky School of Medicine, Louisville, 1868; aged 70; died, November 16, from cerebral hemorrhage.

**William Thompson Houser**, Portland, Ore.; Physio-Medical Institute, Cincinnati, 1874; aged 70; died, November 6, from cerebral hemorrhage.

**Robert Leonidas Knox**, Memphis, Tenn.; University of Nashville, Tenn., 1859; aged 83; died, October 7.

\* Indicates "Fellow" of the American Medical Association.

## Correspondence

### "DEFECTS IN THE TEACHING OF PATHOLOGY, AND THE LAY PROFESSOR"

To the Editor.—Will you allow me to reply to the article by Dr. Symmers on "Defects in the Teaching of Pathology, and the Lay Professor" (*THE JOURNAL*, Nov. 29, 1919, p. 1651), as his stigmatization of the so-called lay professor is entirely and shows a lack of appreciation of the contributions of these men to medical progress. The naive admission that it may not be logical, but is essentially human, gives conclusive evidence that there has been engendered a strong defense reaction against the acknowledgment that any person, whatever his training, may have any conception of the labyrinth of medical subjects unless he has successfully completed a prescribed course in a medical school leading to the degree of M.D. As I look at it, the first task of any individual entering on the study of medicine is that he acquire a knowledge of the normal human body in its structure and mechanisms. For if he knows not the normal, how can he detect deviations therefrom? And what does anatomy, gross and microscopic, embryology, physiology, and biochemistry purport to teach if not these fundamental conceptions of the make-up and workings of the normal organism? If such foundation is established, the lack of information as regards deviation or pathologic conditions lies not in lack of perspective, sense of proportion, or appreciation of relative values on the part of the "lay professor," but rather in the teaching inability of the later instructors.

As we must expect a teacher of mathematics to be the possessor of an engineering degree, a teacher of literature to be a successful author, so to demand a teacher of the fundamental medical subjects to have run the gamut of medical school curriculum from obstetrics to psychiatry. Not that I would for one moment deny that that man who does not take an intelligent interest in medicine as a whole, and the possibilities of the application of a knowledge of his subject to practice, is unfit for teaching medical students; but I assert that the man need not necessarily have tacked after his name the magic symbols M.D. any more than an instructor of French need be of Gallic extraction.

Does any informed and intelligent individual for one moment believe that medicine, medical schools and medical students are the losers by having as teachers such men as Fahn, Mathews, MacCollum, and many others possessing the *ars et scientia* (?) Ph.D. degree? Or that these men are lacking in perspective, appreciation of relative values and sense of proportion? Let those that doubt show equal contributions to medical progress, and I will gracefully retire.

FREDERICK S. HAMMETT, Ph.D., West Philadelphia, Pa.

### "INTENSIVE" ANTISYPHILITIC TREATMENT

To the Editor.—The casual reader is likely to get his impressions from headlines rather than from tables of figures buried in the body of an article. The title of the interesting paper on "Toxic jaundice" (Lynch, T. J. and Hoge, S. F.: *Toxic Jaundice*, I. "Intensive" Antisymphilitic Treatment, *THE JOURNAL*, Nov. 29, 1919, p. 1687) conveys the unmistakable impression that the untoward effects reported were the results of "intensive" treatment with arsphenamin. Perusal of the paper, however, shows that the authors entertain views regarding the meaning of the term "intensive" wholly at variance with current conceptions. They state: "In the so-called intensive treatment from 0.4 to 0.6 gm. are given at weekly intervals over a period of from six to eight weeks." This is a complete falsification of the common use of the term "intensive"; most sphyliographers understand by this term the employment of arsphenamin in full doses at short intervals or short periods as, for instance, in the method which I have been using for the past five years—parenterically, without any untoward result whatever—three full doses in three days. As a matter of fact, it appears that in the

authors' cases the toxic symptoms developed in sphyliotics who had received four doses of arsphenamin with intervals of a week between treatments. This is not intensive treatment.

It is interesting to note, furthermore, that the authors seem aware of the fact that toxic jaundice is unrelated to large dosage or frequent administration because they (correctly) state that "this accident [toxic jaundice] is liable to occur after a single dose."

We do not know the factors on which the occurrence of toxic jaundice depends. Millions of injections of arsphenamin have been given by the once-a-week method; the deaths from acute degeneration of the liver number probably less than a hundred. Why intimate that "intensive" treatment is responsible for them?

A year or more ago, the editor of a widely read medical journal, commenting on deaths from hemorrhagic encephalitis after arsphenamin, issued a warning against "intensive" methods and large dosage, ignoring the fact that the deaths in question had occurred after the ordinary once-a-week treatment with moderate doses. One fact is that deaths from hemorrhagic encephalitis have occurred after a single dose as small as 0.2 gm. and also after treatments administered at intervals of three weeks.

We know as little of the causes of hemorrhagic encephalitis after arsphenamin as of acute yellow atrophy. We do know that large dosage or frequency of administration are not necessary or even usual factors. The ipse dixit of prejudice and unfounded assumptions will not help us in the solution of these questions.

SIGMUND POLLITZER, M.D., New York.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### POLYMORPHONUCLEARS IN MALARIA

To the Editor.—Please describe the changes, if any, in the polymorphonuclear neutrophils in estivo-autumnal fever.

M. S. D., Dothan, Ala.

ANSWER.—While in the acute malarial attacks of average severity the absence of leukocytosis is of considerable corroborative value, a slight leukocytosis amounting to about 10,000, with an increase in the percentage of polymorphonuclear cells, has been observed by Billings and others. In the more severe estivo-autumnal attacks a definite leukocytosis has been observed, especially in the hemoglobinuric or blackwater type of malarial infection. The extent of the leukocytosis varies between 10,000 and 35,000, although many attacks fail to cause any distinct increase. During the afebrile periods the eosinophils are usually increased; neutrophil myelocytes are occasionally present, rarely eosinophil myelocytes. Pigmented leukocytes are seen in the majority of cases, especially in the severe and fatal cases. They include mononuclear and polymorphonuclear leukocytes.

### LUBRICATING JELLY

To the Editor.—Please publish a formula for a good lubricating jelly. The cost of jelly, when one uses considerable in an office practice, is quite high if one has to depend on the tubes as sold in the drug stores.

S. E. HOWARD, M.D., Rochester, Minn.

ANSWER.—The subjoined formula for an inexpensive lubricating jelly which has been used in the German Hospital (now the Laikeman Hospital), Philadelphia, for a number of years was published in *THE JOURNAL*, May 12, 1917, which see:

Tragaecanth, whole .....	3 gm.
Glycerin .....	25 c.c.
Phenol .....	1.5 gm.

Distilled water, a sufficient quantity to make 300 c.c.  
The tragaecanth is broken in small pieces, and put into a wide-mouthed bottle; the other ingredients are added, and the bottle is frequently shaken.

## Medical Education, Registration and Hospital Service

## Book Notices

### COMING EXAMINATIONS

- ALABAMA: Montgomery, Jan. 14. Chairman, Dr. Samuel W. Wason, Montgomery.
- ARIZONA: Phoenix, Jan. 6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
- COLORADO: Denver, Jan. 6. Sec., Dr. David A. Strickler, 612 Empress Bldg., Denver.
- DISTRICT OF COLUMBIA: Washington, Jan. 13. Sec., Dr. Elgar P. Copeland, The Rockingham, Washington.
- FLORIDA: Jacksonville, Dec. 12-16. Sec., Dr. G. A. Munch, 1376 Franklin St., Tampa.
- HAWAII: Honolulu, Jan. 5-8. Sec., Dr. J. R. Judd, Honolulu.
- IOWA: Des Moines, Dec. 16-18. Sec., Dr. Goddard H. Sumner, Capitol Bldg., Des Moines.
- KANSAS: Baltimore, Dec. 9-14. Sec., Dr. J. McP. Somp, 137 W. Washington St., Hagerstown.
- MINNESOTA: Minneapolis, Jan. 6-9. Sec., Dr. Thos. McDavitt, Lowry Bldg., St. Paul.
- MISSOURI: St. Louis, Jan. 12-14. Sec., Dr. George H. Jones, State House, Jefferson City.
- NATIONAL BOARD OF MEDICAL EXAMINERS: St. Louis and Chicago, Feb. 18-25. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia, Pa.
- NEW MEXICO: Santa Fe, Jan. 12-13. Sec., Dr. R. E. McBride, Las Cruces.
- NEW YORK: New York City, Albany, Buffalo, Syracuse, Jan. 27-31. Asst. Professional Examinations, Mr. H. J. Hunsicker, Albany.
- NORTH DAKOTA: Grand Forks, Jan. 6. Sec., Dr. George M. Williamson, Grand Forks.
- OKLAHOMA: Oklahoma City, Jan. 13-14. Sec., Dr. J. M. Byrum, Shawnee.
- OREGON: Portland, Jan. 6. Sec., Dr. Frank W. Wood, 579 Morgan Bldg., Portland.
- PENNSYLVANIA: Philadelphia, Jan. 13-17. Pres., Dr. John M. Baldy, Harrisburg.
- SOUTH DAKOTA: Pierre, Jan. 13. Sec., Dr. Park B. Jenkins, Waubay.
- WASHINGTON: Spokane, Jan. 6-8. Sec., Dr. C. N. Suttner, 415 Old National Bank Bldg., Spokane.
- WEST VIRGINIA: Charleston, Jan. 13. Sec., Dr. S. I. Jepson, Masonic Bldg., Charleston.
- WISCONSIN: Madison, Jan. 13-15. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

### Illinois March Examination

Mr. F. C. Dodds, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, March 3-6, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 168 candidates examined, 150 passed and 18 failed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year	No. Grad.	Licensed
Bennett Medical College	.....	.....	(1915)	1
Chease College of Medicine and Surgery (1917) 2, (1918) 8,	.....	.....	(1919) 7	10
Hahnemann Medical College, Chicago	.....	.....	(1919) 7	6
Junior Medical College	.....	.....	(1917) 1	1
Loyola University	.....	.....	(1919) 5	7
Rush Medical College	.....	.....	(1917) 1, (1918) 3, (1919) 2,	76
University of Illinois	.....	.....	(1919)	31
Indiana University	.....	.....	(1919)	2
State University of Iowa College of Medicine	.....	.....	(1919)	3
Johns Hopkins University	.....	.....	(1916)	2
Harvard University	.....	.....	(1919)	1
Jefferson Medical College	.....	.....	(1918)	1
Northwestern University of Arts and Sciences	.....	.....	(1919)	1
Washington University	.....	.....	(1919)	1
University of Buffalo	.....	.....	(1918)	1
University of Pennsylvania	.....	.....	(1918)	1
University of Pittsburgh	.....	.....	(1915)	1
Medical College of Virginia	.....	.....	(1910) 1, (1918) 9	1
Trinity Medical College	.....	.....	(1913)	1
FAILED				
Howard University	.....	.....	(1915)	1
Bennett Medical College	.....	.....	(1918), (1914)	2
American College of Medicine and Surgery	.....	.....	(1915)	1
Chicago College of Medicine and Surgery (1917) 1, (1918) 3,	.....	.....	(1919) 1	5
Chicago Hospital College of Medicine	.....	.....	(1915)	1
Illinois Medical College	.....	.....	(1914)	1
Johns Hopkins University	.....	.....	(1910), (1911), (1916)	4
University of Pennsylvania	.....	.....	(1916)	2
McBarray Medical College	.....	.....	(1913), (1916)	2
LICENSED BY RECIPROCIITY				
College	Year	Requir-	with	
Northwestern University	.....	.....	(1903)	Iowa
Rush Medical College	.....	.....	(1906)	Utah
State University of Iowa College of Medicine	.....	.....	(1913)	Iowa
University of Louisville	.....	.....	(1915), (1916)	Kentucky
Minneapolis College of Physicians and Surgeons	.....	.....	(1909)	Minnesota
National University of Arts and Sciences	.....	.....	(1915)	Missouri
St. Louis University	.....	.....	(1914), (1917)	Missouri
University of Nebraska	.....	.....	(1917)	Nebraska
College of Phys. and Surgs. in City of New York	.....	.....	(1887)	Michigan
Medical College of Virginia	.....	.....	(1915)	Kentucky
Marquette University	.....	.....	(1915), (1917)	Kentucky

\*Seventy-one of these candidates received limited licenses, pending completion of their hospital internship.

ELECTRICITY IN MEDICINE: A PRACTICAL EXPOSITION OF THE METHODS AND USE OF ELECTRICITY IN THE TREATMENT OF DISEASES. COMPRISING ELECTROPHYSICS, APPARATUS, ELECTROPHYSIOLOGY AND ELECTROPATHOLOGY, ELECTRODIAGNOSIS AND ELECTROPROGNOSIS, GENERAL ELECTROTHERAPEUTICS AND SPECIAL ELECTROTHERAPEUTICS. By George W. Jacoby, M.D., Consulting Neurologist to the Lenox Hill Hospital and Dr. Ralph Jacoby, A.B., M.D., Chief of Clinic, Neurological Department, Lenox Hill Hospital. Cloth, Price, \$5. Pp. 612, with 200 Illustrations. Philadelphia: P. Blaisdell's Son & Co., 1919.

In presenting the subject of electricity in medicine, the authors have restricted themselves almost entirely to the use of electric currents in all fields of medical practice, exclusive of surgery. Therefore, phototherapy and the roentgen ray are discussed merely in a fundamental way. The subject matter is presented so as to impart knowledge of the fundamental laws, the ability to use instruments in their application and such other prerequisites as the physician may need when using electricity as a remedial agent. The book is divided into six parts: on electrophysics; apparatus required for the therapeutic and diagnostic use of electricity; electrophysiology and electropathology; electrodiagnosis and electroprognosis; general electrotherapeutics, and special electrotherapeutics. In view of the extensive use made of electricity in the diagnosis of disturbed function of the muscles and motor nerves, the section on electrodiagnosis and electroprognosis is of particular interest. The numerous charts and tables add greatly to the value of this section. The authors have not presented anything new; but they have collected information from many sources, and they present it in a concise manner which will appeal to those who are interested in the use of electricity in medicine.

DISEASE OF THE EAR IN SCHOOL CHILDREN. An Essay on the Prevention of Deafness. By James Kerr Love, M.D., F.R.F.P.S.G., Lecturer on Diseases of the Ear, University of Glasgow. Cloth, Price, \$1.75. Pp. 94. New York: William Wood & Co., 1919.

Love discusses the school clinic as carried out in Glasgow, where children with ear trouble are treated. Such clinics save the child and the parent the loss of time necessitated by going to a hospital dispensary for treatment. This is an important economic consideration, as it usually means the loss of half a day to both the children and the parent to receive treatment at the hospital dispensary. Separate chapters are devoted to a discussion of the relation of the most exanthems and hereditary syphilis to ear trouble. The most interesting chapter is the one devoted to hereditary deafness. In this the author applies the principle of the mendelian theory of heredity to hereditary deafness and makes a strong plea for the education of the public on the inevitable result of the propagation of deafness by marriages of people suffering from a hereditary form of deafness. He is dealing only with school children, but his arguments for the elimination of hereditary deafness by marriage control applies as well to the much more common form of hereditary deafness, that which develops, as a rule, in early middle life. We refer to otosclerosis. Love looks forward hopefully to "the passing of deafness," first, by increasing our control of the infectious fevers and of syphilis and, secondly, by the elimination of hereditary deafness by the education of the public concerning hereditary deafness and by rational control of marriage among those inheriting deafness.

LENZMANN'S MANUAL OF EMERGENCY MEDICAL, SURGICAL AND OBSTETRIC THERAPEUTICS, INCLUDING A TREATISE ON THE DISEASES OF THE LARYNX AND THE PHARYNX. By J. LENZMANN, M.D., M.R.C.P. (Ed.). Cloth, Price, 41s. Pp. 345. New York: William Wood & Co., 1919.

It is stated that this book is based on the English edition of Lenzmann's "Mergencies," which appeared in 1914, but that the text has been entirely rewritten and the subject matter revised so extensively that it is practically a new work representative of the teaching of standard British authorities on medical, surgical and obstetric emergencies. Each topic is discussed in its entirety as to the etiology, symptoms, pathology, diagnosis and treatment. The advantages in accordance with accepted practice and only well

known and accepted remedial agents are recommended. Its value would be greater if the subject-matter were more condensed, less discursive and, therefore, more quickly available when an emergency arises.

## Medicolegal

### Inability to Take Treatments Contracted for

(*J. W. Sargent, Inc., v. Hans (N. Y.), 17 N. Y. Supp. 379*)

The Supreme Court of New York, Appellate Division, First Department, in reversing a judgment for \$300 and costs rendered in favor of the plaintiff and affirmed by the appellate term, holds that a person who contracts to pay a certain sum for treatments for a specified time, but is physically unable to take the treatments and promptly notifies the other party to that effect, need not pay for the treatments, on the ground of want of consideration for the contract. The court says that the plaintiff was a business corporation organized and created "to establish, maintain and operate an institution in which persons may obtain accommodation for rest, personal exercise, bathing, massage and hygienic treatment." The defendant, being in ill health, was induced to look over the plaintiff's quarters, and finally to remove his clothing. After his heart and lungs had been examined by listening to them, he was arrayed in a rubber coat and given certain athletic exercises, which he was informed were characteristic of the treatment which he would receive if he entered into a contract with the plaintiff. Among other things, he was put through a course of setting-up exercises, as they were called. The medicine ball was tossed, and, lying prone on the floor on his back, he was required to work his neck off the floor. After this treatment was completed, and he was kept up on down with alcohol, he signed what was called an application which stated that he applied for membership in the institution to include three half hours per week for two (two) consecutive weeks, and agreed to pay \$300 on acceptance of this offer. But the day following he was sore and lame, and a serious trouble developed with his neck, which he attributed to the trial treatment; and he at once notified the plaintiff that he would be unable to continue, or to accept the course of treatment mentioned in the application which he had signed. Moreover, he testified that his condition became so serious that it became necessary to call a physician, who, for several days, treated him for his condition and the serious trouble with his neck; that at the close of the trial he had not recovered, and was then under treatment for the difficulty. The proofs showed that he was physically unable to receive the treatment for which he had agreed, and for which he had agreed to pay \$300. In short, he agreed to pay \$300 on consideration that he receive the treatment and instruction contemplated in the written application which he made. The furnishing of such treatment and instruction was the only consideration for his promise to pay. At the time he made the application he was in no position to know that he would be physically unable to take the treatment. When he found out that he was too weak to receive such treatment, he promptly notified the plaintiff that he would be unable to fulfil his contract. Under such circumstances, the plaintiff was relieved from liability to pay the amount of the contract price, and the judgment in favor of the plaintiff should be reversed, and the complaint dismissed, with costs to the defendant in all courts. All of the members of the court concurred in this.

Furthermore, two members of the court think that a contract entered into by the plaintiff claimed right of recovery against the defendant lay in the fact that, under the statute and under the decisions of the New York courts, the plaintiff was, at the time, engaged in the practice of medicine without a license, in violation of Subdivision 7 of Section 160 of the Public Health Law; but the majority, or three members of the court, hold otherwise, being of the opinion that the plaintiff was not engaged in the practice of medicine within the definition and purport of the statute.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### Arkansas Medical Society Journal, Little Rock

November, 1919, 14, No. 6

Surgical Treatment of Prolapse of Uterus. H. H. Kirby, Little Rock.

—p. 119.

Pellagra. D. A. Pelton, Forrest City. —p. 121.

#### Boston Medical and Surgical Journal

Nov. 27, 1919, 181, No. 22

\*Specific Treatment of Typhoid. W. R. Stokes and H. W. Maldeis,

Baltimore. —p. 625.

\*What Is Influenza? G. A. Soper, Washington, D. C. —p. 635.

\*Transposition of Viscera, Tertiary Syphilis. C. G. Lane, Boston.

—p. 641.

**Specific Treatment of Typhoid.**—In thirty-one cases of typhoid treated by Stokes and Maldeis with vaccines the dosage used was 10,000,000 bacteria, usually given subcutaneously, at intervals of several days. The number of doses varied between one and six. No practical results were obtained by this small dosage since the average duration of the disease was thirty days, and patients who even received the first dose on the second, third and fourth days showed no tendency toward a decrease in the duration of the disease. The mortality in these cases was five, or 16.1 per cent. The next set of cases treated numbered about sixty. Doses beginning with 50,000,000 bacteria with an increase to 100,000,000 and 250,000,000 at intervals of several days were used. The duration of the disease was shortened in a fair number of cases and not a few showed actual rapid decline of the temperature to normal after several of the doses had been given. The records in this series were lost, hence exact data cannot be given. In the third series, ten patients were treated by intravenous injections of a sensitized typhoid vaccine made from the Rawling's strain. Immune serum was added to the vaccine until the agglutinins had all been saturated by the immune serum. Of these ten patients, six were treated before the tenth day of the disease. The diagnosis was verified by blood cultures and the Widal reaction. Four patients were treated after the tenth day and showed only a positive Widal test, the blood cultures being negative. In five of the six early cases, two injections were given at intervals of about four days and in three of these cases the disease seemed to be aborted. In two other cases the temperature gradually dropped to normal in about eighteen days and remained so. In the other early case only one injection was given, and the case followed the regular typhoid course. Doses of 300,000,000 bacteria were given and the injection was followed by a slight chill and a rise in temperature of from 1 to 1.5 F., and no dangerous symptoms were noted. In the four late cases the Widal was positive but the blood culture was negative and the vaccine did no harm but no apparent benefit was derived from the treatment.

**What Is Influenza?**—Soper states the weight of evidence of all kinds indicates that the influenza which was pandemic is a highly virulent form of a disease which is commonly with us.

**Transposition of Viscera, Tertiary Syphilis.**—Lane reports a case of complete congenital transposition of viscera, functioning perfectly, associated with tertiary syphilis but no history of previous symptoms.

#### Colorado Medicine, Denver

November, 1919, 14, No. 11

\*Immunity of Coloradoans to Pulmonary Tuberculosis. H. B. Whitney, Denver. —p. 268.

**Immunity of Coloradoans to Pulmonary Tuberculosis.**—A conviction held by Whitney for many years and expressed emphatically in this paper, that most Coloradoans are practically immune to pulmonary tuberculosis, has been greatly strengthened by his investigation of some statistics. Only a very small percentage of deaths from tuberculosis are said to occur among the native Coloradoans.

**Indiana State Medical Ass'n Journal, Fort Wayne**

Nov. 15, 1919, 12, No. 11

- \*Active Mobilization in Joint Conditions. E. B. Mumford, Indianapolis.—p. 287.
- \*Meningococcus Cerebrospinal Meningitis. J. A. MacDonald, Indianapolis.—p. 291.
- \*Blood Sugar Tolerance in Cancer. S. Edwards, Indianapolis.—p. 296.

**Active Mobilization in Joint Conditions.**—This paper was abstracted in THE JOURNAL, Oct. 18, 1919, p. 1309.

**Meningococcus Cerebrospinal Meningitis.**—This paper was abstracted in THE JOURNAL, Oct. 25, 1919, p. 1309.

**Blood Sugar Tolerance in Cancer.**—This paper was abstracted in THE JOURNAL, Nov. 1, 1919, p. 1390.

**Journal of Bacteriology, Baltimore**

September, 1919, 4, No. 5

- Classification of Colonytypoid Group of Bacteria with Special Reference to their Fermentative Reactions. C. E. A. Winslow, I. J. Kligler and W. Rothberg, New York.—p. 429.
- \*Bacteriology of Fusospirillary Organism; Its Life History. R. R. Mellon, New York.—p. 505.
- \*Occurrence of Bacillus Botulinus in Nature. G. S. Burke, Palo Alto, Calif.—p. 541.
- Bacillus Botulinus. G. S. Burke, Palo Alto, Calif.—p. 555.

**Infection by a Fusospirillary Organism.**—Mellon isolated a fusospirillary organism from a case in which it caused generalized infection, involving also the kidney and lung, the point of origin being presumably in the appendix. Its branching filamentous forms relate it closely to the streptothrices, while its bacillary and cocal phases relate it to the lower bacteria. The branching filaments were not cultivated from the renal abscess or the lung puncture, although many of them could be demonstrated from the material in both locations—in fact they constituted the bulk of the flora present in the lung puncture material. They were cultivated from broth blood cultures, however, partly as the result of an irregularity in the preparation of the medium and partly from a radical change in the environmental conditions at a certain stage in the culture's development.

**Occurrence of Bacillus Botulinus in Nature.**—Two hundred and thirty-five cultures were made by Burke from samples collected in five localities in central California, 50 or more miles distant from each other. The cultures covered a wide range of material, including tap water, hay, leaves, vegetables and fruits in various conditions, insects, spiders, sowbugs, snails and caterpillars, garden soil, manure from hogs, hogs, and chickens, and also samples from the claws, beaks, crop, gizzard and intestinal contents of birds. Seven cultures containing *B. botulinus* were found. Burke concludes that *B. botulinus* is widely distributed in nature.

**Journal of Industrial Hygiene, New York**

November, 1919, 1, No. 7

- Electrostatic Method of Dust Collection as Applied to Sanitary Analysis of Air. J. P. Bill, Cambridge, Mass.—p. 323.
- Applications of Psychiatry to Industrial Hygiene. S. Cobb, Cambridge, Mass.—p. 343.
- Flatfoot and its Prevention. E. H. Bradford, Boston.—p. 348.
- Report on Certain Organs in a Case of Fatal Poisoning by Acetylated Hydrogen Gas. S. Delepine, Manchester, England.—p. 376.
- Health Hazards and Mortality Statistics of Soft Coal Mining in Illinois and Ohio. E. R. Hayhurst, Columbus, Ohio.—p. 369.

**Journal of Mental and Nervous Diseases, Lancaster, Pa.**

November, 1919, 50, No. 5

- \*Pathology of Human and Experimental Poliomyelitis Based on Cases Occurring in New York City in the 1916 Epidemic. H. S. Howe, New York.—p. 409.
- Tumor (Glioblastoma) of Corpus Callosum and Frontal Lobes. C. C. Belling and H. S. Martland, New York.—p. 431.
- Tetany in Eunuchoid; Report of Case. H. W. Walman, Rochester, Minn.—p. 433.

**Pathology of Human and Experimental Poliomyelitis.**—Three pathologic types of anterior poliomyelitis are recognized by Howe. (1) cases in which the lesions are limited to infiltration of the pia and blood vessels, the mesodermic tissue type; (2) cases in which the main feature is degeneration of the motor cells in the anterior horn, accompanied by the proliferation of neuroglia, the ectodermic type, and (3)

the mixed type. In the second group the changes in the central nervous system of man are polymorphous. The reaction in the ganglion cells and nuclei makes it possible to recognize not less than eight different forms in the degenerative process consequent to the poliomyelitic infection. The first group presents the more general reaction of the organism to the infection, manifested by changes in the central nervous system and the lymph tissues of the body. In human poliomyelitis the pathologic reaction to the virus is a mixed one.

**Maine Medical Association Journal, Portland**

November, 1919, 10, No. 4

- Social Service in Hospitals. R. C. Calot, Boston.—p. 91.
- Teaching of Sex Hygiene. W. T. Rowe, Rumbold.—p. 107.

**New York Medical Journal**

Oct 11, 1919, 110, No. 15

- Fever and What it Really Means. W. H. Porter, New York.—p. 605.
- \*Differential Diagnosis of Hyperthyroidism. G. W. McCaskey, Ft. Wayne.—p. 607.
- Military Surgery and Medical Officers Reserve Corps. R. T. Frank, New York.—p. 610.
- Diabetes Mellitus. T. W. Edgar, New York.—p. 612.
- Diabetes Mellitus. J. C. Dunston, Scrantn, Pa.—p. 613.
- Treatment of Wounds by Modern Antiseptics. J. C. Seal, New York.—p. 616.

**Differential Diagnosis of Hyperthyroidism.**—Basal metabolism and alimentary hyperglycemia, with special reference to the differential diagnosis of hyperthyroidism from clinical conditions bearing some resemblance to it, is the subject of McCaskey's paper. Another purpose is to point out the limitations of these laboratory methods, which, however valuable they may be, should always be regarded as subsidiary to the general clinical picture. McCaskey is convinced that the symptoms of hyperthyroidism and hypothyroidism are due to quantitative variations of thyrotoxin in the body cells; that the fundamental phenomenon which dominates the entire clinical picture from cretinism to "Basedowism" is perversion of the metabolic rate; that this metabolic rate has its absolute equivalent, in accordance with fully established physical laws, in the heat production of the entire mass of body cells; that this heat production is essentially a process of oxidation and is equivalent to the quantity of oxygen consumed, the latter being regulated by, and dependent on, the metabolic rate; that it is now possible with the comparatively simple Benedict portable respiration apparatus to determine clinically the oxygen consumption over a sufficient period of time, say ten to fifteen minutes, with sufficient accuracy for all clinical purposes; that if food metabolism is eliminated by twelve to fifteen hours' starvation (the usual normal condition in the morning), and the metabolism of voluntary muscular effort is eliminated by absolute rest in the recumbent position (one half to one hour is sufficient time), there remains only the energy output—the heat production—the metabolism of the circulatory and respiratory mechanism, with small and probably negligible additions for the phenomena of secretion and the intracellular chemical changes of the cells of the body while at rest, which is called basal metabolism. This so-called basal metabolism is very constant, not only in the same individual but in all individuals when calculated in proportion to the area of body surface, varying in health, in a large majority of people, probably less than 10 per cent from the average normal rate. Alimentary hyperglycemia following the ingestion of 100 gm. of glucose is present in probably every case of thyrotoxicosis. It is rarely, if ever present at the end of the first hour in normal persons, although it may have occurred at the end of about thirty minutes. Its presence, therefore in one hour and especially in two hours always indicates abnormal carbohydrate metabolism unless gastro-intestinal function is delayed. It is often latent and, of course, in manifest diabetes, in alcoholism, malignant disease, arthritis and very probably in a considerable number of infectious, acute, subacute or chronic, in the same category with arthritis. While it is true that it can only be considered corroborative, its positive value in excluding hyperthyroidism is very great and probably exceeds 90 per cent. In hyperthyroidism there is no normal

stant direct ratio between its intensity and the height of the alimentary hyperglycemia, although, in general, the blood sugar values in severe cases are high. Too much importance should not be attached to alimentary blood sugar values below 140 mg. of sugar in 1,000 c. c. of blood, although sharp lines of demarcation cannot yet be drawn.

### New York State Journal of Medicine

October, 1919, 19, No. 10

- \*Surgical Treatment of Empyema of Empyema of Thorax. H. Lichten, New York.
- \*Ventricular Septal Defect and Pyloric Stenosis. S. V. Haas, New York.
- \*The Wrist. W. C. Macpherson, R. M. Smith, Boston.—p. 371.
- \*Colon Bacillus Pyonephrosis in Early Infancy. Report of Case. F. J. Williams, Albany.
- \*A Case of Cutaneous Catarrhus, Photophobia, Case and a Cure. G. D. Smith, New York.—p. 374.
- Book Reviews. W. W. Bennett, Tonawanda, N. Y.—p. 377.

Operative Methods in Empyema.—This paper was abstracted in THE JOURNAL, May 24, 1919, p. 1560.

Atropin in Pylorospasm.—This paper was abstracted in THE JOURNAL, May 24, 1919, p. 1567.

Colon Bacillus Pyonephrosis in Early Infancy.—This paper was abstracted in THE JOURNAL, May 24, 1919, p. 1566.

### Northwest Medicine, Seattle, Wash.

October, 1919, 18, No. 10

- Surgical Treatment of Ovarian Cyst. H. P. Marshall, Spokane.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.
- \*The Treatment of J. M. Blair, Seattle.—p. 199.

### FOREIGN

Articles in this section are abstracted below. Single references and part of any lists are usually omitted.

#### Archives of Radiology and Electrotherapy, London

October, 1919, 21, No. 6

- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
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- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.

Injection Medium for Roentgenography of Fistula.—The injection medium consists of one part of sodium sulphate and five parts of mintage of acacia.

#### British Medical Journal, London

October 11, 1919, 2, No. 612

- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.
- \*The Treatment of Tuberculosis. D. H. P. Marshall, Spokane.

Cardinal Principles in Cardiac Practice.—Among the cardinal principles in the early examination of chronic affections of the heart Lewis places: 1. First and foremost, 1. The symptoms and signs of cardiac failure. These are subdivided into (a) general, (b) the early evidence of an impaired circulation, (c) the signs of cardiac enlargement and its degree without attempt to differentiate dilatation and hypertrophy. 2. Signs of valvular disease. 3. The presence or absence of fibrillation of the auricles. 4. The presence or absence of evidence of disease if found its etiology is to be taken into considera-

tion. The first three cardinal points are those which command consideration first; the last three assume cardinal importance in cases in which, on the basis of one or more of the first three points disalting heart disease is already diagnosed.

Causation and Treatment of Rickets. Pritchard maintains that practically all varieties of malnutrition occurring during infancy and early childhood tend to terminate in rickets, provided they are sufficiently severe or long enough continued. They should not, however, be regarded as evidence of rickets unless they are actually accompanied by the typical changes in bone which are characteristic of the disease. The essential and central feature of rickets, Pritchard says, is the want of calcification or mineralization of developing bone, and this, in its turn, is due to the existence of requirements for calcium, which for the time being are more urgent than those of developing bone. These urgent requirements are the necessity for neutralizing acid bodies in the blood; in other words, to neutralize or compensate an existing acidosis. Pritchard argues that all chronic conditions of malnutrition, of whatever kind or from whatsoever cause arising, finally terminate in an acidosis, and all claims on alkaline bases arising in connection with the neutralization of this acidosis must be satisfied before those of developing bone are attended to.

Herpes Zoster of Glossopharyngeal Nerve.—The symptoms presented in Neve's case were: (1) fever and vomiting; (2) facial palsy of peripheral type; (3) an auditory nerve affection; (4) on the mucous surface supplied by the glossopharyngeal nerve an eruption resembling that of herpes zoster; (5) pain felt behind the ear and down the left side of the neck posteriorly.

Gynecomastia in Young Boys.—Ingleby's patients were 7 and 9 years of age, respectively. Only one breast was hypertrophied in each case.

#### Edinburgh Medical Journal

November, 1919, 23, No. 5

- Influenza in Scotland. (July 1918-April 1919, inclusive.) T. F. Dewar.—p. 303.
- Field Ambulance in Gallipoli, Egypt, Palestine and France. J. Young.—p. 309.

#### Japan Medical World, Tokyo

Oct. 19, 1919, No. 305

- Nona or Lethargic Encephalitis in Japan. K. Tanaka.

Oct. 26, 1919, No. 306

- Suction Apparatus Especially Designed for Drainage in Surgical Operations. O. Ueda.
- Pathologic Changes in Kidneys due to Intravenous Injection of Alcohol. I. Honda.
- Fatty Degeneration of Interstitial Tissues. T. Hattori.
- Case of Primary Arthritis Due to Diplococcus Pneumoniae. R. Goto.

Pathologic Changes in Kidneys due to Intravenous Injection of Alcohol.—Honda found that by infusing alcohol into the vein of the rabbit, an acute inflammation of the malpighian bodies develops. By infusing alcohol continuously from time to time, for a considerably long time, the inflammation gradually assumes a chronic nature and at last turns into atrophy. During such process, a passive increase of the connective tissue is observed to take place. No megalocytes have been demonstrated in the malpighian bodies. By the intravenous injection of alcohol, a large quantity of fatty granules was seen deposited in the epithelial cell layer of the malpighian bodies during the early period, but later they were seen to disappear most probably by transportation. By the intravenous injection of alcohol, the deposition of lipoidal substance in the main duct has not been seen to occur during the earlier stage, but later the fatty degeneration has been observed to take place somewhat remarkably.

Nov. 2, 1919, No. 307

- Experimental Study of Stimulation of D-trameter. M. Kasahara.
- Diagnosis in Ophthalmology. S. Hori.
- Sensibility Test of Albuminuria. S. Yamada.
- Some Facts which Should be Known in Chromocystoscopies. S. Sugimura.

Pyoktanin in Ophthalmology.—Hori uses an aqueous solution of pyoktanin, from 1 to 5 per cent. strength, in inflammation of the eyelids, conjunctiva cornea and lacrimal glands.

Lancet, London

Nov. 15, 1919, 2, No. 5920

- Prognosis in Surgery. D. Power.—p. 861.  
 \*Weil-Felix Reaction in Mild Epidemic of Typhus. Occurring Among Typhus Ridden People. L. E. Napier.—p. 863.  
 \*Weil-Felix Typhus Test. A. Compton.—p. 866.  
 \*Case of Osteitis Fibrosa of Femur. E. G. Slesinger.—p. 867.  
 \*Specificity of Agglutinins Produced by Pfeiffer's Bacillus. A. Fleming and F. J. Clemenger.—p. 869.  
 Rupture of Intestine without External Injury. L. Lindop.—p. 871.  
 Case of Generalized Tuberculosis. F. J. Natrass.—p. 872.  
 Bilharziasis in Natal, Treated by Tartar Emetic. F. G. Cawston.—p. 873.  
 Filaria Loa (Subconjunctival). R. R. James and E. L. Hunt.—p. 874

**Weil-Felix Reaction in Mild Epidemic of Typhus.**—Napier is of the opinion that the Weil-Felix reaction will still have to be classed as an aid to diagnosis only. From the fact that a positive result in a dilution of 1:50 is given by 8 per cent. of normal refugees, 25 per cent. of patients with fever other than typhus and typhoid and in nearly every case of typhoid fever, it is obviously unsafe to make a positive diagnosis unless a higher titer than this is obtained. It is very exceptional to get any agglutination in a dilution of 1:100, except in cases of typhus and typhoid; so that, if one can exclude the latter, one can with comparative safety regard a case that gives agglutination in this dilution within the first six days of the disease as one of typhus. However, as in the Widal reaction, the most reliable points in diagnosis are the increasing titer in the early and the decreasing titer in the later stages of the disease. Comparing this reaction in the diagnosis of typhus with the Widal in the diagnosis of typhoid, Napier points out that the former has two distinct advantages: (1) a positive reaction can be obtained at an earlier date; and (2) agglutination occurs in much higher dilutions. Of fifty-nine cases, including eight cases which were classified as doubtful, only twelve failed to cause agglutination in a dilution of 1:1,600, and of these only two were adults who were tested at a period of the disease when one would expect to find a high agglutinating power in the blood—that is to say, between the tenth and twentieth days of the disease. None of the fifty-nine probable typhus cases failed to give agglutination in a dilution of 1:640, and of the seventy-seven control and two probable nontyphus cases, classified as doubtful, not one gave agglutination in a dilution of higher than 1:400, and only one in a dilution as high as this. Thus there is a very sharp line of distinction between the positive and negative results. A disadvantage of the reaction is that in an ordinary severe case by the seventh day, the earliest day on which one can guarantee a definite result, the diagnosis, clinically, is usually beyond doubt. This, however, does not apply in the milder form of the disease, where the diagnosis is often in doubt until about the fifteenth day, when the temperature drops suddenly.

**Weil-Felix Typhus Test.**—Of fourteen cases of typhus fever tested by Compton, thirteen showed a well marked Weil-Felix reaction; one case gave such a feeble reaction that it might well have passed unperceived and been returned as negative.

**Specific Reactions of Pfeiffer's Bacillus.**—The results recorded by Fleming and Clemenger show clearly that the various strains of Pfeiffer's bacillus are very different in their agglutination reactions. In most of the cases the agglutinins formed are either quite specific to the particular strain injected, or they are very nearly so, and in every case but one agglutination was observed in a much higher dilution with the homologous strain than with any of the others. The one exception agglutinated one of the heterologous strains to the same titer as the homologous strain, and it agglutinated all the other strains tested to a lesser extent. These results indicate that the *B. influenzae* of Pfeiffer is really an associated group of bacteria without the marked unity in immunity reactions seen in other epidemic causing bacteria such as typhoid and cholera. These facts agree with Park's results and are a strong indication that Pfeiffer's bacillus is not the primary cause of influenza, but that the primary infective agent awakens the activity of organisms which have been leading a more or less saprophytic existence in the respiratory tract.

Sei-I-Kwai Medical Journal, Tokyo

July 10, 1919, 35, No. 7

- \*Special Degenerations Produced in Rabbits Immunized with Pancreatic Ferments. H. Wago, Tokio.—p. 31.

**Special Degenerations Produced in Rabbits Immunized with Pancreatic Ferments.**—A hyaline or an amyloid-like degeneration was produced experimentally by Wago in animals immunized with pancreatin, trypsin and amylolysin. Therefore, he concludes that the occurrence of these degenerations seems to show a relation between the quantity of the antigen given and the duration of the experiments.

Archives des Maladies de l'App. Digestif, Paris

October, 1919, 10, No. 5

- \*Giant Gastric Ulcer. A. Mathieu and F. Montier. p. 257.  
 Ulcerative Stenoiditis with Death from Ulceration of the External Iliac Artery. A. Chahier and C. Dunet.—p. 280.  
 \*Alimentary Anaphylaxis with Asthma. V. Cordier.—p. 287.

**Giant Gastric Ulcers.** Montier reports three cases of gastric ulcer and cites a fourth case in all of which ulceration of the lesser curvature covered an area of 6 by 12 cm.; 8 by 14 or 4 by 15 cm. The patients were men of 48 to 56 and they had had stomach disturbances for from five to ten years, with periods of remission of from six months to two years' duration. These periods of silent latency, the absence of vomiting, and the distaste for meat seem to be characteristic of this type. Hemorrhage was responsible for the fatal outcome in two of the cases, the vicious circle after gastroenterostomy in the third.

**Alimentary Anaphylaxis and Asthma.**—In Cordier's case the man developed asthma for the first time at 42, following errors in diet. New attacks were brought on experimentally by ingestion of peptone, and he was cured by antianaphylaxis. The asthma returned later after a series of banquets, the attacks menacingly severe, the dyspnea and distress keeping up all day, but there was no nausea or other digestive disturbance. The following day he refused all food and there was no asthma that night. The next day he ate his usual meals and had frightfully severe asthma that night, with a syncopal condition. The connection between the abundant meals and the asthma was determined by various tests, as also the fact that the albumin was the responsible element. The man was then given two rectal injections daily of 10 gm of peptone, dissolved in milk, with a few drops of laudanum, just before the principal meals. Under these injections he could eat albumin, etc., at will, and for nearly two weeks that this was kept up he was free from asthma. Then, without his knowledge, the peptone was omitted from this injection one day, and that night the asthma returned as severe as ever. The man had thus two ways to ward off asthma, namely, by refraining from animal albumin or by taking the antianaphylactic peptone enemata. The patient finally wearied of these measures, and after repeated errors in diet the antianaphylaxis lost its efficacy. Then autoserotherapy proved successful for a time, 5 c.c. of blood from a vein in the arm being injected subcutaneously. But after a time this also lost its power, and the asthma is now regular, but moderate, every night, even on a meatless diet. Sweats like those of food poisoning are common, as also anguish beyond that from the asthma, and a mild but fetid diarrhoea. The asthma in these cases in time passes into ordinary asthma. It is possible that many cases of ordinary asthma began with the alimentary form.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

July 1919, 8, No. 7

- \*Biologic Diagnosis of Pregnancy. Paul Bar and G. Lalle. p. 391.  
 \*Welfare Work for Prospective and Nursing Wage-Earning Mothers. H. Krüger. p. 401.

**Biologic Diagnosis of Pregnancy.**—Bar and Écalle review the bases, the workings and the diagnostic significance of the deviation of complement test, the Abdrhollen method, the intradermal reactions, the characteristic changes in the osmolytic power of the serum, and the activating power of sodium venom. Their conclusions are that the clinical benefit from these numerous and difficult researches is very meagre and out of all proportion to the efforts made. None of the tests

give distinct findings until so late in the pregnancy that no test is required. The reaction to intradermal inoculation of placental peptone was vague and uncertain in the 25 pregnant and 14 nonpregnant women tested, but this method of testing with placental extract—analogs to the skin and intradermal tuberculin tests—they think deserves further study. "The results achieved show how rich will be the harvest for those who continue the work only outlined at present. Then we will understand better the mechanism of the rapid adaptation of the maternal organism to the development of the fetus, the symbiosis of mother and fetus, and the anomalies in this symbiosis, and this example of a physiologic nature will throw light on the mechanism of immunity." The report is based on applications of the tests to nearly 400 pregnant women and over 100 nonpregnant. The findings in the 310 women tested by the Alderhalden method confirm the general assumption that a negative response may be regarded as eliminating a developing pregnancy, but a positive response does not certify to a pregnancy, as this may be obtained under certain other conditions. The response was positive in 33 per cent. of over 100 certainly nongravid women.

**Welfare Work for Mothers.**—The aim of Keiffer's address, which was delivered at the recent Congress of Gynecologists at Brussels, is to suggest ways and means to lighten the burden of childbearing for working women.

### Bulletin de l'Académie de Médecine, Paris

Oct. 31, 1919, 82, No. 32

Mortality and Mortality of Children in French Regions Occupied by the Germans. A. Calmette. p. 198.  
 Association with Acute Appendicitis. Bars. p. 207.  
 Tetanus in France. C. Nour and R. Mercier. p. 216.  
 Heredity of Tuberculosis in Cattle. Moussu. p. 217.

**Tetanus During 1918.**—The statistics cited show that even during the worst offensives, the number of cases of tetanus among the troops never surpassed 0.3 per thousand anywhere, in 1918.

**Bovine Tuberculosis.**—Moussu deplors the practical failure of the means officially adopted to repress the spread of tuberculosis in cattle. In principle they are logical, but in practice they do not answer the purpose, as private interests do not comprehend their import. Better results might be realized if the local breeders would organize and cooperate with the official cattle inspectors to educate and protect the cattle men against loss, and advise them how to improve their stock.

Oct. 28, 1919, 82, No. 33

Classification of Varicella. D'Arnauld and F. Bordas. p. 225.  
 Tetanus and Acute Appendicitis. Temoin and others. p. 227.  
 Syphilis. A. Verrill. p. 230.  
 Acute Appendicitis. P. Penneuz. p. 241.  
 Total Hysteria of Stomach Through the Diaphragm. Kolland. p. 243.  
 Nephritis. A. Verrill. p. 245.

**Acute Appendicitis.**—This is a continuation of the discussion as to whether to operate at once or defer to a quiet interval. All the speakers agreed that acute appendicitis belongs to the surgeon and that he should be summoned at once; not necessarily to operate, but to decide whether and when to operate.

**Syphilitic Vesicorectal Fistula.**—Penneuz calls attention to the absorption of infection of the kidney in his case, although treatment has been passing into the bladder for months. The patient was a man of 69, and the surgeons had advised amputation. Endoscopy showed the ulceration in the bladder and its perforation into the rectum, but the tissues around were normal. There was no history of a chancre, but a tumor increasing the stomach had subsided under specific treatment, and years before and under mercury and iodine the fistula between the bladder and rectum healed up completely and promptly.

**Neuropathic Vomiting.**—Le Nour has found that isolation and psychotherapy are best promoted by keeping the patient constantly in bed and removing everything that could possibly suggest vomiting even handkerchiefs and newspapers, so that if any vomiting is done, it will have to be on the bed-sheet or floor. Restriction to nothing but water the first day also helps. Moist heat is kept permanently on the stomach and fluid food, and very little of that, is given at first.

In case of vomiting of pregnancy, he sometimes succeeded by allowing nothing by the mouth during the day, and giving water by the rectum in the morning, and toward evening an injection of 4.15 gm. each of chloral and potassium bromid. Then a full meal is given, lingering over it until the effect of the sedatives becomes apparent. Then the patient is left quiet in the dark as she drops to sleep. Even if she vomits in the morning, the food by that time has been passed along. With the above measures, isolation need not be so strict, but it must be rigorously enforced with true hysteria.

### Bulletin Médical, Paris

Oct. 22, 1919, 43, No. 46

Trauma of the Wrist. Jeanne and A. Mauchet. p. 603.  
 Perinephric Cysts. L. Thevenot. p. 605.

Trauma of the Wrist.—See Paris Letter, page 1625.  
 Perinephric Cysts.—See Paris Letter, page 1712.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 17, 1919, 43, No. 28

Case of Multiple Manifestations of Tertiary Syphilis. R. Le Clerc. p. 813.  
 Quinin Prophylaxis of Malaria in Troops. E. Job and L. Hirtzmann. p. 817.  
 Jaundice during Arspenamin Treatment. G. Milian. p. 821.  
 Control of Arspenamin Treatment. Sicard, Haguenau and Kudelski. p. 833.  
 Nephritis of Intestinal Origin. Heitz-Boyer. p. 813.

**Jaundice During Arspenamin Treatment.**—Milian insists that arspenamin has no affinity for the liver, and that the jaundice which may develop under it is referable to the action of the syphilis on the liver. He describes three convincing cases which demonstrate, he says, the nontoxic character of the jaundice, and that pushing the arspenamin is the only means to conquer the jaundice. It is often rebellious to treatment by the usual technic, but may yield promptly to mercury given by the mouth. He declares that all drugs to act on the liver are more effectual when given by the mouth, as the drug goes straight to the liver by this route. In the cases reported, the jaundice disappeared when more and larger doses of the arspenamin were given. He advocates selecting the route as called for by the individual case to reach the points involved; that is, by the vagina, glands, rectum, skin and digestive apparatus, besides the intramuscular, intravenous and arterial routes.

**Control of Arspenamin Treatment.**—Sicard and his co-workers give daily intravenous injections of 0.15 gm. of neo-arsphenamin to a total dose of 6 or 7 gm. in women and of 7 or 9 gm. in men, about forty or sixty injections in all. They keep watch for signs of intoxication by the terminal (not the initial) erythema, the absence of the Achilles tendon reflex, the tardy jaundice, the variations in weight and temperature, and chief of all, by the urea content of the blood. They disagree with Milian in regard to the nonaffinity of the drug for the liver, saying that it damages the liver and the amount of this injury is reflected in the urea content of the blood. Another sign that might be instructive is the presence of blood in the stools, as neo-arsphenamin has an erosive tendency on the duodenal mucosa.

**Nephritis of Intestinal Origin.**—Heitz-Boyer remarks that colon bacillus nephritis has been well studied in children and in the pregnant, but he knows of no comprehensive work on the enterocolic syndrome in adults and the elderly. The suppurating type is the best known. He has had fifty cases of this form; in some the septicaemia, in others the cystitis or pyelonephritis dominated the clinical picture. The clinical aspect may be widely variable, but the lack of any precise etiology, and the rebellious and recurring character of the symptoms are characteristic. But the most important criterion is the recovery when treatment is addressed to the intestines and the urinary apparatus is left unmolested. This was particularly striking in elderly women with pendulous abdomen. Local treatment of the bladder and pelvis gave only transient relief, but treatment of the enteritis cured the whole clinical picture. The cases described confirm the blood-borne origin of the nephritis and that the bladder is infected only secondarily. The intestinal pathologic conditions in these cases

vary within a wide range, from chronic constipation of long standing to quite mild enteritis. The bowel symptoms may be slight and fleeting, as in one case in which pyuria with rebellious cystitis for five years healed soon after the intestinal pathologic condition had been cured. Hydronephrosis, lithiasis and ptosis were excluded and an intestinal origin seemed probable to explain the colon bacilli in the urine. Several consultants were unable to detect any bowel disease, but, from lack of other factors, Heitz-Boyer persuaded the woman to follow a strict intestinal regimen. On this the urinary disturbances promptly retrogressed, and there has been no return during the five years to date. It would be interesting to examine the urine for colon bacilli as a routine measure with enteritis. Latent bacilluria might explain a number of puzzling conditions in the urinary apparatus.

### Lyon Chirurgical

May-June, 1919, 16, No. 3

- \*Atony of the Esophagus, Devic and L. Bouchet.—p. 225.
- Thermocauterization of Gastric Ulcer, V. Pauchet.—p. 234.
- \*Heliotherapy for Cutaneous Tuberculosis, A. Dufour.—p. 246.
- \*The Leukocyte Formula with War Wounds, M. Terzetakis.—p. 255.
- Secondary Suture of Wounds, J. Ducaing.—p. 270.
- Magnesium Sulphate in Tetanus, A. Reverdin and A. Beuf.—p. 287.
- Indications for Trephining, L. Kojen.—p. 293.
- Tests before General Anesthesia, G. Jeanny.—p. 307.
- Toilet of the Abdomen with Perforation, R. Rouvière.—p. 313.
- Transfusion of Citrated Blood, R. Rouvière.—p. 321.
- Plastic Operations for Loose Joints, L. Bovie.—p. 325.

**Atony of the Esophagus.**—The necropsy findings showed nothing to explain the dysphagia. It had become installed after a bicycle accident, and the difficulty in swallowing was so great that during the eight months the man of 60 had lost nearly 60 pounds in weight. There was no pain, but he found it almost impossible to swallow, fluids often escaping through the mouth and nose. Nothing to suggest stenosis, spasm or compression could be discovered during life or after death. The whole trouble seemed to be merely atony of the esophagus, no peristaltic movements of any kind being detected. This pseudo-esophagism or dysphagic atony usually allows fluid to run down into the stomach, the reverse of what is observed with spasm. Solid substances are also liable to pass along, but soft, pasty substances are unable to progress. In the case reported, all the types of food seemed to find equal difficulty in reaching the stomach; there was probably some paralysis of the pharynx which aggravated the disturbances. Roentgenoscopy and exploratory catheterization readily differentiate this type of dysphagia, the contrast suspension forming a narrow, continuous band the length of the esophagus.

**Heliotherapy of Cutaneous Tuberculosis.**—Dufour has given systematic sun baths in fifty cases of cheesy tuberculids and has been much gratified with the benefit therefrom. He first opens and removes the cheesy matter before applying the heliotherapy, saying that surgical aid is indispensable to render the heliotherapy effectual. The sun will heal the living tissues, but dead tissues have to be got out of the way before it can accomplish its task. With lupus the rays have to be concentrated with a lens adapted to keep out the ultra-violet rays, and the lupus tissues have to be compressed to force out the blood which would otherwise absorb too much of the healing rays. Eight or twelve months or longer have to be devoted to the treatment of lupus, as a rule, but there are exceptions to this. In one case lupus which had destroyed the nostrils and part of the upper lip and extended out on the cheeks, healed completely under five months of fifteen minutes insolation daily. He tries to avoid strong reactions, as they seem to do more harm than good, and he reiterates that heliotherapy can be applied anywhere, even in the big cities. He adds that if a suspicious lesion improves under heliotherapy, this is good testimony to its tuberculous nature. "If it proves refractory, hunt for some other cause." Syphilitic lesions do not heal under heliotherapy; at least that has been his experience.

### Lyon Médical

October, 1919, 128, No. 10

- Influenza and Tuberculosis, C. Roubier.—p. 185. Cont'd.

### Médecine, Paris

October, 1919, 1, No. 1. General Surgery Number

- French Surgery, 1914-1918, P. Mathieu.—p. 3.
- Surgical Treatment of Gastric and Duodenal Ulcer, P. Lecene.—p. 9.
- \*Pseudarthrosis, C. Dujarier.—p. 14.
- The Sympathetic Network in Pathology of Limbs, R. Leriche.—p. 17.
- Chronic Colitis, G. Lardinois.—p. 21.
- \*Surgical Treatment of Acute Rebellious Dysenteries, G. Cotte.—p. 22.
- \*Cancer of the Colon, J. Okinczyk.—p. 24.
- \*Cancer of the Rectum, H. Mondor.—p. 28.
- Pleural Fistulas and Cavities, Roux-Berger.—p. 30.
- Tumors of the Bladder, E. Papin.—p. 33.
- Reconstruction of the Face, L. Dufourmentel.—p. 36.
- \*Use of Ether in Infections, C. Soulioux.—p. 40.
- Sclerogenous Injections in Tuberculous Lesions, M. Haller.—p. 41.
- Early Diagnosis of Cancer of the Uterus, G. Massabau.—p. 42.
- Early Diagnosis of Renal Tuberculosis, E. Papin.—p. 45.

"La Médecine."—As will be seen by the numbering of the pages, this new magazine aims to give a number of short articles on vital questions of the day, written by men who are contributing most to settling these questions. There are no illustrations, and each of the monthly numbers is to be devoted to some one branch of medicine—surgery this time. A brief summary in English and in Spanish follows each article.

**Pseudarthrosis.**—Dujarier remarks that the pseudarthrosis of peace is usually simple, and the cause is the interposition of some fibrous or muscular tissue. After removal of this, the fragments should be freshened economically, generally by scraping, and then after reduction and coaptation the parts should be held in place with a wire tied around at different points. Where this *cerclage* is not practicable, a plate should be screwed on or the parts held with clips. If the pseudarthrosis is accompanied by loss of substance requiring a graft, it is better to wait until the fistula has healed. But this is not indispensable. He has operated in a suppurating focus with complete success in a number of cases, paying great attention to ample draining. He now has a total record of 140 cases of pseudarthrosis.

**Acute Rebellious Dysentery.**—Cotte advocates appendicostomy early, not merely as a last resort, and expatiates on its advantages for flushing out and disinfecting the lower bowel, preferably with a 1 per thousand solution of silver nitrate, once or twice a day. This brought rapid improvement in his cases, refractory to the ordinary measures.

**Cancer of the Colon.**—The main point in treatment is an early diagnosis, and Okinczyk pleads for an exploratory operation when a man or woman over 45 has constipation or it becomes aggravated, with frequent digestive disturbances, and blood in the stools, and these minor symptoms persist. To wait for occlusion is a fatal error. He discusses the technique, advocating colectomy at one sitting with end-to-end suture, reinforced with omentum.

**Cancer of the Rectum.**—Mondor regards irregularity in the stools in a person over 45 as a revealing sign of cancer of the rectum. If the physician heeds it and makes a digital examination of the rectum, it may save him the humiliation of treating the patient for months on the mistaken assumption of dyspepsia, sciatica, hemorrhoids or chronic appendicitis, when an early operation might have cured him of his malignant disease. Digital examination will confirm the diagnosis almost certainly, and reveal the involvement of the retroperitoneal glands. To ensure removal of all diseased tissues, the operation has to be by both the abdominal and the perineal routes.

**Ether in Infections.**—Soulioux pours 200 or 250 gm. of ether into the abdominal cavity in case of infection of the peritoneum, after the pus has been evacuated. The ether is then wiped out again aided by its evaporation, until none is left, and the cavity is drained. He uses ether to sponge out other cavities, after appendectomy, gynecologic operations, etc., and ascribes to the ether a number of recoveries in otherwise hopeless cases.

### Paris Médical

Oct. 31, 1919, 9, No. 1

- War Surgery and Lesions, P. L.—p. 1.
- \*Diagnosis in Spanish War Cerebral Disease, G. Meunier and P. Schullmann.—p. 10.
- Diagnosis of Traumatic Syphilis, F. B.—p. 107.
- Epidemic of Biliary Dysentery, G. Roussier.—p. 128.

**Cerebellar Dysarthria.**—Mih suggests that treatment as for syphilis and training in speech might improve conditions in some cases. Two are described in detail with no improvement to date of the cerebellar set of symptoms.

**Progrès Médical, Paris**

Oct. 10, 1919, 34, No. 40

- \*Physiology of the Omentum. A. AMES, p. 384.
- Diphtheria. J. G. LANGE, L. A. AUSTIN, and A. E. SARGENT, p. 396.
- Treatment of Cancer of the Uterus. R. GOUIN, p. 421.
- Radical Treatment of Frontal Sinusitis. P. TERRIER, p. 442.
- Tetanus. G. A. LIEBHARD, p. 453.

**Physiology of the Greater Omentum.**—Ames reviews in turn the four main properties of the greater omentum, its sweating out properties, thanks to its movability; the phagocytic defense it can call into play, and its antitoxic and its plastic roles. He says, "The omentum changes its position with a sort of intelligence, like the chemotaxis of the leukocytes. It is important therefore to refrain as much as possible from resecting the omentum, also in case of peritonitis to promote the bactericidal action and the agglutinating secretion by local heat and sodium nucleinate, or by subcutaneous injection of 2 per cent. nucleic acid (Mikulicz) or by injection into the abdominal cavity of saline. . . ."

Another point to be borne in mind is to refrain from hindering its active movements, and hence one should be chary of morphin. . . . The abundant vascularization makes particularly important all measure to ward off hemorrhage." He analyzes firm ligatures in series when the omentum has to be incised, and urges utilizing to the full the protecting and plastic properties of the omentum to reconstruct and reinforce passages and cavities. Lanz has even used the omentum to patch the mesentery.

**Revue Médicale de la Suisse Romande, Geneva**

September, 1919, 29, No. 9

- \*Tetanus. T. THAS and T. TUBERCOLOSIS. T. T. p. 409. Concl'n.
- \*Cancer of the Uterus. R. GOUIN, p. 421.
- \*Radical Treatment of Frontal Sinusitis. P. TERRIER, p. 442.
- \*Tetanus. G. A. LIEBHARD, p. 453.

**Trauma of the Chest and Pulmonary Tuberculosis.**—Tecon reports that contusion of the chest was followed by the development of pulmonary tuberculosis in 60 per cent. of his 15 cases. He also found 3 cases with a history of contusion of the chest among 1,033 tuberculous inmates of the Leysin sanatorium. Sargent and Mantoux found only 9 and 5 per cent. with pulmonary tuberculosis after contusion of the chest, while Tecon's proportion is 42 per cent.; this latter figure shows the decreasing influence of the imprisonment and confinement. He was able to find only 0.38 per cent. with a history of exposure to war gases among the 1,033 tuberculous inmates. He urges that men wounded in the thorax should be kept under surveillance as this may clear up a number of obscure cases. In the 42 cases of trauma of the chest which he has been studying, only 14 developed pulmonary tuberculosis later, and only in 8 is the direct connection with the trauma beyond question. Shell and gas wounds are far less liable to this evolution than gunshot wounds as was mentioned in the summary on page 1398 of the last installment of this article.

**Negative Scrapings with Uterine Cancer.** Gouin reiterates that negative scrapings in uterine cancer should be the guide in the treatment regardless of possibly negative findings with the curet. It rarely happens that the clinical and microscopic findings are in conflict. This is liable, however, when the cancerous growth does not show on the surface. The microscopic examination, however, could strongly suggest malignancy. In one woman 42-43 the scrapings were negative but the curet had shown a normal sized, of about generally more than normal, when there were generally found abnormal characteristics. A nodule protruded from the cervix, and a small, nodular, translucent fluid oozed from it. The polypoid mass was removed but the patient died of a cancer, although the slight bleeding kept off with finally great pains in the uterus. Vaginal curetting was finally performed. This disclosed an adenocarcinoma in the wall of the uterus although the

mucosa seemed normal throughout, except for one small patch not quite so smooth as the rest. In a second case a woman of 35 noted that the menstrual discharge was growing progressively more profuse and that there was a pinkish discharge during the intervals. She had borne six children. Not a trace of malignant disease could be detected with the curet, and the presumptive diagnosis was fibrous degeneration of the mucosa. The patient made several trips to health resorts but there was no improvement during the year. Then she expelled two small tumors, one a polyp with a large clot of black blood, including formations resembling chorionic villi. This was accepted as indicating that there had been a pregnancy. But the persistence of pain was too suspicious of malignant disease, and subtotal hysterectomy disclosed a spindle-cell sarcoma. The scrapings in both these cases had never shown anything suggesting malignant disease, the mucosa being practically normal throughout, but the papillomatous polyp in one case and the pseudocervical tissue expelled in the other warned of possible malignant disease. Both of the women are in good health to date, two years since the operation.

**Dangers of Radical Treatment of Frontal Sinusitis.** Terrier regards frontal sinusitis as a more serious condition than disease in the antrum of Highmore. Fatal complications occur so often that the surgeons' zeal to operate has moderated. But a radical operation is the only means of salvation in many cases. Opening up the sinus may precipitate the evolution of postoperative complications, some latent focus being roused thereby to activity. Phlegmon of the upper lid or brow is the consequence of defective drainage or sepsis. It may reinfect the sinus, and entail meningitis or cerebral abscess. The variability in the size and shape of the sinus is an important factor in the outcome, the large cavities having usually thin walls, and dehiscence is frequent. Recesses and crevices may escape complete disinfection, and pus may collect in them, and sequester form—this is always menacing for the intracranial organs. The ethmoidal cells should also be scrupulously investigated. The symptoms of a new infection may take some time to develop, so the surveillance after an operation should not be abandoned too early. He quotes Boeninghaus' statement that he knows of 26 cases of death after the Killian operation alone; meningitis was responsible for the fatality in 20 of them. Whether the technic or the gravity of the condition is responsible, this high mortality is impressive; the temperature suggests involvement of the meninges even before the operation. An incomplete operation has been the cause of many disasters; the operation itself seems to enhance the virulence of germs that escape disinfection. An abscess in the frontal lobe can generally be regarded as an extension of the sinusitis. If the olfactory zone is involved, the infection spreads by the lymphatics. He describes a personal case in which old pansinusitis in a man of 48 with pyocoe in the left frontal sinus had entailed considerable destruction of bone. Death occurred from purulent meningitis the third day after an operation on the pyocoe. No opening into the brain from any sinus was discovered.

**Tardy Tetanus.**—The man of 34 had a small erosion on the left wrist from an automobile accident, with contusion of the shoulder and slight contusion of the brain. Antitetanus serum was injected (10 c.c.) and the man returned to work the fourth day. Thirteen days later tetanus developed but the man recovered under serotherapy, a total of 293.5 c.c. of the antiserum in seventeen days. Phenomena of anaphylaxis hampered the treatment materially, but were finally overcome by diluting the antiserum. The 293.5 c.c. of the antiserum thus represented 490 c.c. of fluid. The injections were made subcutaneously except one of 10 c.c. by the vein which was followed by rigors, and the man felt that he was dying.

**Correspondenz-Blatt für Schweizer Aerzte, Basel**

Oct. 23, 1919, 49, No. 43

- \*Histology of Fat. H. H. ESCHER—p. 1609.
- \*Lactic Acid in the Stomach. A. RODELLA—p. 1623.
- \*Sodium Salts in Influenza. H. KOLLER—p. 1633.
- \*Syphilis without Primary Lesion. A. NORDMANN—p. 1640.

**Differentiation of Fats by Histochemistry.**—Escher gives a colored plate which shows the color reaction of a large number of different fats to the same stains. Research in this line affords a basis for greater precision in estimating and classifying fats and lipoids. The color reactions are characteristic and specific for different groups of fats. He declares that the varying affinity for stains has not been utilized to the full to date in studying animal and plant tissues. We may yet be able to distinguish different but seemingly identical substances by the optic changes, just as the mineralogist distinguishes them with his optic methods in the mosaic of stone dust.

**The Hard Boiled Egg Test Breakfast.**—In this fourth account of research on lactic acid in the stomach, Rodella emphasizes the instructive findings when the test breakfast consists of a hard boiled egg (without the yolk) and 400 gm. tea. This ensures that the test breakfast is free from bacteria, while it contains a fermentable substance to which the stomach is accustomed, and the amount of penetration of bacteria into this substance allows an estimate of the bacterial action going on in the stomach not only by fermentation but by microscopic examination. He gives the details of ten cases of various gastric pathologic conditions to illustrate the information derived with this test breakfast, not attainable in any other way. The rolls, etc., of the ordinary test meals are liable to contain many bacteria. The Sahli meal does not inform in regard to fermentation processes or allow differentiation of the fermentation bacteria—all of which is possible with the hard boiled egg meal, he says. With this he has ascertained that with nervous dyspepsia free from catarrhal complications the recovered egg white never contains any micro-organisms. The larger numbers and the most species are found with chronic gastric catarrh with much retention, and with incipient cancer. He adds that just as the presence of lactic acid in the stomach has proved sometimes an unreliable guide in respect to gastric cancer, the white-of-egg test breakfast may prove unreliable in certain cases. But on the whole, he reiterates, it seems destined to prove a valuable addition to our diagnostic measures, especially in combination with Uffelmann's ferric chloride reaction.

**Policlinico, Rome**

Aug. 31, 1919, 26, No. 25

\*Contusion of Pancreatic Cyst. G. Roggi, p. 1033.  
\*Meat from Animals with Fontanel Mouth Disease. I. di Pace, p. 1039.

**Hematoma in Pancreas Cyst.**—Ruggi's patient was a girl of 9 who had bumped into the corner of the table; pains in the left gastrocolic region kept recurring, with vomiting. The operation confirmed the assumption of a hematoma in an old retroperitoneal cyst in the pancreas. He fastened the walls of the cyst to the lips of the transverse incision, 15 cm. long, in the abdominal wall, after suturing a tear in the peritoneum. Healing was complete in a little over two months.

**Is Foot-and-Mouth Disease Transmissible to Man?** Di Pace cites evidence from various countries to show that the aphthous fever of cattle can be transmitted to man, but that contagion occurs comparatively rarely. Milk from infected animals is the source of the greatest danger. A trace of fluid from one of the vesicles is enough to contaminate a large amount of milk; one cow with the disease can infect the milk from the whole dairy. But there is no evidence, he says, that the virus invades the muscle tissue, and there need be no fear of harm, he reiterates, in eating the meat provided the animal is slaughtered and eviscerated at once and the meat is well cooked. Unless these two conditions can be fulfilled, the meat should not be used, as toxins resistant to heat may spread to the muscle tissue under other conditions. He quotes Prof. Mazzini to the effect that the soldiers in the Turin district have been fed on meat from cattle with epizootic aphthae, and that he used it in his own family without the slightest disturbance therefrom.

August, 1919, 26, Medical Section No. 8

\*Paralysis of Peripheral Nerves after War Wounds. G. Minerva and G. Fumarola, p. 209. Concl.  
\*Nervous Lesions from Influenza. G. Tanfani, p. 221.

**Dissociated Paralysis of Peripheral Nerves After War Wounds.**—This is the concluding instalment of Mingazzini and Fumarola's extensive experimental and clinical study of dissociated paralysis of various peripheral nerves. Their findings do not confirm the assumption of a distinct internal topography of the fibers of a peripheral nerve.

**Nervous Lesions from Influenza.** Tanfani reports three cases of unilateral postinfluenza neuritis, and four with cerebral hemiplegia evidently of hemorrhagic origin.

**Riforma Medica, Naples**

Oct. 11, 1919, 35, No. 41

\*Influenza. Amicare Bertolini, p. 869.  
\*Palpation with Superposed Hands. G. Boeri, p. 874.  
\*Cervical Ribs. Tullio Meucci, p. 876.  
\*Vitamins and Oxytocins. A. Azzi, p. 878.  
\*Surgery of the Lungs. E. Azevoli, p. 879.

**Influenza.**—Bertolini discusses the literature on the effects of influenza on the circulatory, digestive and urogenital organs.

**Superposed-Hands Palpation of the Abdomen.**—Boeri extols the advantages for palpation of the abdomen when the left hand is used for the palpation, as if it were the palpating instrument, while the right hand, superposed on the other, applies the force. The fingers of the left hand applied flat only have to register the sensations experienced from the palpation, the fingers of the other hand, applied slanting on the lower hand, doing the pushing into the depths for the palpation. The mental work of appreciation of the findings and the muscular work are thus thrown on separate hemispheres of the brain, and greater precision is attained. He compares this with the common observation that persons seated at a lecture or play listen and understand better than those who stand throughout. This *palpazione mediata* is indicated when the abdomen is extra large, or distended, or the walls contracted, or when it is desired to palpate deep-lying organs.

**Cervical Ribs.** Meucci adds another to the thirty-five operative cases of cervical ribs he has found on record. The young woman had noticed for four winters various nervous disturbances in one arm, formication, prickling, weakness, etc., but these disturbances subsided during the warm weather. They returned in a graver form each winter, until the entire arm and shoulder were weak, and any pressure caused pain. No benefit was obtained from tonics, massage and electricity, and palpation finally revealed a cervical rib. It was resected through an incision along the trapezius.

**Brazil-Medico, Rio de Janeiro**

Sept. 3, 1919, 33, No. 31

\*Coon Test for Leukemia. J. A. G. Fross, p. 299.

Sept. 3, 1919, 33, No. 30

\*Enterocolitis in the Newly Born. C. de Rezende, p. 297.

**Diagnosis of Leukemia.** Fróes stains the blood specimen with a stain composed of 1 gm. methylene blue in 90 gm. distilled water and 10 gm. alcohol, with 0.5 cc. of hydrochloric acid. The acid destroys the hemoglobin of the erythrocytes while the blue stains the nuclei of the leukocytes. As the leukocytes are in such abnormal numbers, there are so many nuclei to take the stain, that the blood specimen is decidedly blue instead of the greenish brown with normal blood.

**Enterocolitis from Inherited Syphilis.** De Rezende refers to the colitis produced by newly born infants, describing a typical case in which the child screamed with pain after nursing, until it was about 2 months old, when it gradually seemed to throw off this tendency. None of the ordinary measures had been of the slightest avail and the retrospective diagnosis was inherited syphilis. Similar experience, since its fourteen years of practice, have confirmed the fact that whenever a newly born infant, called by its own mother, presents intestinal derangements characterized by frequent stools with greenish mucus with or without blood admixture and tenacious, unscrubbed stools should be suspected. Usually the diarrhea appears immediately after birth. It is not abundant, not every diaper is soiled. The

screaming day and night and restlessness should suggest inherited syphilis even without other symptoms. The diarrhea is apt to mislead one to treat the digestion as the factor at fault, and overlook the causal inherited taint. De Rezende comments on the scant reference to this in pediatric literature, citing Holt's statement that inherited syphilis does not cause important lesions of stomach or bowels. Bendix refers only casually to intestinal syphilis in infants, saying it is rare and a resulting diarrhea is speedily fatal. But de Rezende has found that under specific treatment the child usually recovers physical health.

**Gaceta Médica de México, Mexico**

Septiembre, 1919, 1, N. 3

Diagnóstico de Tuberculosis de Abdomen. F. Ocaña.—p. 157.  
 Stenosis of Esophagus. P. P. Peredo.—p. 170.  
 Bacillus Septicæmia. J. G. Costa.—p. 179.  
 Vaccines Serum in Treatment of Typhus. J. de Jesus Gonzalez and R. Lozano.—p. 184.  
 Efficacy of Colonial Quinin in Malaria. G. Escalona.—p. 194.  
 Drainage of Pleural Effusions. J. Ramon Icaza.—p. 196.  
 Cause of Syphilitic. R. E. Martell.—p. 201.  
 Exaggerated Fear of Sympathic Ophthalmia. J. Santos Fernández.—p. 204.  
 Present Status of Our Knowledge of Streptococci. E. Cervera.—p. 208.

**The Blood Changes in High Altitudes.**—Ocaranza discusses the increased production of blood corpuscles in persons living on the high tableland of central Mexico, and reviews the literature on the subject.

**Esophagoscopy with Stenosis.**—Peredo expatiates on the advantages of esophagoscopy; it has shown that spastic stenosis of the esophagus is more common than formerly supposed. A spasmodic element may complicate all forms of stenosis but the constricting spasm may be of exclusively nervous origin. In a case described, insidious stenosis of the cardia entailed great dilation of the esophagus above. To save the woman from starving to death, an emergency gastrostomy was done. The painful contractions in the cardia and esophagus and the fetid vomiting continued, and the negative findings with esophagoscopy confirmed the neurogenic origin. Clinically normal conditions were soon restored by progressive dilation with sounds. Similar success was realized in two other cases rapidly cured by instrumental progressive dilation after esophagoscopy had excluded organic stenosis. In the discussion that followed, several reported typical cases of spastic stenosis. In some the spasm occurred electively with certain foods or with very hot or very cold fluids. In one hysterical woman the spasm occurred in the esophagus whenever the uterine cervix was irritated. The spasm developed along with catalepsy, and amputation of the cervix seemed to cure the tendency to spasm.

**Pneumobacillus Septicæmia.**—Costa says that the case in a young woman which he reports, and Chirib's case, are the only ones with recovery, among the twenty-eight cases of pneumobacillus illius hemorrhagic septicæmia on record in Chile.

**Reforma Médica, Lima**

Año 1919, 5, N. 6

Diagnóstico y Tratamiento de la Tuberculosis Miliar. C. Murga M.—p. 91.  
 Síndrome de la Gran Glandula. C. E. Paz Soldán.  
 Tratamiento de la Sífilis. F. J. Ferrer y Martínez.—p. 109. Beguín.

**Revista Médica del Uruguay, Montevideo**

Montevideo, 1919, 22.

Tratamiento de la Tuberculosis Miliar. J. M. Yoon and E. C. Yoon.—p. 1.  
 Síndrome de la Gran Glandula. C. E. Paz Soldán.  
 Síndrome de la Gran Glandula. C. E. Paz Soldán.—p. 212.  
 Síndrome de la Gran Glandula. C. E. Paz Soldán.—p. 212.  
 Síndrome de la Gran Glandula. C. E. Paz Soldán.—p. 212.

**Congenital Obstruction of the Posterior Nares.**—Alonso and Rezende operate on a young woman who had never been able to breathe through the right side of her nose. At the first sitting they resected part of the inferior turbinate to obtain better access, and five days later cut away the

obstructing wall of bone under local anesthesia. The dread and extreme indolence of the patient and the hardness of the bone rendered the operation very difficult and there was severe hemorrhage. The hemorrhage on the side of the operation was arrested, but was followed by hemorrhage on the other side. The hemorrhages returned four days later when the tampons were removed, compelling tamponing again. There was a right mastoid reaction and suppuration in both ears, but this yielded to the ordinary measures, and the nose is now normally permeable for air on both sides. It had been the intention to make the new opening a little wider, but this had to be abandoned on account of the hemorrhages.

**Angina Pectoris.**—Escuder Nuñez describes six cases of angina pectoris to show the variety of causes which may induce it, including aortic insufficiency, aortitis, overexertion of the heart and abnormally high blood pressure of cardiorenal origin. Necropsy in one of the cases failed to show the slightest pathologic changes in the coronary arteries. Necropsy has often, besides, shown the coronaries extremely pathologic without any symptoms of angina pectoris during life. Treatment should be individualized to fit the cause. In some cases the aim should be to act on the peripheral vasodilators. But in every case the rule should be to provide for hygiene in the diet, for the kidneys, and for the digestive tract, and suppress tobacco, alcohol and other poisons.

**Semana Médica, Buenos Aires**

Aug. 14, 1919, 26, No. 33

"The Physician and His Duty to Society." G. Aráoz Alfaro.—p. 163.  
 Neuro-Epithelioma of the Eye in Boy of Five. E. B. Demaria.—p. 173.  
 Massage of the Heart for Arrested Heart Action under Anesthetics. M. J. Petty.—p. 175.  
 Serotherapy of Tuberculosis. F. Jauregui and N. Lettieri.—p. 177.

**The Physician and His Duties to Society.**—This address by Aráoz Alfaro at the commencement exercises of the medical school has been widely copied. In conclusion he remarked that if any of the recent graduates did not feel inspired by love for humanity and sympathy for the pain of others, and did not feel capable of self-abnegation and sacrifice, he urged them to withdraw from the ranks of the profession and seek other spheres of activity more propitious for an easy, prosperous life. "The joys of the practice of medicine are moral ones. It is superior to other careers by the high spirit of sacrifice which inspires it. Without altruism, without love for mankind, it will be a dreary burden to carry. Any other profession or livelihood would be preferable to it in this case." He gave a few aphorisms, the last one warning to distrust established opinions. "Try to correct them or verify them. . . ." He advised the graduates to go into politics—"Not petty local politics, or subservience to men in office, but the politics of educational progress, of economic and social reforms, movements for hygiene and public health, the politics of institutional truth and wise prevision, which will carry the country far on the road of progress."

**Hygiea, Stockholm**

Aug. 31, 1919, 51, No. 16

Tests of Functional Capacity of the Liver. George Kinberg.—p. 689.

**Tests of the Functional Capacity of the Liver.**—Kinberg reviews the literature and reports the results of much personal research on the elimination of amino-acids and ammonia in health and with a diseased liver. He tested the functional capacity further by ingestion of gelatin, instead of glycochill which has been recommended for the purpose. After a constant test diet with low nitrogen content for several days, 50 gm. of gelatin dissolved in hot chocolate was taken fasting. The metabolic findings are tabulated from fourteen cases and six healthy subjects. He did not find any increase in the output of amino-acids with liver disease except after the gelatin test. Then the output increased with serious pathologic conditions in the liver, as with cirrhosis, but not with mere catarrhal jaundice or congestion in the liver, and not in health. The output of ammonia was almost always found higher with liver disease than in health, both absolutely and relatively.

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## TYPHOID FEVER IN THE AMERICAN ARMY DURING THE WORLD WAR

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It has now become possible to compile the statistics for typhoid and the paratyphoid fevers for the period of the great war. The figures for the year 1917 were published in the last annual report of the Surgeon-General; and the figures for 1918 will soon be ready for publication. I am permitted to select the compilations presented here from the forthcoming report because of their immediate interest.

In Hawaii, during September, 1917, there was a water-borne epidemic of typhoid of the classic type, giving the first opportunity since the introduction of vaccination into the Army for a comparison of the rates among the vaccinated and unvaccinated. The

TABLE 1.—TYPHOID EPIDEMIC IN HAWAII, H. T., IN THE  
FALL OF 1917

	Population No. of Water of System	No. of Cases per Thousand	Deaths		Mortality Rate per Thousand	
			Num- ber	Per Cent.		
Vaccinated.....	4,087	55	13.45	4	7.4	0.97
Unvaccinated.....	812	45	55.41	7	15.5	8.62

infectious material was traced to a Japanese laborer who had been employed, until he was taken sick, in the construction work on the water supply system.

The salient facts in this water-borne epidemic of the classic type are set forth in Table 1.

The morbidity was four and one-eighth times as high, and the mortality eight and seven-eighths times as high among the unvaccinated as it was among the vaccinated. In addition, there were eleven other cases among unprotected persons who used a different water supply, and from the date of onset of the disease there is reason for believing them to be contact cases. There were no corresponding contact cases among the vaccinated. Between September 23 and January 17, there was a total of 111 cases, fifty-five among the troops and fifty-six among the civilians.

In 1917, there were in the entire army 297 cases of typhoid, thirteen cases of paratyphoid A, and seven cases of paratyphoid B. A large proportion of these cases were in the incubation state of the disease on the patients' entrance into the military service, and the reports received from France show that many of the cases occurring there were among men who had, for

one reason or another, failed to receive the typhoid vaccine.

The ratios in 1917 for the Regular Army, National Guard and National Army were: Regular Army, 0.25 per thousand of strength; National Guard, 0.70, and National Army, 0.27.

The high rate, relatively, among the troops in the National Guard was due to the fact that they were mobilized in their own states and did not come immediately under federal control, and in many cases vaccination and sanitary protection were delayed.

The total rates for the entire army, officers and men, white, colored and native troops, for the past years are shown in Table 2.

TABLE 2.—RATE OF TYPHOID FEVER IN THE ARMY AND IN  
THE CORRESPONDING AGE GROUP IN CIVIL LIFE FOR  
THE PAST EIGHTEEN YEARS

Year	Army		Civil Deaths from Typhoid Fever: Age Group, 20 to 29 Years. Rate per Thousand of Population	
	No. of Cases	Ratio per Thousand Deaths	Ratio per Thousand	Total Males
1890	531	5.75	69	0.46
1900	594	6.43	78	0.42
1902	555	8.58	69	0.40
1903	348	5.82	39	0.33
1904	247	5.62	12	0.33
1905	193	3.57	17	0.30
1906	347	5.66	15	0.32
1907	208	3.53	16	0.19
1908	215	2.94	21	0.28
1909	173	3.03	16	0.28
1910	142	2.32	10	0.27
1911	44	0.88	0	0.22
1912	18	0.31	3	0.18
1913	4	0.04	0	0.18
1914	7	0.07	3	0.15
1915	8	0.08	0	0.18
1916	25	0.23	3	0.12
1917	297	0.41	23	0.11
1918	768	0.30	133	0.09

\* Voluntary vaccination against typhoid.  
\* Compulsory vaccination against typhoid.

The rate for the age group 20 to 29 and the rate for males only, which is calculated for six different years, was obtained through the kindness of Dr. William H. Davis of the Bureau of the Census. It was not possible to obtain such a rate for the entire registration area of the United States, and the table has been prepared, therefore, from data from the original registration states: Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and the District of Columbia.

Current statistical reports warrant the belief that in these older, more highly urbanized states, the typhoid rates are notably lower than in the remaining part of the registration area. Any comparison, therefore, with these civil statistics errs on the side of conservatism.

From Table 3 of the paratyphoid fevers in the Army, it is apparent that they have not, in our experience, been of very much importance, and until the outbreak of the world war, it was never considered necessary to impose the discomfort of vaccination on the entire army to protect against so slight a danger.

From a consideration of Table 2, it is evident that during the first year of the war, 1917, the rate in the

TABLE 3. RATES FOR PARATYPHOID

Year	Cases	Ratio	Deaths	Ratio
1911	2	0.03	0	0.00
1912	4	0.05	0	0.00
1913	8	0.07	0	0.00
1914	9	0.10	0	0.00
1915	9	0.09	0	0.00
1916	410	2.38*	4	0.02†
1917	13	0.09	0	0.00
	7	0.01	0	0.00
1918	7	0.03	0	0.00
	11	0.01	0	0.00

Army, including all cases, both among the vaccinated and the unvaccinated, was 0.03 per thousand of strength, as compared with a rate of 0.14 per thousand of population among young men of corresponding age at home under peace conditions. In 1918, the Army rate was higher, 0.05 (0.03 in 1917), owing to the number of cases which developed in France. Yet, including all these cases, the rate was less than half the civil rate for males in the eleven original registration states (0.11 per thousand).

The Army rate for 1918 is made up from data for the troops in the United States, where the rate was 0.03, and for the American Expeditionary Forces, in which the rate was 0.08 per thousand; so it is seen that the rate for our expeditionary forces was considerably less than the civil rate at home. By those who were in France and who know the conditions under which our troops were compelled to live at times, and in view of the almost continuous exposure to large doses of infectious material, coming both from enemy sources and from the native French population of the country side, this low rate of 0.08 per thousand is accepted as evidence of the great protective power of the T. A. B. vaccine.

One more point, however, should be brought out before making final deductions from this table: it is based on an average annual strength of 2,518,499.

TABLE 4.—NUMBER OF PEOPLE FURNISHING A CASE OF TYPHOID FEVER, OR A DEATH FOR EACH PERIOD

Period	Population Furnishing One Case	Population Furnishing One Death
1917	7	71
1918	3,756	25,641
Record for the entire war (1917, civil life)	No record	7,142
Record for the entire war (1918, civil life)	No record	9,990

The length of service of many men, for one reason or another, was short, a few months, or even a few weeks; and the actual number of men in the service during the year was almost twice as large as the average annual strength. On the first day of November, 1918, there were 1,971,000 men in France and 1,663,000 in the United States, a total of 3,634,000 on that day alone. If typhoid were one of the diseases which recurred in the life of man, the annual rate, based on the average strength, would nevertheless be a fair statement; but, of course, typhoid fever rarely, if ever,

occurs twice in the same person; the number of cases depends directly on the number of men in the service, regardless of how long they remained. We know that during the period of the war (April 6, 1917, to Nov. 11, 1918) approximately 4,000,000 men served in the Army; and during the full two years we had a total of 1,065 cases of typhoid fever, or one among every 3,756 men. In the Spanish war there was one case for every seven men (141 per thousand). In 1917 and 1918, the total number of deaths was 156, or one death among 25,641 men. In the Spanish war there was one death among every seventy-one men (14 per thousand).

In the restricted registration area given in Table 2, there was one death for every 7,143 males (20 to 29 years of age) in 1917, and one for every 9,090 of the same age group in 1918. These figures are recorded in Table 4.

The relation of the mortality in the present war to that of previous wars can be shown in another way; that is, by estimating the number of deaths in our army in the world war, according to the rates which prevailed during the Spanish and the Civil wars. The period covered by Table 5 is from Sept. 1, 1917, to May 2, 1919. The two diseases, malaria and dysentery, which have been most often confused with typhoid, are also included for completeness.

TABLE 5.—RELATION OF MORTALITY IN THE WORLD WAR TO THAT OF PREVIOUS WARS

	Number of Deaths That Occurred in Present War, Sept. 1, 1917—May 2, 1919: Average Strength Approximately 2,521,396	Number of Deaths That Would Have Occurred if the Civil War Death Rate had Obtained	Number of Deaths That Would Have Occurred if the Spanish American War Death Rate had Obtained
Typhoid fever...	213	51,133	68,164
Malaria.....	13	13,951*	11,317
Dysentery.....	42	63,898†	6,382†

\* Includes malaria, remittent and congestive fevers.

† Includes dysentery and diarrhea.

## COMMENT

It is evident from these tables, therefore, that anti-typhoid vaccination, carried out as it was by a personnel which had not been carefully trained in its administration, gave a high degree of protection to our forces under the conditions of hurried mobilization and of warfare, and reduced the rate, not only below the rates for previous wars, but also below the rate found in civil life in some of the older states where the entire population is protected by all the sanitary measures of modern life.

**Yellow Fever in New Orleans.**—The first appearance of yellow fever in New Orleans was in 1769. The next appearance of yellow fever in New Orleans was in 1791, and from then on until 1883, scarcely a year passed by that there was not an outbreak of more or less severity, with the exception of the period during the Civil War, at which time the city was practically free from this disease, there being no cases in 1861 and for the next four years, 2, 2, 6 and 1 deaths are recorded, respectively. This freedom of New Orleans from yellow fever was due to the blockade, and proved that yellow fever was not endemic there. But in 1867 there was a severe outbreak with 3,093 deaths; at this time the population was 184,503. There were epidemics again in 1889, 1897, 1898 and 1899. From that date on there has been but one epidemic of yellow fever, the memorable one of 1905.—Augustin, "History of Yellow Fever."

### THREE CASES OF AORTIC ANEURYSM TREATED BY WIRING AND ELECTROLYSIS

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On a number of occasions in the past I have reported in the pages of THE JOURNAL and in the *Therapeutic Gazette* cases of aortic aneurysm treated by the introduction of gold-platinum wire and electrolysis. The previously reported cases combined with the three herewith presented, make a total of thirty.

#### THE ESSENTIAL POINTS FOR SUCCESS

There are several points essential to the success of this method, and a number of others which, when understood clearly, show why it cannot always succeed:

1. The aneurysm must be sacculated, not fusiform, and if it be of the dissecting sacculated type it is the most favorable for good results. It is not only useless but dangerous for obvious reasons to operate on a fusiform aneurysm.

2. Although it is not at all necessary for the aneurysm to have eroded the chest wall so as to protrude, it must be close enough to the chest wall anteriorly or posteriorly to permit the insulated needle to enter the sac.

3. The wire must be of gold and platinum so that it will coil properly in the sac. A gold-copper wire is useless because the copper is eaten out so rapidly by electrolytic action that the procedure cannot be completed.



Fig. 1 (Case 1).—Aneurysmal growth, 10 inches in width and 8 inches from below upward.

4. Great care must be taken that the skin over the sac is protected from electrolytic action by having the external part of the needle well insulated as well as the shank.

5. Depending on the size of the sac, the amount of wire varies, but it is usually from 15 to 20 feet.

6. The time during which the current is allowed to pass is usually about forty-five minutes, and the current strength must be turned on and off very gradually.

7. If the street current is used, great care must be taken that the proper reducing apparatus is employed, and also that the table on which the patient lies is insulated with rubber pads and that the operator and his assistant wear rubber-soled shoes.

The facts that stand in the way of complete success are that in a large proportion of cases the entire aortic wall is diseased, the area operated on being chiefly in



Fig. 2 (Case 1).—The crosses show the points at which the wiring was introduced into the aneurysm.

trouble. Solidifying the contents of the sac is well so far as it goes, but other parts of the aortic wall give way later. In many cases the entire arterial system is diseased, and the only patient I have seen who did not get relief from pain before the operation was finished died suddenly sometime later and the necropsy revealed a second sacculated aneurysm just above the diaphragm which had ruptured.

#### THE PROGNOSIS

The prognosis, therefore, depends largely on the general state of the vessels. If this is good and the aneurysm seems to have resulted chiefly from injury, the prognosis is better than if the general vascular state is bad. Syphilis is manifestly an active factor.

When the growth is very large, and particularly if its pressure has already begun to cause pulmonary edema or pleural effusion, the procedure is, of course, a forlorn hope.

The value of the procedure lies in the following facts:

1. The extraordinary decrease in pain, which, as already stated, usually takes place soon after the current begins to pass. Whether this easement of pain is due to decrease in the tension in the sac with its associated diminution of pressure on adjacent tissues or whether it is due in whole or in part to a sedative effect of the current, I am unable to state; but I am inclined to the former view. This relief from pain, which has previously required large amounts of morphin, justifies the operation even if life is not greatly prolonged.

2. Arrest of the progress of the growth, at least in the direction in which it threatens to rupture. I have reported a number of cases in patients in whom blood

was actually oozing through the discolored skin when treated, but who lived for months.

#### REPORT OF CASES

CASE 1.—J. K., aged 40, was first seen because of pain in the chest, April 12, 1915, when a diagnosis of aortic



Fig. 1 (Case 1).—A mass of fine coiled wire found at necropsy in the remaining portion of an enormously dilated aortic arch.

aneurysm was made by his physician, Dr. Koder, who reported that by Aug. 24, 1915, it bulged distinctly, and pain and dyspnea were fairly constant. When examined roentgenologically, Dec. 29, 1915, a very large aneurysm

having occurred to the left, a second operation was performed, 16 feet of wire being used to avoid the tendency to rupture and in order to relieve pain caused by the new source of pressure. Two days after this second operation, the patient volunteered to tell the students in the amphitheater that he had slept seven hours the night before and suffered no discomfort except a "coughing spell."

This man died, Feb. 16, 1916, from pulmonary edema, and necropsy revealed an enormously dilated aortic arch in the ascending portion in which a mass of fine coiled wire was found surrounded by blood clot. Evidently the wire used at one of the operations coiled not in the sac as intended; but it did no harm. This dilated part of the aorta communicated directly with a large tumor-like sac in which another mass of blood clot was found about the second coil of wire. This is shown in Figure 3.

Life was prolonged in Case 1, but the chief gain was in the relief of pain.

CASE 2.—In S. K., aged 42, a bottle blower, a very large aneurysm of the descending arch pointing anterolaterally (Fig. 4) measured 14 inches from below upward and 12 inches transversely. The illustration does not show quite



Fig. 5 (Case 3).—An aneurysm of the ascending arch about 2 1/4 inches in diameter, sharply defined and sacculated.



Fig. 6 (Case 2).—A large aneurysm of the descending arch pointing anterolaterally and measured 14 inches from below upward and 12 inches transversely.

involving the entire arch, but pointing anteriorly, as shown in Figures 1 and 2, was found. Jan. 17, 1916, I introduced 8 feet of wire the largest amount I had on hand, and passed the current for thirty minutes, the maximum being 35 milliamperes. Great pain was completely relieved in one hour. The tortuosity of the abdominal veins due to pressure is well seen. Twelve days later, an extension of the bulging

the true elevation. The subcutaneous tissues of the entire side from the axilla to the pelvis were purple from extravasated fluid.

The operation was performed, July 25, 1918; 18 feet of wire were introduced, and the current was passed for one hour and eleven minutes, the strongest being 40 milliamperes continued for eleven minutes. This patient had some evidence of pulmonary edema before the operation, but it cleared up afterward. The purple color of the side already described changed in a few days to a light yellow, showing that the extravasation had ceased. Twenty-four hours after the operation, the pulse returned to the left wrist. The patient was, however, very difficult to control; he continually got out of bed and walked into the corridor. He died, Aug. 26, 1918, from internal rupture of the aneurysm, one month and one day after operation.

CASE 3.—F. W., aged 50, an iron worker, referred to me by my colleague, Dr. McCrae, eight months previously began to have pain in the right side of the chest, just outside the sternum. A month later he noticed a slight lump. He complained on admission of moderate thoracic pain increased by effort. His general condition was good, and he had no

cough nor tracheal tug. A roentgenographic examination of his chest disclosed an aneurysm of the ascending arch about 2½ to 3 inches in diameter, rather sharply defined and sacculated. The descending arch was slightly dilated.

June 4, 1919, I introduced 20 feet of wire and passed the current for forty minutes, the greatest strength being 46



Fig. 6 (Case 3).—Appearance of the mass fifty-four days after operation.

milliamperes. This patient was also relieved of pain very promptly. Figure 5 shows the site and size of the growth one week after operation, the broken area being clotted blood and collodion. It was difficult to keep him in bed. He persisted in getting up and going to the toilet. Nevertheless, pulsation steadily diminished and the growth decreased in size, so that by the expiration of fifty-four days, July 28, the mass was as small as seen in Figure 6. Two days before this last photograph was taken a man in the same ward became maniacal, and, leaping out of bed at 10:30 p. m., ran to the end of the ward, where he seized the nurse by the throat. My patient leaped out of bed shouting for assistance, ran to the man and threw him to the floor, and all this without any apparent detriment to his aneurysm. At the time of writing this report, ten weeks after operation, the man is urging that he be allowed to go back to work, and only a very faint impulse can be felt in the spot involved.

COMMENT

The best result so far achieved in my series of cases has been in the case of a man who lived in comfort for three years, although threatened with pulmonary edema when operated on. He did not die from his aneurysm but was killed by a freight train that backed down on him as he was walking along the tracks.

1801 Spruce Street.

**Is Your Community Fit?**—Have you a safe water supply? How do you know that it is safe? You cannot know unless you have bacteriologic tests made frequently and regularly. Typhoid fever, diarrhea, dysentery, and other water-borne diseases may be expected unless your water supply is kept safe. Do you permit a large proportion of your citizens to use water from wells which may be polluted? If your town is small and not provided with waterworks it is possible that insanitary privies and unsafe methods of disposal of human excreta are polluting your wells.—*Pub. Health Rep.*, April 25, 1919.

TRUE PROSTATIC CALCULI

REPORT OF TWO CASES

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The two cases given herewith present true prostatic stones. The etiology of this type of stone, according to Young and Thompson<sup>1</sup> corpora amylacea, is as follows: The stones, having attained the size of their enclosing follicles, act as foreign bodies, and in consequence of the general law that all mucoid membranes, when sufficiently irritated, throw out a deposit of calcium phosphate and carbonate, ultimately form calculi. The amount of earthy matter varies from 45 per cent. in the concretion to 85 per cent. in the calculus. The number of stones is large as a rule, although one of my patients had only one, buried deep in the gland.

REPORT OF CASES

**Case 1.**—*History.*—A white man, unmarried, aged 25, whom I saw, April 21, 1919, reported a family history of no importance, and a good past history except that he had had a severe case of typhoid fever in 1910 which had necessitated his being in bed for two months, after which he was weak for some time. He denied venereal disease. His present trouble, burning sensation while voiding which increased at termination, had begun four months before. Blood was present in the urine at intervals. Strenuous exercise caused much discomfort and increased uneasiness in the perineal and pelvic regions. Nocturnal emissions occurred every few weeks, followed by severe pains and frequent urination. The patient had taken all forms of modern treatment for verumontanitis and prostatitis with no relief. He feared sexual intercourse on account of distressing pains afterward.

*Examination.*—The patient was in fairly good physical condition, but had a "hang-over" look on his face. The physical examination was negative. The urine contained a few pus cells, the specific gravity was 1.010, it was amber, and the reaction was alkaline. There were no casts, no sugar and no albumin. The genitals were normal. The prostate by



Fig. 1 (Case 1).—A very definite stone formation. The stone was not quite so large as the shadow, but was surrounded by hard fibrous tissue which cast some of the shadow. This illustration shows how plainly a prostatic stone may be demonstrated in some cases.

the rectum was very tender and slightly enlarged and so sensitive that it was impossible to express fluid.

Cysto-urethroscopic and cystoscopic examination revealed a normal anterior urethra, a very red and tight posterior

<sup>1</sup> Cabot, *Hughes Modern Urology*, Philadelphia, Lea & Febiger, 1914, p. 773, 1918.

urethra and a somewhat enlarged and inflamed verumontanum. The trigon showed marked redness; the bladder was normal otherwise.

*Diagnosis.*—Stone in the prostate was thought of, as the treatment for the troubles mentioned was of no avail. A roentgenogram revealed a small shadow in the median line of the prostatic region.

*Operation and Result.*—I advised an operation, which was performed immediately. A small stone was removed from the median lobe which was found to be encapsulated with fibrous tissue.

I received a letter from the patient, August 15, in which he said, "Entirely relieved, feel better than I have for years; am not nervous and do not get up to urinate at night as before."

*Case 2 (first).*—A white man, aged 44, married, with five children, whom I saw, March 1, 1919, reported a family history of no importance. He had always been healthy, although he had had gonorrhoea twenty years before which had lasted for several months, giving him considerable

albumin in abundance, and much pus. The specific gravity was 1.015. The urine was alkaline.

Cysto-urethroscopic and cystoscopic examination revealed the anterior urethra and the prostatic urethra tight, and the latter highly inflamed. The structures seemed normal in size; the trigon was exceedingly red and the prostate was enlarged. Roentgenoscopy of the urinary tract proved negative except for a shadow in the median line of the prostatic region.

*Diagnosis.*—The condition was diagnosed prostatic calculi, and operation was advised. The patient gave immediate consent. Eighteen small stones were removed. There has been complete recovery to date as far as I know.

#### CONCLUSIONS

We overlook prostatic stones when we should not.

Like cancer, they appear in a majority of cases after thirty years, although this should not be misleading.

The symptoms vary and are misleading, especially if the patient has had gonorrhoea previously.

A more thorough examination of this class of patients is indicated, and they should have more thought than they usually obtain, especially when the ordinary methods of therapeutics do not relieve.

I cannot agree with Hubeny<sup>2</sup> when he says that every case may be definitely established by means of the roentgen ray.

The percentage of failures has not been recorded, so far as I have noticed. There must be some, but a high percentage is no doubt demonstrated by the roentgen ray.

The method of removal after diagnosis depends on several pathologic presentations. No fixed or set rule for every case is advisable.

It is fairly well established that venereal diseases are not absolute predisposing factors.

The symptoms are well worth studying.



Fig. 1. Case 1. A case in which eighteen stones were removed from the prostate. A cystoscope with large depressor was inserted into the bladder, and the median lobe. By this procedure a large amount of pus was obtained. The stones may be found, as well as the cystitis, in the vesiculae.

troubles. There were no visible complications. He had thought he was well until ten years before. His present troubles had begun with frequent urination, burning, etc. These symptoms became gradually worse and increased in severity until he had was the only place of comfort at times. For the last year, he suffered so much that work was almost impossible. At no time did he see blood in the urine. The pain became almost constant in the perineal and pelvic regions. At times there was great distress in the rectum, especially when the patient was constipated and at defecation. Sexual intercourse was almost impossible on account of the pain that followed. The patient was very nervous.

*Examination.*—The patient looked emaciated and distressed. The physical examination was of no importance otherwise. The genitals were normal; the prostate was very tender to the least pressure and was somewhat enlarged and baggy. Secretion showed much pus and low grade infection. No stone could be felt. In the urine there were phosphates,

## CHORIO-EPITHELIOMA OF THE TESTIS

WITH REPORT OF A CASE

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Much of the mystery and confusion that surrounds the subject of mixed tumors of the testis has been cleared up in recent years by the work of Schlegelhauser and Pick abroad, and of Ewing in this country. These men have shown that practically all of the so-called mixed tumors of the testis are teratomas having tissues composed of the three primary germinal layers, the ectoderm being represented by cysts lined with flat epithelium, the endoderm by cysts lined with columnar or ciliated epithelium, and the mesoderm by connective tissue, cartilage, bone, and muscle. These primary tissues may form organs and blood vessels in a more or less orderly imitation of a fetus. Very often one type of tissue grows more rapidly than the others, and overshadows or even suppresses them, so that the presence of only one tissue is not absolute proof against its teratomatous origin. Should the tumor undergo a malignant change, as sometimes happens, more than one type of germ layer may be represented, giving the picture of a carcinoma in one part of the tumor, a sarcoma in another part, and an endothelioma in still

2. Hubeny, M. J.: Prostatic Calculi from the Roentgen Ray Diagnostic Standpoint, *Am. J. Roentgenol.* 6: 286 (June) 1919.

a third portion, whence the term "mixed tumor." Usually one type of the tissue predominates, however, and first produces metastases. In some tumors, the imitation of a fetus is further exemplified by the finding of chorionic villi either in the form of benign hydatid mole or the malignant chorio-epithelioma. The tumor herewith reported is that of a simple teratoma occurring after an operation for hernia, and showing a gradual growth for two or three years. It then grew much more rapidly, and in two months had attained three times its previous size. At its upper pole a separate mass had formed, which, on microscopic examination, proved to be a pure chorio-epithelioma. The metastases in the lungs and liver were those of chorio-epithelioma.

HISTORICAL DATA

Marchand's dictum that chorio-epithelioma is a tumor occurring only in the female no longer holds. Schlagenhauser<sup>1</sup> was the first to point this out in 1902, when he noted in one of his cases of mixed tumor of the testis that the malignant portion was the exact counterpart of chorio-epithelioma in the female. He then examined the material in the Vienna collection and found five cases, each of undoubted hydatid mole and chorio-epithelioma, among the mixed tumors of the testis. Since his unique report, Warthin, Emanuel, von Hansemann, Debenardi, Albrecht, Ewing and others have reported similar cases. Cooke<sup>2</sup> collected forty-six instances from the literature in 1915, and added a forty-seventh. Woglom,<sup>3</sup> in 1917, collected reports of sixty-five cases, and added two of his own, showing that the condition is not so uncommon and is being diagnosed with greater frequency.

Before 1902, these tumors were reported under a variety of names. Malassez, as early as 1878, accurately described one, and reported it as a "sarcome angioplastique." Others reported it as lymph endothelioma, embryoma, alveolar carcinoma, teratoma, sarcomatocarcinoma, cystoma, adenoma, etc. Recently, Hartman and Peyron<sup>4</sup> reported thirteen placentomas and fourteen choriomas from their material. Hartman differentiates these by the fact that choriomas are composed of primitive cells of the chorio-ectoderm which in proliferating retain their embryonic character. The placentomas, which he believes have received too little attention, show cell types of adult placenta.

ETIOLOGY

There has been much speculation as to the etiology of teratoma, both in the female and in the male. One of the earliest theories is that of Virchow, who believed that cells could undergo metaplasia. As our knowledge increases, there is less and less belief in the idea that cells may change their morphology in the sense that Virchow taught. St. Hilaire believed that these tumors grew from fetal inclusions. Waldeyer taught that certain cells of the testis could develop parthenogenically.

Marchand and Bonnet considered the possibility of development of a polar body. The same authors also taught that in the early cleavage of the ovum a blastomere became isolated and later developed into a more or less imperfect embryo. These early blastomeres, arising as they do from the first few divisions of the fertilized ovum, are totipotent and are thus capable of producing all of the tissues of the body. Later divisions are only multipotent; they can reproduce many tissues, but not all. Cohnheim's theory of their development from remnants of the wolffian body or Müller's duct has been put forward by Carazoni, recently. Perhaps the most popular theory today is that these teratomas develop from sex cells whose normal development in the male into spermatogonia has been suppressed but whose potencies remain intact, ready to express themselves in the various forms of simple or complex teratomas.<sup>5</sup>

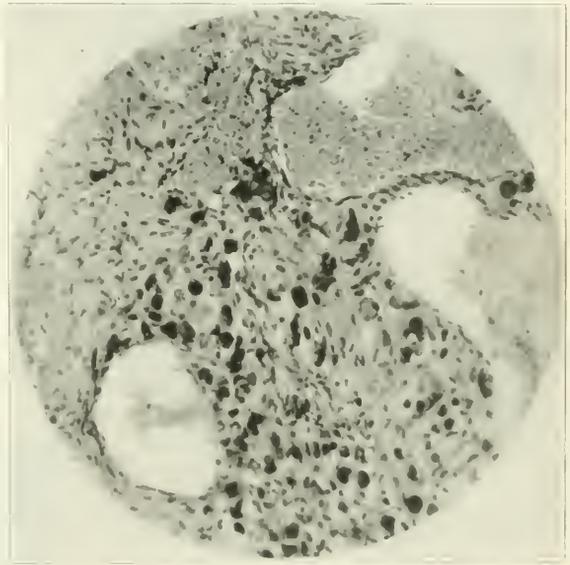


Fig. 1.—Chorio-epithelioma of testis: syncytial cells encroaching on the blood sinuses in the center and to the right; Langhans cells toward the periphery at the left;  $\times 225$

PATHOLOGY

The teratoma of the testis presents a variable gross appearance:

In the simplest forms there may be seen two or more types of tissue, usually masses of cartilage, and glandular tissue, held together by a stroma of embryonic connective tissue that is lymphoid in character. The more complex contain a number of different kinds of tissues and approach the structure of an embryo more closely. They are very often cystic, the cysts being lined by flat, cylindrical or ciliated epithelium. Others more solid may contain portions of organs, such as heart, lung, kidney or thyroid, but show no orderly arrangement of parts. The latter are more commonly intratesticular.

5. Ewing: Teratoma Testis and Its Derivatives, Surg., Gynec. & Obstet. 12: 235, 1911.

1. Schlagenhauser: Wien. klin. Wchnschr. 1902, Nos. 22 and 23.  
2. Cook: Bull. Johns Hopkins Hospital 10: 215, 1915.  
3. Woglom: St. Lukes Hospital M. & S. Rep., New York 4: 148, 1917.  
4. Hartman and Peyron: Bull. de l'Acad. de méd. June, 1919.

Teratomas are usually well circumscribed and have their origin either within the testis or from one pole. They may grow slowly for several years and then suddenly assume a much more rapid growth, become malignant, and produce metastases. This change to malignancy affects more than one type of cell coincidentally, and the metastases may have the build of a teratoma or of only one type of cell. Chorio-epitheli-



Fig. 2.—Teratoma of testis: dark portion above chorio-epithelioma; about two-fifths actual size.

oma has not been reported as occurring in boys below the age of puberty or in the aged. In two cases the breasts hypertrophied and secreted colostrum. Metastases from the carcinomas occur in the regional glands of the groin and in the retroperitoneal lymph glands along the femorals and aorta. Metastases from sarcomas and chorio-epitheliomas occur early in the lungs by way of the venous channels. They can be readily demonstrated by the roentgen ray.

#### DIAGNOSIS

It has been recently shown that more than 80 per cent of the solid benign tumors of the testis are teratomas. The cystic forms must be differentiated from hydrocele with thickened walls. With symptoms referable to the lungs and loss of weight and anemia, and possibly hemoptysis, the diagnosis of tuberculosis will be made quite commonly. The stereoscopic roentgen ray of the lungs will show, in the case of metastases from the testis, that the lungs are riddled with multiple, rounded, well defined shadows of varying diameters.

#### PROGNOSIS AND TREATMENT

Teratomas are usually well encapsulated, and early removal of all tumors of the testis will usually be complete and show no recurrence. With early regional metastases and their removal, especial care being taken in the case of carcinoma to look for metastases retroperitoneally, the prognosis as to recurrence is fair. With metastases in the case of chorio-epithelioma or sarcoma, when they occur in the lungs or liver, the prognosis is hopeless.

#### REPORT OF CASE

*Onset and Course.*—C. B., a livestock dealer, single, aged 23, of American birth, noticed, about three years before I

saw him, a small, hard nodule near the upper pole of the right testis. The nodule gradually grew larger till it attained the size of a hen's egg. It was painless, and never was reducible. About three months before, the mass suddenly began to grow much more rapidly and reached the size of a grapefruit. It was tender to the touch and there was some dragging pain. There had been a loss of weight of 5 pounds within the past month, and the patient had noticed shortness of breath and slight hemoptysis within the past week. An operation for inguinal hernia had been performed on the right side about four years previously. His habits were negative. His father died of abscess of the ears; a brother died of a malignant tumor of the rectum; the mother and a sister were living and well.

*Physical Examination.*—The patient was pale and undernourished. The mouth showed carious teeth and the tonsils were large and scarred. Respiration was rapid and shallow, but there were no large areas of dullness in the chest. There were many moist râles over both lungs. The heart was negative; the liver and spleen were not palpable, and there was no tenderness or swelling or fluid in the abdomen.

There was a solid mass in the right side of the scrotum the size of a grapefruit which was separable into two parts. The lower part, which was well within the scrotum, was hard and painless, and was much the larger; the upper portion was softer and was tender, and was a little larger than a hen's egg. It was connected to the lower portion by a thickened band, and lay in the lower portion of the inguinal canal. The inguinal glands on the right were palpable. The examination of the rectum, extremities and nervous system was negative.

Fluoroscopic examination revealed multiple bilateral, rounded shadow densities that were not indicative of pulmonary tuberculosis. The findings were typical of sarcoma of the lung.

The blood Wassermann test was negative.

*Operation and Result.*—The tumor was removed under general anesthesia, as it was well encapsulated within the tunica albuginea. The complete removal was easy, and the wound healed by primary union. The neoplasm had completely obliterated the testis and epididymis. The respirations became more rapid and labored in the course of the next

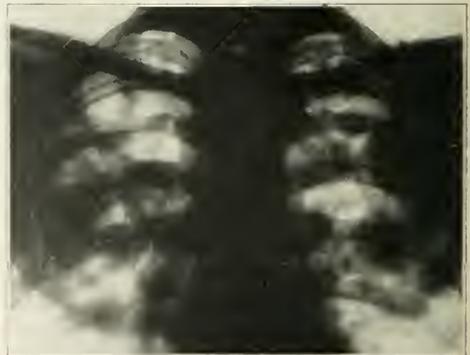


Fig. 3.—Chorio-epithelioma of testis—metastases in lung.

three weeks, and death occurred with symptoms of edema of the lungs.

*Postmortem Examination.*—Request for partial necropsy was granted. The lungs were in a state of marked edema, and about forty hemorrhagic, friable nodules varying in size from a hazelnut to an English walnut were found scattered throughout both lungs. One similar nodule was found on the anterior surface of the liver. The rest of the abdominal organs showed no changes. The retroperitoneal glands were not palpable.

Examination of the primary tumor revealed a firm, globular mass with an enlargement at its upper pole, the diameters of the entire tumor being 11 by 6 by 10 cm. The larger portion that lay in the scrotum was about the size of an orange, being smooth and well encapsulated by the tunica albuginea, which was somewhat thickened. The consistency was firm, and on section it cut with considerable resistance in some portions, which on close inspection proved to be due to the presence of cartilage. The tumor on cross section was grayish in some portions, and light yellowish in others. The central portion appeared softened and necrotic. Scattered over the surface were numerous small cysts about the size of a pea. Near the periphery of the section at the lower and external parts were two separate areas of cartilage each measuring 2 by 3 cm. in diameter. The upper portion of the neoplasm, which seemed to arise from the upper border of the main tumor, presented an entirely different appearance. This mass was much softer in consistency, the color on cross section showing areas that were light and dark red, resembling recent and old blood clots. It was quite friable and showed a network of grayish trabeculae. The metastases from the lung were soft nodules that were quite friable, and red. On cut section these nodules resembled quite closely the appearance of the upper portion of the original tumor. Microscopically, sections taken from various areas of the main tumor mass disclosed areas of cartilage intermixed with areas of connective tissue and cysts lined by flat and cylindrical cells. The cysts were numerous and many of them microscopic in size. The connective tissue was lymphoid in character. In one area there were large spindle-shaped cells, with little or no stroma, which was quite suggestive of the structure of a large spindle-cell sarcoma. In other areas the tissue was myxomatous, and in the central portions it was undergoing necrosis. There were numerous blood vessels throughout the section. Sections taken from the smaller, hemorrhagic mass revealed blood cells, some fairly well preserved, others in various stages of degeneration. There were many bands of fibrin of varying thickness interlacing the areas of blood cells. Toward the periphery there were bands of fibrous tissue, infiltrated with round cells, on which lay a tissue that was quite characteristic of the chorio-epithelioma as seen in the female. Surrounding the numerous wide blood spaces of this region were cells composed of nuclei that varied in shape and size, some of them clustered together simulating giant cells. These nuclei stained darkly and were surrounded by a vacuolated cytoplasm but no definite cell wall. They encroached on the walls of the blood spaces, and in some instances were found within blood spaces. Beneath this syncytial tissue were cells that had smaller nuclei, surrounded by a vacuolated cytoplasm and a definite cell wall, in papillary arrangement, which resembled the layer of Langhans. Sections taken from the metastases in the lungs betrayed a similar picture to the foregoing, except that the hemorrhagic areas were smaller and the syncytial areas proportionately larger.

SUMMARY AND CONCLUSIONS

1. More than 80 per cent. of the solid benign tumors of the testis in the light of recent investigation have been shown to be teratomas. The finding of two or more types of tissue in a tumor of the testis, whether benign or malignant, speaks for a teratoma.
2. In the malignant forms, distant as well as local metastases should be looked for, and to this end a roentgenogram of the lungs is essential.
3. The finding of a tumor mass in a teratoma, which on cut section resembles old or fresh blood clot, is pathognomonic of chorio-epithelioma.
4. One should be on one's guard in cases of tumor in the scrotum, with hemoptysis and loss of weight, against making a diagnosis of tuberculosis without taking into consideration the possibility of metastases from a chorio-epithelioma.

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DRAINAGE OF THE ABDOMINAL WALL  
IN ACUTE APPENDICITIS

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Every surgeon is familiar with the fact that a more or less extensive infection between the layers of the

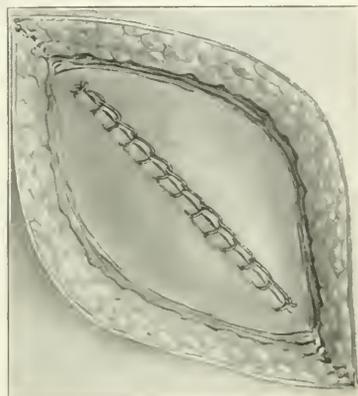


Fig. 1.—Peritoneal incision closed with chromic catgut.

abdominal wall frequently complicates an operation for the removal of the acutely inflamed appendix. One

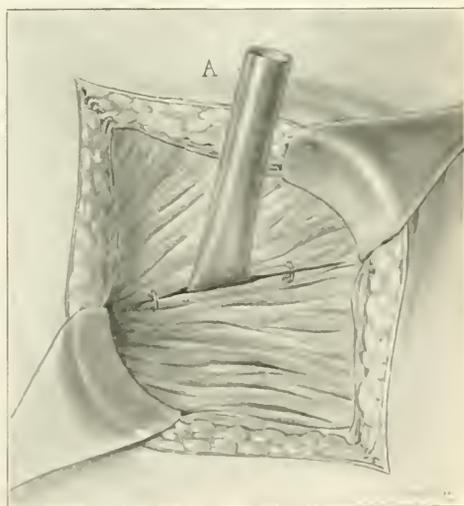


Fig. 2.—Soft rubber drain (A) inserted between edges of separated internal oblique fibers, to drain subserous layer.

would, of course, expect suppuration in cases of appendical abscess or of spreading peritonitis; but

1. I have employed the term "spreading" peritonitis because so far as the operator can determine there is no walling off of the pus. My object in the term "general" because one cannot be sure that the pus is in all parts of the peritoneal cavity.

that it may occur even when there is no visible sign of a spread of the infection beyond the walls of the appendix is not generally appreciated. Not infrequently one sees extensive infection of the abdominal



Fig. 3.—Incision as described in Figure 2. *B*, soft rubber drain inserted between external and internal oblique muscles, *C*, silkworm-gut drain placed in subcutaneous layer.

wall in cases in which a gangrenous or very acutely inflamed appendix had been removed without drainage of either the peritoneal cavity or of the abdominal wall. The former will take care of the infection, as a rule, in such cases; but the muscular, aponeurotic and fatty tissues of the abdominal wall possess a far lower degree of resistance, and within the first week, or at times a little later, one is often surprised to find evidences of more or less extensive infection of the tissues in the vicinity of the incision. This late suppuration is always a source of disappointment to the patient, and often greatly prolongs the period of convalescence. In order to anticipate such an infection, I have adopted drainage of each layer of the abdominal wall as a routine procedure in the following classes of cases: (a) acute gangrenous and acute catarrhal cases without visible perforation or pus formation; (b) acute cases with abscess formation, and (c) acute cases with a more or less generalized (spreading) peritonitis.

The Melroy muscle splitting incision is amply large enough to enable one to remove the appendix in the majority of cases. In exceptional instances, the anterior rectus sheath is incised transversely and the rectus muscle pulled inward as suggested by Weir, in order to have a larger exposure. The chief advantages of the muscle splitting incision are (a) that it is less likely to be followed by hernia than is the case with a right rectus or pararectal incision, and (b) that it enables one to drain every layer of the abdominal wall far better than any other incision.

In the first class of cases, namely, acute gangrenous and acute catarrhal cases without visible perforation, the peritoneum is closed without drainage (Fig. 1). A

piece of Penrose soft rubber wicking is then placed down to the peritoneum between the edges of the internal oblique (Fig. 2). Sutures are now inserted on each side of this drain to approximate the fibers of the internal oblique. A similar piece of soft rubber drain or Penrose wicking is inserted (parallel to the long axis of the incision) between the internal oblique muscle and the external oblique aponeurosis (Figs. 3 and 5). The cut edges of the latter structure are approximated up to the points of emergence of the drain. Finally, a drain (made by twisting some strands of silkworm) is also inserted parallel to the long axis of the wound in the subcutaneous fatty layer (Figs. 3, 4 and 5). The appearance of the skin incision is shown in Figure 4, with the three drains emerging, respectively, at the center and at the extremities of the incision.

In cases in which an abscess has been found, the peritoneum is not closed, but a cigaret drain is inserted to the bottom of the abscess cavity. If the abscess is in the true pelvis, I prefer to close the peritoneum of the original incision and only drain the abdominal wall as in Class A. Before closing the peritoneum, however, a suprapubic stab wound is made and a cigaret drain inserted into the true pelvis according to the method of Van Buren Knott. In this connection, emphasis cannot be too strongly laid on the value of the Fowler position in the drainage of foci of suppuration on each side of the colon so as to prevent the extension of infection to the subphrenic space.

In the fourth class of cases, that is, when there is a spreading, more or less diffuse peritoneal infection, the procedure is quite similar to that just described. The peritoneum at the site of the original incision is closed without drainage, but each layer of the abdominal wall

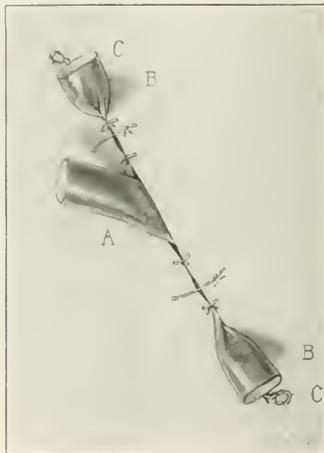


Fig. 4.—Skin incision closed, showing drains for various layers emerging, respectively, through center and ends of original incision (compare with Figs. 1, 2, 3 and 5).

is drained by the method outlined (Figs. 1 to 5 inclusive). Only the true pelvis is drained by a cigaret drain made by inserting some strips of pulled gauze into one of the larger sizes of soft rubber (Penrose wicking) drains. This cigaret drain is removed after

forty-eight hours, and an empty soft drain reinserted and gradually shortened.<sup>2</sup>

Drainage of the abdominal wall by my method of individual layer drains does not interfere with the healing of the wound, and it shortens the period of convalescence. The drains are not pulled out until the skin sutures are removed—about the eighth to the tenth

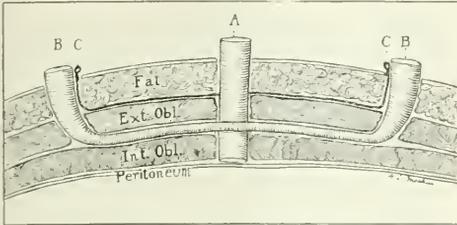


Fig. 5.—Sectional view with drains placed in various layers of abdominal wall. A, B and C as in preceding illustrations.

day. If infection has taken place through the unavoidable contact of the acutely inflamed appendix or some pus with the abdominal wall, there is no opportunity for burrowing to take place in the subserous, intermuscular or subcutaneous spaces. The pus finds a pathway toward the surface, and secondary drainage

TABLE 2.—RECORDS OF PUPILS TAKING PROPHYLACTIC TREATMENT

Date	Total Number	Thyroids Remaining Normal		Thyroids Enlarged from Normal to Slightly Enlarged		Slightly Enlarged			Moderately and Markedly Enlarged						
		No.	%	No.	%	Unaltered	Decreased		Unaltered	Decreased		No.	%		
							No.	%		No.	%			No.	%
November, 1917.....	764	283	37.0	0	0.0	287	37.6	111	18.4	2	0.3	34	4.4	17	2.2
November, 1918.....	1,121	469	41.8	0	0.0	354	31.6	218	19.4	0	0.0	29	2.6	51	4.5

TABLE 3.—RECORDS OF PUPILS NOT TAKING PROPHYLACTIC TREATMENT

Date	Total Number	Thyroids Remaining Normal		Thyroids Enlarged from Normal to Slightly Enlarged		Slightly Enlarged			Moderately and Markedly Enlarged						
		No.	%	No.	%	Unaltered	Decreased		Unaltered	Decreased		No.	%		
							No.	%		No.	%			No.	%
November, 1917.....	1,879	637	33.9	259	13.8	759	40.4	10	0.5	103	5.5	166	8.8	5	0.3
November, 1918.....	1,285	496	38.7	94	7.3	454	35.1	170	15.2	17	1.3	62	4.8	30	2.3

of the abdominal wall becomes unnecessary. I can warmly recommend the adoption of this method as a routine procedure.

30 North Michigan Avenue.

<sup>2</sup> The technic employed by the author in cases of spreading (generalized) peritonitis will be fully described in a paper to be published shortly.

**Infant Mortality.**—Indisputable statistics demonstrate an infant mortality rate of at least thirteen deaths under 1 year of age for every hundred living births, the world round, and the existence of appalling causative conditions of such a nature as urgently to call for . . . remedial work on the part of all thinking men and women in this country. The same conditions which cause the death of thirteen out of every hundred babies born throughout the civilized world leave more or less permanent stamps on perhaps two or three times as many more babies who somehow manage to crawl over the infant dead line, many of whom will be the fathers and mothers of the next generation. The problem of infant mortality is far more than one of decreasing the number of infant deaths. Its scope is world-wide, and on its partial solution at least depends the welfare of posterity.—E. B. Phelps.

## THE PREVENTION OF SIMPLE GOITER IN MAN\*

### THIRD PAPER

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AND  
DAVID MARINE, M.D.  
CLEVELAND

This report is based on the reexamination of the girls in the public schools of Akron, Ohio, in grades from the fifth to the twelfth, inclusive, made from Nov. 26 to Dec. 3, 1918—nineteen months after beginning the prophylactic use of iodine. The first report<sup>1</sup>—a survey

TABLE 1.—ANALYSIS OF THE RECORDS OF NEW PUPILS

Date Examined	Total Examin- ed	Total New Cases	Normal Pupils		Enlargements				Adenomas			
			No.	%	Slight	Moderate	Marked	No.		%		
April, 1917	3,872	3,872	1,688	43.5	1,031	49.9	246	6.3	7	0.2	39	1.0
Nov., 1917	4,415	1,772	831	47.0	820	46.2	121	6.3				
Nov., 1918	4,277	1,873	1,037	55.4	779	41.6	53	2.8	4	0.2	6	0.3

of the incidence of thyroid enlargements (goiter)—was based on the examination made in April, 1917. The second report<sup>2</sup> gave the results of the examination in November, 1917—seven months after beginning the prophylactic use of iodine.

The same classification of the condition of the thyroid has been used as in previous examinations, namely: normal, slight, moderate and marked enlargements, adenomas and persistent thyroglossal tracts.<sup>3</sup> The pupils were further examined for gross manifestations of exophthalmic goiter and myxedema. No obvious case of either of these diseases was detected.

### ANALYSIS OF THE RECORDS OF NEW PUPILS

The results of these examinations are given in Table 1.

For comparison and reference, the figures of the original survey in April, 1917, and of the second exam-

\* From the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University.

<sup>1</sup> Allied by a Grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

<sup>2</sup> Kimball, O. P., and Marine, David: Prevention of Goiter in Man, *Second Paper*, *Arch. Int. Med.* **22**: 41-44 (July) 1917.

<sup>3</sup> Persistence of the thyroglossal tract is the best evidence of enlargement of the thyroid during fetal life.

ination in November, 1917, are added. The subjects included in this table are all new admissions to the public schools and presumably had not previously received iodine. Owing, however, to the very extensive use of iodine in some form, both by the public and the profession, it is probable that some of these pupils had had iodine for one reason or another, but no attempt was made to detect such cases. Iodine administered in any form markedly affects the thyroid.

The figures in the first line represent the results of the original survey of all girls in grades from the fifth to the twelfth, inclusive. The figures in the second line represent: (1) incoming fifth grade girls; (2) girls entering other grades of the public schools between April and November, 1917, and (3) girls of two schools that accidentally lost the records of those not taking the prophylactic treatment. The figures in the third line represent only girls in the incoming fifth grade and girls entering other grades.

The progressive increase in the percentage of normal thyroids (43.6, 47 and 55.4 per cent.) for the three periods is due to the preponderance of fifth grade girls in the second and third groups. Fifth grade girls average 10 years of age and are for the most part below the age of the greatly increased incidence of thyroid enlargement.

#### EFFECT OF PROPHYLACTIC TREATMENT

The same method as outlined in the first paper and modified in the second paper was used, i. e., 2 gm. of sodium iodide were given in 0.2 gm. doses for ten consecutive school days, repeated each autumn and spring. The results are given in Tables 2 and 3. For reference and comparison, the figures for the November, 1917, examination are added.

The most striking fact brought out is that not a pupil in whom the thyroid was normal at the November, 1917, examination, and who took iodine, showed any thyroid enlargement; while of those not taking iodine, 15.9 per cent. showed definite enlargement. This effect is similar to that noted in last year's examination. As was noted last year, a distinct therapeutic effect is again observed in that the glands of 38.1 per cent. of the pupils with slightly enlarged glands decreased following the use of iodine, while of the glands of those listed as not taking iodine 27.8 per cent. showed a decrease in size. This difference is much less than that found last year and suggests that many pupils with slight goiter were taking iodine privately. The same therapeutic effect is also noted in those with moderate and marked enlargements, and again the percentage differences between those taking and those listed as not taking iodine is less than last year's figures.

The main effects of the administration of iodine observed during the second year are similar to those noted during the first year. The danger of iodism or of exophthalmic goiter from the use of such amounts of iodine as were given is shown to be negligible.

#### SUMMARY

1. Simple goiter in man may be prevented on a large scale.
2. The method used is practical and economical, and can be recommended as a public health measure in goiter districts.
3. Two gm. of sodium iodide given twice yearly, as we have indicated, seems adequate.

## TREATMENT OF EMPYEMA\*

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During the past two years many new methods of surgical procedure for the relief of the ever increasing number of cases of empyema following influenza and



Fig. 1.—Trocar and cannula for insertion of rubber tubing between ribs.

pneumonia have been brought before the medical profession, and each paper written has been read with keen interest looking toward the ideal operation to limit the duration and the morbidity of this disease.

The surgical staff of the Long Island College Hospital determined that the empyema problem should be carefully studied in as broad a manner as possible. All patients with empyema entering the hospital were assigned to the service in the Carrel-Dakin wards.

#### THREE METHODS OF TREATMENT

*The Rockefeller Base Hospital Method.*—Our procedure from October, 1917, to January, 1919, was the

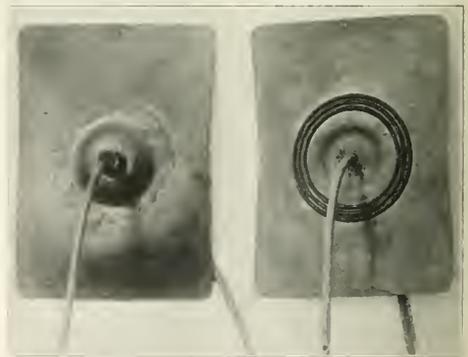


Fig. 2.—Both sides of rubber chest pad, 7 by 5 inches, for maintaining and sealing tube in position.

resection of from about 2 inches to 2½ inches of a rib and irrigation of the pleural cavity with surgical solution of chlorinated soda (Dakin's solution) through

\* From the Department of Surgery, Long Island College Hospital.  
\* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of the report of cases. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

wired tubes after the manner of the treatment used at the Rockefeller Base Hospital in New York. These irrigations were continued until smears taken every second day showed only one bacterium in five fields, after which the tubes were removed and the wounds closed. We had varying success with this method with

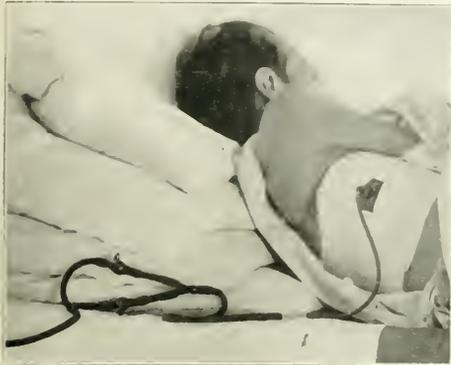


Fig. 3.—Tube and chest pad in place.

adults. Of sixteen patients, two died; the wounds in the other cases, with the exception of one, were completely closed at the time of the patients' discharge. The time required for closure varied from twenty-eight days to eighteen weeks. With small children, intercostal drainage and irrigation were resorted to. Of five cases between the age of 1 and 5 years, there were three deaths and two recoveries. In these three babies, a complicating pneumonia on the opposite side occurred. There is no doubt in my mind that continued contact of the body with the wet dressing, especially in the winter months, was a contributory factor in these secondary pneumonias.

**The Mazingo Method.**—A No. 1 Dakin tube was inserted into the seventh or eighth intercostal space by means of a trocar and cannula, a safety pin was passed through the edge of the tube, and small squares of gauze were placed on each side of the pin. The gauze was strapped to the skin with adhesive plaster. The pus was then aspirated with a urethral syringe followed by irrigation with Dakin's solution every two hours, after which a clamp was placed over the end of the tube. This method of aspiration and irrigation was shortly abandoned because of constant leakage of pus around the tube, four or five days after operation, due to the contraction of skin away from the tube. The three patients on whom we used this method were later resected and treated by open drainage and irrigation.

**The Phillips Method.**—In January, 1919, Lieutenant Phillips applied his negative pressure apparatus on a patient with empyema in one of our clinics. When observed four days later with the roentgen ray, the thorax still appeared to be half filled with pus, and although the negative pressure was constantly maintained and the cannula kept clean by means of the

attached curet the pus ceased to flow into the bottle. After another four day interval, a roentgenogram again was taken which disclosed the same condition as before.<sup>1</sup> It was at this time that the apparatus began to leak slightly from beneath the rubber cap; so it was removed, and the patient was treated by the method that I shall describe later. I did not use the Phillips method on any other patient as I had thus summed up its disadvantages: First, the pressure of the metal cannula between the ribs was extremely painful when the patient moved about so as to bring the outer portion of the apparatus in contact with the bed. Secondly, the cannula did not permit the passage of large masses of fibrin even after several days. Thirdly, there could be no assurance that the pleural cavity was free from infectious organisms at the time the apparatus was removed. The cost, which was high, would have been of secondary importance if the method had been ideal.

THE AUTHOR'S METHOD

After having observed the advantage of lung expansion as brought out by Phillips' negative pressure apparatus, I felt that a combination of both the Mazingo and the Phillips method would produce a technic which, while maintaining a negative pressure, would permit irrigation with Dakin's solution.

First, after a roentgenogram of the patient has been taken to determine the location of the pus in the thoracic cavity, the skin over the affected side of the thorax is prepared with 3.5 per cent. tincture of iodine. After two or three minutes, the iodine is washed off with 95 per cent. alcohol and the area for the insertion of the trocar is anesthetized with 0.5 per cent. solution of procaine. The area usually selected is the seventh or eighth interspace in the midaxillary line. The pres-



Fig. 4.—General view of one corner of ward showing boxes at heads of beds and special carriage with pump connected to the bottle.

ence of pus and the thickness of the thoracic wall is now determined by means of a 30 c.c. Luer syringe and aspirating needle, after which a small incision is made through the skin at this point to permit ready

1. The supposed area of pus which persisted in this case was found to be a large mass of fibrin which was shown by frequent roentgen ray examinations to be gradually dissolving under the influence of Dakin's solution used in connection with our own method.

passage of the trocar and cannula. The trocar and cannula are inserted slowly to the previously measured distance; then the trocar is withdrawn and the thumb of the left hand is placed quickly over the cannula to prevent the outflow of pus or rush of air. We are now ready for the passage of the rubber tube through

A small box hanging from the middle cross-bar at the head of the bed contains a 5-liter bottle fitted with a two-hole rubber stopper through which pass two snugly fitting glass tubes bent at right angles. The tubes pass into the bottle just as far as the shoulder, one being an inch shorter than the other. The short tube is connected with a 3-inch piece of thick walled rubber tubing containing a hard rubber stopcock, which in turn is connected with the tube from an electric vacuum pump. The longer glass tube is connected with about 3 feet of the same rubber tubing, which runs alongside the pillow and is joined through a hard rubber stopcock to a hard rubber Y tube, the stem of which connects with the tube leading from the patient's chest. The third arm of the Y tube connects with a third similar stopcock and a piece of rubber tubing running to a bottle of Dakin's solution on a board above the patient's head.



Fig. 5. Apparatus applied to patient in children's surgical ward, showing entire process.

the cannula into the pleural cavity. A stiff-walled rubber tube about 14 inches in length and conforming in outside diameter to a No. 18 French catheter is selected. Three small side openings are cut about three-sixteenths inch from the end. This is called the inner end of the tube, and it is the one which is placed inside the thorax. To insert the tube, the outer end is closed with an artery clamp, and the inner end placed in position so that, as the thumb over the cannula is removed, the tube may be passed quickly into the thorax. A distance of 5 inches is sufficient. The cannula is slowly removed, and when just free of the skin, a clamp is applied behind it, the outer clamp removed, and the cannula slid off. A 30 c.c. Luer syringe is then attached to the tube, and a small quantity of pus (about 10 c.c.) is aspirated to insure absence of kinks.

After the tube has been properly placed, it is necessary to maintain it in this position and also to prevent the passage of air into the thorax between the tube and tissue. To accomplish this, a specially designed rubber cap is fastened to the skin by means of Zamboni's glue. After the cement has been applied to the skin and inner surface of the rubber cap, the thorax tube is pushed through the cylinder of the support by means of a clamp and the whole pressed tightly on the body.

When the cap is stuck firmly, it is further supported in place by three 2-inch strips of adhesive plaster pressed tightly against it and passed around the chest. A bandage covering the adhesive plaster will prevent its edges and corners from rolling up. The patient is then ready for aspiration of the pus.

A gage, graduated in millimeters of mercury, is attached to the pump. If the pump is started at about 40 mm. negative pressure and the stopcocks are turned in the proper direction, the pus will begin to flow freely into the bottle. When the pus ceases flowing, the stopcock in the tube leading to the bottle containing the pus is closed, while the stopcock in the tube from the Dakin bottle is opened and about 50 c.c. of Dakin's solution are permitted to run into the pleural cavity. This stopcock is then closed, the one leading to the bottle is opened, and the Dakin's solution passes from the pleural cavity into the bottle. This aspiration and irrigation is continued until the returning fluid from the pleural cavity is clear. The procedure is repeated every two hours during the day, and every four hours during the night. After a few days,



Fig. 6 (Case 8).—Pleural cavity before, and four days following, insertion of tube.

when the flow of pus has nearly ceased, the Dakin's irrigations are given only at 8 a. m., 2 p. m. and 8 p. m. At each of these periods, 15 c.c. of glycerin, containing 2 per cent. formaldehyd (children, 10 c.c.), are injected and all stopcocks closed and kept closed until the time arrives for the next irrigation.

When patients are able to be up and about, the chest tube may be clamped and disconnected, and the clamp

2. The clamps on the tube must be properly alternated so that no air is permitted to pass into the thorax while the cap is being adjusted.

pinned to the dressing so that it will not drag on the tube.

Dressings should be reapplied at least once in two weeks or oftener if they show any signs of leaking. Care should be taken that the chest tube is not removed and that it is safely clamped.

Since January, fourteen cases have been treated by this method. Two children are still under treatment.

COMMENT

It would have been gratifying had I been able to carry out this method of treatment on a larger number of patients before reporting the results obtained, but the ease with which the operation is borne and the absence of all discomfort following the application of this method prompts me to report it at this time. Among other advantages of this method, I might add: There is no collapse of the lungs, and therefore no loss of function. This is of great importance, especially in an associated pneumonia of the opposite side. There is no deformity of the chest or spinal curvature as generally follows a radical rib resection. There are no wet dressings to be changed, as all pus and washings are out of sight in the bottle behind the head of the bed. Most of all, there can be no pocketing with the lungs drawn down, filling the chest cavity; if we have no pocketing, it is safe to assume that we shall have less, if not entire absence of, chronic empyema. Besides this, we obtain chemical sterilization of the pleural cavity under a constantly maintained negative pressure.

711 Beverly Road.

EFFECTS OF HOOKWORM DISEASE ON MENTAL DEVELOPMENT OF NORTH QUEENSLAND SCHOOLCHILDREN \*

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AND

I. L. NEILSON

School Nurse, Queensland State Department of Public Instruction

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During 1918, the state of Queensland, Australia, the Australian Institute of Tropical Medicine, and the International Health Board conducted jointly a hookworm survey in the northern portion of the state of Queensland, and through stool microscopy found 21 per cent. of the total population to be infected. The parasite was harbored by two fifths of the schoolchildren, a great many of whom showed physical dwarfing and sexual retardation.

In order to learn whether mental impairment might be due to hookworm disease, this investigation aimed to measure the mentality of a large number of children, and then to compare the results of the infected group with those of the noninfected group. The measures of intelligence employed were Goddard's 1911 Revision of the Binet-Simon scale,<sup>1</sup> and the Porteus mazes,<sup>2</sup> both of which were applied and scored according to

the standard methods prescribed, excepting only the use of Australian copper and silver currency, and the substitution of Goddard's alternative problem sentences for the 10, 11 and 12 year groups.

The selection of 340 children for mental testing was made by one of us (Waite) purely on the basis of

TABLE 1.—A COMPARISON OF THE PHYSICAL AND MENTAL DEVELOPMENT OF TWO CHILDREN, ONE HOOKWORM INFECTED AND ONE HOOKWORM FREE

	Hookworm Case (406)	Hookworm-Free Case (17)
Age, actual.....	10 years*	11.3 years
Height.....	47.5 inches	51.75 inches
Weight.....	48.0 pounds	59.5 pounds
Hemoglobin.....	70 per cent.	80 per cent.
Age, mental by Binet-Simon test.....	8 years	11 years

\* Age given by mother to school authorities as 11 years. Birth certificate establishes age as 10 years.

microscopic findings, limiting the selections to children from 6 to 14 years of age. For a negative diagnosis,<sup>3</sup> each stool required four separate examinations: two of the plain smear preparation, and two of the centrifuged



Fig. 1. — Two children (the one at the left hookworm-infected and the one at the right hookworm free), a comparison of whose physical and mental development is given in Table 1.



Fig. 2. Three children (the two at the left hookworm-free and the one at the right hookworm-infected), a comparison of whose physical and mental development is given in Table 2.

sediment. Therefore, the school population was automatically divided into three somewhat arbitrary groups: the "heavily infected," who showed hookworm ova in the plain smear examination; the "lightly

TABLE 2.—A COMPARISON OF THE PHYSICAL AND MENTAL DEVELOPMENT OF THREE CHILDREN, TWO HOOKWORM FREE AND ONE HOOKWORM INFECTED

	Hookworm Free Case (88)	Hookworm Free Case (117)	Hookworm Case (406)
Age, actual.....	12 years	13.6 years	13 years
Height.....	59.0 inches	59.5 inches	54.7 inches
Weight.....	95.0 pounds	10.0 pounds	66.5 pounds
Hemoglobin.....	50 per cent.	50 per cent.	70 per cent.
Age, mental by Binet-Simon test.....	11.2 years	no test	10 years

infected," who showed ova only in the centrifuged sediment, and the "hookworm free," who showed no ova in any examination. While exceptions might well be taken to this rough method of grouping, still it was

1. Howard, H. H.: *Standard Methods for Testing Intelligence*, International Health Board, p. 19.

\* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of tabular appendices. The complete article appears in the reprints.

\* The experiments described in this paper were conducted during a campaign carried on by the International Health Board of the Rockefeller Foundation and the government of Queensland.

1. Goddard, H. H.: *The Binet-Simon Measuring Scale for Intelligence*, Training School, January, 1910.

2. Porteus, S. D.: *J. Psycho-Asthenics*, June, 1915.

considered suitable for the purpose of the present study. The 340 names so selected were then assembled alphabetically by one of us (Waite) into one

TABLE 3.—SUCCESS TIMES, BINET TEST VIII, 2

Age Group, Years	Hookworm Free		Hookworm Cases		Average Retardation, Seconds
	Case Numbers	Average Group Time, Seconds	Case Numbers	Average Group Time, Seconds	
8 to 9	19, 47, 99, 22, 68, 81, 91, 96, 114	13.0	412, 419, 437, 470, 471, 476, 492, 493, 534, 535, 542, 562, 583, 586, 557	14.4	1.4
10 to 11	1, 16, 25, 31, 36, 43, 44, 45, 54, 58, 8, 91, 98, 103	10.6	471, 436, 438, 471, 442, 478, 449, 465, 660, 460, 466, 477, 478, 481, 496, 503, 507, 511, 512, 513, 521, 531, 547, 551	14.5	3.9
12 to 13	1, 15, 21, 22, 25, 30, 60, 61, 66, 78, 9, 101, 103, 104, 108, 10	10.7	416, 418, 432, 468, 457, 459, 474, 486, 490, 522, 526, 530, 532, 555	12.1	1.4
14 to 15	4, 20, 22, 37, 51, 58, 64, 71, 85, 89, 94, 105	10.6	461, 430, 441, 448, 438, 494, 489, 491, 498, 502, 504, 498, 510, 520, 538	17.0	1.4
16 to 18	10, 33, 56	8.6	408, 410, 415, 422, 430, 436, 453, 458, 465, 478, 491, 493, 519, 535, 533, 534, 549, 554	11.4	2.8
19 to 20	20, 73, 90, 106	9.6	476, 509, 516, 517, 528, 511	11.5	1.9
Total	66 tests	10.22	32 tests	12.56	2.0

TABLE 4.—PORTEUS SUCCESS TIMES

Years	Age Group	Maze VI		Maze VII		Maze VIII		Maze IX		Maze X		Maze XI		Maze XII		Maze XIII	
		No.	Time	No.	Time	No.	Time	No.	Time	No.	Time	No.	Time	No.	Time	No.	Time
8	Free	12	11.9	12	15.7	6	42.5	5	42.9	..	..	..	..	..	..	..	..
	Infected	8	17.6	7	19.5	2	43.7	1	56.0	..	..	..	..	..	..	..	..
9	Free	10	15.0	18	17.2	18	35.6	14	47.0	7	58.7	..	..	..	..	..	..
	Infected	9	13.7	10	27.1	5	36.1	3	48.6	1	63.0	..	..	..	..	..	..
10	Free	..	..	14	11.7	13	27.0	11	33.8	8	46.0	5	55.0	..	..	..	..
	Infected	..	..	20	15.3	15	27.0	14	37.0	11	51.0	5	53.0	..	..	..	..
11	Free	..	..	..	..	..	..	12	30.6	8	43.4	5	58.6	1	46.0	..	..
	Infected	..	..	..	..	22	27.5	18	35.0	10	43.5	3	67.0	..	..	..	..
12	Free	..	..	..	..	..	..	15	28.6	15	41.1	14	63.0	8	42.6	4	32.0
	Infected	..	..	..	..	..	..	15	30.8	8	46.8	5	94.5	2	66.3	..	..
13	Free	..	..	..	..	..	..	..	14	33.5	11	63.4	4	29.0	1	25.0	..
	Infected	..	..	..	..	..	..	..	..	15	33.7	6	70.3	3	29.3	1	26.0

composite list, which was placed in the hands of the test-worker (Miss Neilson), who applied and scored all tests without any knowledge of the results of stool examinations. In the Porteus mazes and the several Binet tests, time records were taken with a stop watch.

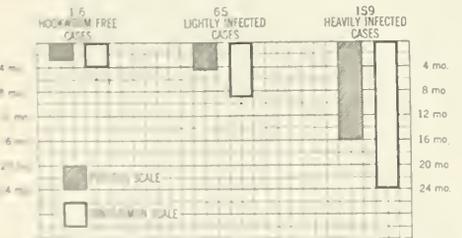


Fig. 3.—Binet test results for hookworm free, in lightly infected, and heavily infected cases, according to the Porteus and Binet test scales.

Before the final scoring was made, the chronological age of each child obtained from the school records was checked for accuracy wherever possible with the child's birth certificate. After scoring was completed, the names were separated into three groups, as shown in Appendixes A, B and C.

A comparison of the group data so obtained clearly demonstrates that hookworm disease slows down the mental processes, and that it impairs the mentality.

1. *Mental Sluggishness.*—In Tables 3 and 4, the total success times are registered for Binet test VIII, 2, and for the Porteus mazes. To count backward success-

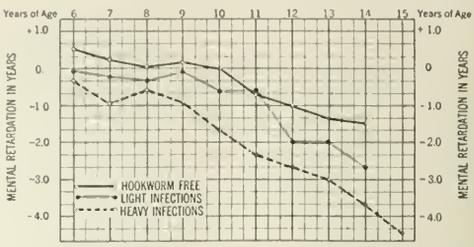


Fig. 4.—Mental retardation in years by age groups in hookworm-free, in lightly infected and in heavily infected cases, according to the Binet-Simon scale.

fully from 20 to 1 required two seconds longer, on the average, for the "heavily infected" group than for the hookworm-free group. Likewise in the successful solution of the Porteus mazes, the "heavily infected"

TABLE 5.—GROUP RESULTS

	Non-infected	Lightly Infected	Heavily Infected
Number of cases tested.....	110	65	159
Average case retardation by Binet... ..	3.9 mo.	9.3 mo.	23.4 mo.
Average case retardation by Porteus .....	2.8 mo.	4.9 mo.	16.6 mo.
Average hemoglobin by Tallquist.....	83.1%	76.4%	70.9%

group uniformly required more time than the hookworm-free children.

2. *Impaired Mentality.*—The summary of the non-infected, the "lightly infected," and the "heavily infected" group results given in Table 5 reflects the data shown in detail in Appendixes A, B and C.

The Australian hookworm-free children give Binet results comparable with American findings; 78 per cent. of Goddard's series<sup>4</sup> tested "at age" or within one year thereof, while 76 per cent. of our noninfected series fall within these limits. The significant fact demonstrated by the present study is that considerable mental disability can be directly ascribed to hookworm infection. By the Binet scale, all combined causes of mental impairment other than hookworm infection produce an average case retardation of 3.9 months, while light hookworm infection gives an average case retardation of 9.3 months, and heavy infection of 23.4

<sup>4</sup> Goddard, H. H.: Two Thousand Children Measured by the Binet Simon Scale of Intelligence, *Ped. Sem.* 18: 232-259 (June) 1911.

months. The Porteus mazes give similar results at a somewhat higher scoring level, which is probably due to the method of scoring.<sup>5</sup>

Further light on the impairment from hookworm disease is gained by the comparison of the yearly age groups in the three classes of children, as shown in Table 6.

Assuming that hookworm infection and reinfection is of long-standing duration, the results here shown indicate that the disease produces cumulative mental retardation to the extent of 6.6 months at 8 years of age, 19 months at 11 years, and 25.0 months at 14 years of age, over and above ordinary retardation found in noninfected cases. A similar observation has been reported by Strong<sup>6</sup> in his North Carolina study.

In this connection, Stiles has shown in hookworm-infected children a cumulative impairment of memory,<sup>7</sup> and a failure to advance at normal rates through the grades.<sup>8</sup>

COMPLEMENT FIXATION TEST FOR  
TUBERCULOSIS

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AND

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In this series, 466 cases were studied. The final diagnosis was: pulmonary tuberculosis, including suspects, 220; extrapulmonary tuberculosis, 13; nontuberculous, 233.

METHODS EMPLOYED

All patients were first given a general examination by the internist who referred them to us for intensive study of the lungs on account of pulmonary physical findings, the past history, or present suggestive symptoms.

TABLE 6.—BINET SIMON RESULTS BY AGE GROUPS

Age Group, Years	Hookworm Free		Light Infections		Heavy Infections	
	Case Numbers	Retard. Average in Years	Case Numbers	Retard. Average in Years	Case Numbers	Retard. Average in Years
To 6.5	88, 113, 67, 51	10.5	211, 258	-0.35	537, 475, 411, 447, 493, 538	-0.033
6.6 to 7.5	6, 9, 25, 27, 29, 30, 36, 46, 72, 85, 96, 110, 112	4.025	221, 230, 236, 247, 262, 294	-0.116	421, 452, 468, 470, 479, 481, 495, 496, 527, 535	-1.06
7.6 to 8.5	1.5, 18, 24, 43, 48, 49, 70, 71, 76, 77, 79, 80, 82, 86, 93, 95, 100, 111, 116	+0.005	202, 203, 223, 225, 227, 241, 243, 246, 252	-0.3	413, 433, 490, 472, 487, 488, 489, 513, 514, 523, 546	-0.345
8.6 to 9.5	2, 7, 19, 42, 47, 59, 63, 68, 69, 81, 91, 95, 102, 109, 114	+0.22	201, 206, 210, 229, 233, 249, 250, 253, 254, 265	-0.03	407, 409, 412, 419, 427, 439, 445, 471, 476, 482, 492, 499, 518, 524, 535, 539, 540, 542, 544, 565, 553, 556, 557	-0.843
9.6 to 10.5	8, 14, 16, 25, 31, 35, 40, 41, 44, 45, 54, 56, 87, 91, 98, 105	+0.006	205, 207, 212, 214, 215, 218, 219, 222, 226, 228, 231, 238, 242, 245, 251, 257, 260, 261	-0.538	406, 424, 426, 428, 434, 435, 440, 442, 448, 449, 450, 454, 460, 463, 467, 471, 478, 484, 486, 501, 506, 509, 511, 515, 516, 521, 531, 475, 530, 531	-1.66
10.6 to 11.5	11, 13, 15, 17, 21, 22, 50, 55, 77, 60, 61, 65, 66, 78, 94, 101, 103, 104, 108	-0.657	204, 213, 237, 263	-0.45	401, 402, 414, 416, 418, 423, 423, 428, 443, 457, 459, 461, 466, 474, 486, 490, 500, 522, 526, 530, 532, 548, 553	-2.247
11.6 to 12.5	4, 20, 21, 26, 37, 48, 59, 51, 58, 64, 71, 85, 86, 94, 101, 115	-1.05	217, 221, 225, 229, 248, 255, 256, 259	-2.1	405, 417, 431, 437, 439, 441, 446, 455, 464, 480, 494, 498, 502, 503, 504, 508, 510, 520, 512, 518, 559	-2.51
12.6 to 13.5	3, 10, 12, 33, 34, 52, 54, 75	-1.98	206, 208, 211, 216, 220, 240	-2.1	403, 404, 408, 410, 415, 422, 425, 430, 436, 441, 453, 458, 468, 473, 491, 495, 510, 525, 533, 531, 536, 549, 554	-3.17
13.6 to 14.5	28, 62, 73, 99, 106	-1.4	232, 234	-2.65	456, 483, 485, 509, 516, 517, 528, 541	-3.36
14.6 to 15.5	.....	.....	.....	.....	429, 441, 446, 529	-4.365

SUMMARY

1. Hookworm disease in North Queensland children produces measurable mental sluggishness.
2. Hookworm disease in North Queensland children retards their mental development in proportion to the massiveness of the infestation.
3. Prolonged hookworm infection appears to produce cumulative mental retardation.

5. Porteus, S. D.: The Measurement of Intelligence, J. Educ. Psych., January, 1918.

6. Strong, E. K., and Stiles, C. W.: Effects of Hookworm Disease on the Mental and Physical Development of Children, Pub. 3, International Health Board.

7. Stiles, C. W.: Pub. Health Rep., 30: 370-374 (Dec. 23) 1915.

8. Stiles, C. W.: Pub. Health Rep., 30: 50-506 (July 9) 1915.

**Treatment of Large Furuncles and Carbuncles.** Kurtzahn advises to loosen up back into sound tissue each of the four flaps of the crucial incision and pack loosely with medicated gauze. This insures much better drainage, while the hollow basin left heals over faster than the deep crater of the usual crucial incision. His communication on the subject, with illustrations, appeared in the *Deutscher medizinische Wochenschrift*, April 10, 1919, p. 409.

The clinical chest study by Pritchard consisted of a careful history, a physical and fluoroscopic examination with an interpretation of stereoscopic plates of the chest, and three sputum tests as well as a three days' pulse and temperature observation.

The serologic study by Roderick consisted of a Wassermann study with both cholesterin and acetone antigens, and a complement fixation test with two anti-gens for tuberculosis.

The work was finished separately and charted. The physical findings were recorded before the roentgenographic interpretations were made. In no case did the laboratory have any information regarding the patient. We estimated the complement fixation in terms of +, ++, +++ and ++++, but considered all cases below +++ as negative; therefore, in our report, all positives represent +++ or ++++.

FINDINGS

The majority of patients examined consulted the internist on account of other affections, and, with few exceptions, pulmonary tuberculosis was not suspected.

Most of the patients complained of digestive disturbances or disorders of the nervous systems. This accounts for the large percentage of nontuberculous cases found in the series.

*Complement Fixation with Tubercle Bacilli Antigen.*—Of 220 tuberculous patients (pulmonary), 123, or 55.9 per cent., gave a reaction. Of thirteen tuberculous patients (extrapulmonary), seven, or 53.9 per cent., gave a reaction. Of 233 cases not recognized as tuberculous, thirty-eight, or 16.3 per cent., gave a reaction. It appears from these figures that the pulmonary and extrapulmonary cases gave about the same percentage. The nontuberculous patients were not robust; all complained of ill health, so that the 16.3 per cent. positive reactions were not found in healthy individuals.

*Stage of Disease (Pulmonary), 220 Cases.*—The classification of the National Tuberculosis Association was used in all the cases studied. Sixty incipient cases gave a reaction in twenty-six, or 43.3 per cent. Sixty-five moderately advanced cases gave a reaction in forty-four, or 67.6 per cent. Thirty-six advanced cases gave a reaction in twenty-seven, or 75 per cent. Fifty-four suspected cases gave a reaction in twenty-six, or 44 per cent. In the fifty-nine suspected cases we did not find enough evidence to justify a positive diagnosis, but we believe that a pulmonary tuberculous lesion was present in each case. We found it difficult to distinguish many of these from incipient cases. The classification of such cases always differs considerably, depending not only on the knowledge and skill of the examiners, but also on their standards. We strove to be conservative.

*Relation of Reaction to Activity (220 Cases).*—One hundred and sixteen cases, or 52.8 per cent., were diagnosed as active. Forty-five cases, or 20.4 per cent., were regarded as inactive. Fifty-nine cases, or 26.9 per cent., were considered suspicious.

*Relation of Reaction to Activity in Different Stages of Disease.*—Forty-two active incipient cases reacted in twenty-one instances, or 50 per cent. Forty-five active, moderately advanced cases reacted in thirty-four instances, or 75 per cent. Twenty-nine active, advanced cases reacted in twenty-four instances, or 83 per cent. We recognize the chance of error in attempting to distinguish between activity and inactivity. Our object was to find out whether we could demonstrate that specific toxins were being absorbed from the pulmonary lesion. In many instances it was found difficult to do this. Such cases we called suspicious. Certain cases in which there were nervous irritability, digestive disturbances, with malnutrition, physical signs, and crossing temperature curves, were classed as active, even if the temperature and pulse were normal. We were doubtful in such cases that sufficient absorption was taking place to account for the patient's indisposition.

*Reaction in Relation to a Previous History of Hemoptysis (Extrapulmonary Cases).*—Among 220 patients, thirty-two gave a history of hemoptysis, and representative of 27 per cent. of the reacted. We considered members of hemoptysis in all cases in which we were sure that the blood reported came from the lower respiratory tract. A few cases of streaked sputum were included.

*Reaction in Relation to a Previous History of Pleurisy (Extrapulmonary Cases).*—Of 220 patients, seventy-two gave a history of pleurisy and forty-two, or 58.3 per cent., of these reacted.

*Reaction in Relation to Previous History of Rectal Abscess.*—There were eight patients with a history of fistula in ano dating from the time of the examination to a period as far back as fourteen years previous; five of these gave a reaction.

*Reaction in Relation to History of Exposure.*—Of 220 patients, sixty gave a history of exposure, and thirty-five, or 58 per cent., reacted. In this test we considered only such patients as gave a history of a father, mother, sister, brother, wife or husband who had had tuberculosis and with whom the patient had lived for some time.

*Comparison of the Complement Reaction with Tuberculin Tests.*—1. The intracutaneous test consisted of 0.05 mg. in 0.05 c.c. dilution. Of forty tests, twenty-two were positive to tuberculin, while five gave positive complement fixation reactions. Of the eighteen that were negative to tuberculin, two gave a positive complement fixation reaction.

2. Calmette, 0.5 per cent. O. T., Vaughan's<sup>1</sup> method: Of twenty-three routine tests, twelve were positive to tuberculin, and three gave a positive complement fixation. Of the eleven that were negative to tuberculin, two were positive to a complement fixation.

TABLE 1.—EXTRAPULMONARY CASES

	Positive	Negative	Total
Cervical adenitis (operation) . . . . .	1	..	2
Tuberculosis appendix . . . . .	1	..	1
Pot's disease . . . . .	1	..	1
Tuberculosis of the hip joint . . . . .	1	..	2
Tuberculosis enteritis . . . . .	1	..	3
Tuberculosis bronchial glands . . . . .	1	2	3
Renal tuberculosis . . . . .	1	1	2
Chorioretinitis . . . . .	1	..	1

*Extrapulmonary Cases.*—Of thirteen cases, seven, or 53.9 per cent., were positive. In this series we failed to find any frank pulmonary tuberculosis.

TABLE 2.—NONTUBERCULOUS CASES

	Positive	Negative	Total
Abscess pulmonary . . . . .	..	2	2
Appendicitis, chronic . . . . .	3	2	5
Arthritis . . . . .	..	2	2
Asthma . . . . .	3	10	13
Bronchiectasis . . . . .	..	3	3
Bronchitis, acute . . . . .	6	6	12
Bronchitis, chronic . . . . .	5	19	24
Cardiac disease . . . . .	11	15	26
Cervical adenitis . . . . .	..	1	1
Cholecystitis . . . . .	1	4	5
Diabetes . . . . .	..	3	3
Edema, angioneurotic . . . . .	..	1	1
Emphysema . . . . .	..	1	1
Focal infections . . . . .	..	8	8
Ely fever . . . . .	1	1	2
Hypertension, essential . . . . .	..	5	5
Hypothyroid . . . . .	1	8	9
Hysteria . . . . .	..	1	1
Influenza, convalescence . . . . .	1	3	4
Scabies . . . . .	..	6	6
Malaria, chronic . . . . .	3	0	3
Malignancy, pulmonary . . . . .	1	2	3
Malignancy, gastric . . . . .	1	0	1
Nephritis, chronic . . . . .	1	0	1
Orchitis, nontuberculous . . . . .	..	1	1
Pneumonia, unresolved . . . . .	..	3	3
Renal calculi . . . . .	..	2	2
Rheumatic disease . . . . .	..	1	1
Ulcer, duodenal . . . . .	..	5	5
Venous angina . . . . .	..	1	1
Valvular disease . . . . .	11	84	95
Total . . . . .	39	194	233

*Nontuberculous Cases.*—Of 233 cases, thirty-eight, or 16.3 per cent., gave a reaction. In the fifteen cases of asthma, five reacted. It is possible that a tubercu-

1. Vaughan V. C., Jr.: Importance of the Tuberculin Reaction in the Diagnosis of Early Pulmonary Tuberculosis, J. A. M. A. 61:1591 Nov. 10, 1913.

lous process was veiled by the signs of chronic bronchitis, but we could not demonstrate its existence. Out of the twenty-four cases of chronic bronchitis, five reacted, and as in the cases of asthma, a tuberculous process might have existed without being detected. In the cardiac cases, distant roentgenograms and electrocardiographic tracings were made. The cases of cholecystitis were proved by operation. All three cases of malaria gave a strong positive reaction, and in each case the plasmodia were isolated. Tuberculosis may also have existed without our detecting it. In the four cases of malignancy, two were positive to the complement fixation test. We can offer no explanation of this, although all cases were proved to be malignant by operation and by study of removed tissue. In ninety-five cases we could detect no evidence of organic disease of any kind, and eleven of these reacted. Small tuberculous foci may have been present and not observed regardless of our investigation.

**Wassermann Reaction.**—A routine Wassermann test was made on all patients. In 233 tuberculous cases, four, or 1.7 per cent., were positive. In 233 nontuberculous cases, seven, or 3 per cent., reacted. In 446 cases studied, eleven, or 2.5 per cent., were positive.

LABORATORY TECHNIC

The serums in this series of cases were examined by the following technic:

With few exceptions, the blood was collected before breakfast, which is an important factor in securing satisfactory serum. The collecting of a specimen after a meal will often give "fatty serum." This, in turn, may bring about unreliable results, especially when a bacterial emulsion antigen is used.

Fresh serum was used in nearly all the tests on which our findings were based. In a few instances, the specimens were placed in the ice box over night. A certain number of samples were preserved for a period of from one to seven days, and the test was repeated every twenty-four hours. This was done in the hope of causing more accurate and clean-cut reactions. We found, however, some serums negative on the first day which later became positive; but most of them were anticomplementary after the third day, and consequently gave unreliable results.

**Antigen.**—The antigen used in this series was the bacterial emulsion of Miller, some of it obtained from a manufacturer of biologic products and some made in our own laboratory. The two antigens gave practically the same results.

Since the conclusion of this series, we have been using, in addition to our own, three antigens furnished us by Petroff. It is our intention to report on these in the near future. These antigens are all extracts rather than emulsions of the tubercle bacilli. The extract antigens show a higher titer and less tendency to be anticomplementary.

**Complement.**—Anesthetized guinea-pigs were bled from the heart. The same pigs could be used again in the course of three weeks for complement purposes. The serums of three guinea-pigs were pooled and used in all cases within the first sixteen hours.

An interesting observation was recently made when all tubes in the Complement Titration 2 showed inhibition. The various reagents were investigated and the complement found to be at fault, although there was complete hemolysis in Titration 1, in which no antigen was used. Another group of pigs was bled and the

serums were used for a complement fixation on the first three pigs, none of which gave a strong positive reaction. This experience led us to make a routine complement fixation test on our pigs, classifying them, according to their reactions, into positive and negative groups. At present we are attempting to ascertain whether a guinea-pig giving a positive reaction, when used for complement, will have any effect on the reaction of a patient's serum.

**Amboceptor.**—Rabbit antiserum amboceptor, made and titrated in the usual way, was used throughout.

**Sheep Cells.**—The sheep's blood was obtained from the jugular vein and collected into 1 per cent. sodium citrate solution made up in physiologic sodium chlorid

TABLE 3.—PRELIMINARY AMBOCEPTOR TITRATION

Complement	0.05	0.1	0.15	0.2	0.25	0.3
Amboceptor	0.2	0.2	0.2	0.2	0.2	0.2
Complement	0.05	0.1	0.15	0.2	0.25	0.3
Amboceptor	0.15	0.15	0.15	0.15	0.15	0.15
Complement	0.05	0.1	0.15	0.2	0.25	0.3
Amboceptor	0.1	0.1	0.1	0.1	0.1	0.1

solution. The cells were then washed in salt solution from five to seven times at 3,000 revolutions per minute, or until the supernatant solution was free from albumin by the heat and acetic acid test. A 2.5 per cent. suspension of washed sheep cells was made and used.

**Salt Solution.**—We use a 0.85 per cent. salt solution and agree with Petroff that the reaction of this reagent is of vital importance and should be that of the blood.

**Glassware.**—All glassware used must be dry, and free from chemicals. Although it need not necessarily be sterile, it is preferable to have it so.

**Technic.**—On each day of the test the reagents are titrated for their respective values. A convenient and satisfactory manner of determining the strength of the amboceptor and the complement at the same time is to use guinea-pig serum in a 10 per cent. solution and dilute the amboceptor so that one unit is contained in 0.1 c.c. (Table 3).

TABLE 4.—TITRATION OF COMPLEMENT

Complement	0.05	0.1	0.15	0.2	0.25	0.3
Salt solution	0.1	0.1	0.1	0.1	0.1	0.1
Complement	0.05	0.1	0.15	0.2	0.25	0.3
Antigen	0.1	0.1	0.1	0.1	0.1	0.1
Complement	0.05	0.1	0.15	0.2	0.25	0.3
Antigen 1	0.1	0.1	0.1	0.1	0.1	0.1

Sheep cells, 0.5 c.c. of a 2.5 per cent. suspension, were added to each tube and incubated in the water bath at 37° C. The smallest amount which produced complete hemolysis was read and noted.

Bacterial antigens, such as we have used in this series, have a marked tendency to retard hemolysis. In view of this fact, we have found it well to titrate our complement as in Table 4, which leads to a more accurate determination of the unit. The antigens were diluted so that 0.1 c.c. equaled one unit.

The tubes were placed in the water bath for one-half hour at 37° C., at the end of which time one unit of amboceptor and one unit of sheep cells are added. The rack is again incubated in the water bath for one-half hour and a reading made at the lowest point at which hemolysis is complete. This amount of complement is then taken for the unit and used in the test.

Six tubes containing, respectively, from one to six units of amboceptor, minus complement, were used as a control for that reagent, and the complement control arranged in the same way, omitting the amboceptor. All serums were inactivated at 56 C. for one-half hour; 0.15 cc. of serum was used throughout.

Paul Lewis<sup>3</sup> has called attention to the length of incubation and Petroff<sup>4</sup> to the temperature. We have employed a two-hour incubation at from 36 to 37 C., after which the cells were added and the rack placed in the bath for twenty minutes to estimate the amount of active amboceptor present. Later the proper amount is added and incubated for thirty minutes. A preliminary reading is made and the racks placed in the ice chest over night, and a final reading is made in the morning. We have found no noticeable difference between the evening and the morning readings.

#### OBSERVATIONS

1. In this series the complement fixation reaction was used as an aid in diagnosis, and not as a control in treatment. In attempting this study, we did not seek a test for tuberculosis which could be considered definite, we were only hoping to find a new link in the chain of evidence leading to a diagnosis of clinical tuberculosis.

2. This reaction does not give as valuable or consistent information in relation to tuberculosis as does the Wassermann reaction in regard to syphilis.

3. Sufficient information may be gained by the application of this test to warrant its routine application.

4. If our observations have been reasonably accurate, and 69 per cent. of active moderately advanced cases give a reaction compared with 16 per cent. reacting in cases not proved tuberculous, we feel that the test is of value and should be included in the routine examination, but should not be relied on without additional and confirmatory evidence. Rales in the chest alone cannot be considered as a sign of clinical tuberculosis, nor can we rely on any one sign except tubercle bacilli in the sputum, and even this observation should be checked by more than one sputum examination. Therefore, any test which adds to our information, although not conclusive in itself, should be used as a link in the chain of evidence.

5. A false reaction calls for a careful study of the case to ascertain the presence or absence of an active tuberculous lesion.

6. We found no tendency to cross fixation with the *M. tuberculosis* reaction.

7. We fully realize the great prevalence of nontuberculous pulmonary pathology conditions, and we have as a result tried to ascertain the cause of the patient's obstruction rather than to try to prove the existence of a case of tuberculosis.

8. There are many advanced cases of pulmonary tuberculosis in which no reaction occurred. An explanation of this point is that the cells have lost their power of reaction owing to their prolonged saturation with specific toxins.

9. A Wassermann test should be made in all cases of suspected intestinal obstruction, as the two diseases may be present at the same time.

10. The test is of great help to us in differential diagnosis. It also acts as a stimulus to more careful clinical observation.

11. We should like to call attention to Caulfield's<sup>5</sup> able work on this reaction in 1911.

12. Brown and Petroff<sup>6</sup> have pointed out a very practical application of the test in which they were able to regulate the exercise of the tuberculous patient.

### INTRA-UTERINE INTESTINAL OBSTRUCTION FROM INSPISSATED AND IMPACTED MECONIUM

JESSE G. M. BULLOWA, M.D.

AND

ROBERT EMERY BRENNAN, M.D.

NEW YORK

#### REPORT OF CASE

Baby W. was born in the Nursery and Child's Hospital after normal labor. She was normal except for her abdomen which, instead of being scapoid, was slightly distended. At the time no significance was attached to this. Twenty-four hours later it was reported that the baby had not passed meconium. Her temperature was 97 F.

Examination revealed a slightly rounded abdomen, discolored in the upper portion. No masses could be felt, though there was an indefinite resistance in the right upper quadrant. The rectum was empty. Through a small Kelly cystoscope in the rectum, a small dimple was seen about 1 inch above the anus. A small amount of sebaceous material exuded from time to time through this opening. There was considerable straining against the cystoscope.

The following morning the temperature had risen to 102 F. The abdomen was tense and much more swollen, and the baby's knees were drawn up. That afternoon under chloroform anesthesia, Dr. Brennan made a median incision. Considerable free fluid was evacuated. The coils of the intestine were injected, covered with fibrin, and much distended. Meconium was visible through the thin walls. A thin, tape-like band passed from the right lower quadrant across the abdomen and ended in the blind anal pouch. This proved to be the totally collapsed large intestine which was 1 cm. broad, and had a perfect lumen. The contents were whitish, sebaceous material similar to that which had exuded into the proctoscope. The distention of the small intestine terminated in a funnel which ended in relatively normal sized intestine about 1½ inches from the ileocecal junction. The appendix was apparently normal. An ileostomy was hurriedly performed, and five hours later the child died.

Subsequently, it was found that the intestinal blockage was due to impaction of the white inspissated and stratified contents. Apparently there was no gross abnormality of the intestine. Permission to remove a portion of the intestine was not obtained.

#### COMMENT

We have found no report of the occurrence of a similar case. The situation of the obstruction 1½ inches from the appendix suggested the influence of a Meckel's diverticulum. Of this there was no macroscopic evidence. No muscular abnormality was visible. The cause of a local inspissation of the intestinal contents is unknown. The tentative preoperative diagnoses were: intestinal obstruction: (1) from volvulus; (2) maldevelopment of the intestine, especially lack of fusion of the sigmoid and rectum.

The presence of rhythmic movements which caused a dimple to appear in the proctoscope, and the evacuation of even small amounts of sebaceous material served to indicate that there was a muscular continuity

<sup>3</sup> Lewis, *Am. Rev. Tuberc.*, 3:11 (Nov.) 1914.

<sup>4</sup> Petroff, *Am. Rev. Tuberc.*, 1:1 (March) 1917, was personal communication to the author.

<sup>5</sup> Caulfield, *J. M. Res.*, 2:122, 1911.

<sup>6</sup> Brown, T., and Petroff, S. A.: Clinical Value of Complement Fixation in Pulmonary Tuberculosis. *Proceed. in the Study of 546 Cases*, *Am. Rev. Tuberc.*, 2: 525 (Nov.) 1914.

of the intestine. This should prove of great value in the future.

This case is interesting, also, as giving the absolute size of the colon in the new-born, as well as the origin of at least part of the meconium.

62 West Eighty-Seventh Street—4 West Sixty-Fourth Street.

### Clinical Notes, Suggestions, and New Instruments

#### ARSPHENAMIN VERSUS NEO ARSPHENAMIN

JAY FRANK SCHAMBERG, M.D., PHILADELPHIA

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Medicine of the University of Pennsylvania

There is on foot a world-wide campaign for the control and suppression of syphilis. The medical profession is in accord in its belief that the best remedies for this disease are the new organic arsenicals and mercury. No one has yet evolved a crystallized formula for the treatment of syphilis which has been generally accepted. There are many standards of treatment, but no standard. Different authorities have their individual preferences as to the strength of the dose of the arsenicals, the frequency of administration, the duration of the course, and the choice of the compound to be employed. In other words, the medical profession is groping to find a therapeutic procedure which will combine safety and maximum efficiency. The trend of the best opinion is to make the treatment, particularly in the early stages, as intensive as is consistent with safety. The curability of syphilis is, in general terms, directly proportionate to the age of the disease. Patients treated intensively in the early stages have the best chance of recovery.

A problem of importance which requires early solution is that of the comparative merits and demerits of arspenamin and neo-arsphenamin. Heretofore, the best qualified physicians in the country have dominantly employed arspenamin. But quite recently new light has been shed on the properties of these two compounds which prompts a reexamination of the subject.

During the war, nearly all of the treatment of syphilis carried out along the fighting front by French, English, American and German physicians was with concentrated injections of neo-arsphenamin. Dr. Hugh Young of Johns Hopkins University and Dr. Edward L. Keyes of New York have had an enthusiastically favorable impression of this method of treatment. Let us examine briefly the relative advantages and disadvantages of the two compounds in the light of our present knowledge.

The preparation of arspenamin solutions is more complicated than that of solutions of neo-arsphenamin, requiring as they do neutralization with sodium hydroxide. The drug must be given in a gravity buret with at least 120 cc. of water for each 0.6 gm. (To be sure, many thousands of injections of arspenamin have been given in a piston syringe in 30 cc. of water. Most of these have been matted with accident, but a number of untoward results and some deaths have followed this practice which is now discontinued.)

Neo-arsphenamin may be prepared much more rapidly and may be injected in 5, 10 or 20 cc. of water in a piston syringe. A very small needle, which is easier to insert into small veins, may be employed, thus causing the patient less pain. These are advantages which save time and increase the simplicity of the technique. There are, however, more important questions which relate to the comparative curative properties and to the toxicity of the two compounds.

I think that most syphilographers believe that arspenamin is more curative than neo-arsphenamin, and in this they

are correct. The circular accompanying the original German neo-salvarsan marketed in this country stated, "The activity of neo-salvarsan is at least as great as that of salvarsan." This I believe is erroneous.

According to the arsenic content of the two compounds (about 20 and 30 per cent., respectively) 0.9 grain of neo-arsphenamin should be equivalent to 0.6 grain of arspenamin, but as a matter of fact it is not. In a paper recently read before the Philadelphia Pathological Society, Schamberg, Kolmer and Raiziss showed that instead of requiring 33 1/3 per cent. more neo-arsphenamin than arspenamin to sterilize rats experimentally infected with *Trypanosoma equiperdum* (horse syphilis or "la dourine"), it required approximately twice as much of the former. This trypanosome reacts chemotherapeutically much in the same manner as *Spirochaeta pallida*.

It might be admitted that twice as much neo-arsphenamin as arspenamin must be given to achieve the same results. In terms of arsenical content, one third more arsenic would be introduced into the body. This would appear to be most undesirable were it not for other factors.

Schamberg, Kolmer, Raiziss and Weiss, in a communication read before the American Dermatological Association in Atlantic City in June, 1919, demonstrated that arspenamin, in practically all concentrations in which it is used, hemolyzes red blood cells in vitro. Neo-arsphenamin on the other hand, does not hemolyze the cells in any of the concentrations ordinarily employed. Furthermore, the hydrogen-ion concentration of neo-arsphenamin is practically that of the blood, whereas both alkaline and acid solutions of arspenamin are very different in hydrogen-ion concentration. There is, therefore, less biochemical disturbance of the blood and tissues after the administration of neo-arsphenamin.

Studies of the comparative toxicity of arspenamin and neo-arsphenamin are most interesting. In general terms, neo-arsphenamin is over two and one-half times less toxic for white rats, by intravenous injection, than the arspenamin from which it is made. A lot of arspenamin which is tolerated by rats in the dose of 100 mg. per kilogram of body weight, when converted into the "neo" compound, will be tolerated in from 250 to 300 mg.

The addition of the "formaldehyd sulphosylate group" apparently lessens the affinity of the compound for the protoplasm of the parasite, but seems to lessen the affinity for the body proteins still more. The lessened affinity is due to the closing of one of the "amino" groups.

We should expect from the foregoing observations that neo-arsphenamin would be subjectively better tolerated than arspenamin, and this, as a matter of fact, is the general experience. It must be realized that neo-arsphenamin is much more unstable and therefore undergoes change in the powder form much more readily than arspenamin.

It should never be administered if the solution is not brilliantly clear, for a cloudy solution will produce immediate reactions with syncope (in rare cases fatal) as the dominant symptom. If filtering doses not completely clarify the solution, it should be discarded.

Despite such reactions, the cloudy solution does not show increased toxicity in animals. The action appears to be mechanical.

#### SUMMARY

Neo-arsphenamin is less active therapeutically than arspenamin, but the difference in this respect appears to be largely made up by the discrepancy in the tolerated dose. We have found it possible to give neo-arsphenamin in full doses at frequent intervals without reaction. We commonly administer in appropriate cases 0.9 gm. three times a week in early cases of syphilis. Neo-arsphenamin appears to create less commotion in the blood and tissues than arspenamin.

Which compound will ultimately be accorded preference cannot be forecast. I do not know of any rigid and extended comparative test of the two compounds in a large series of patients with careful data on the serologic end results. Such an investigation is now being carried out.

1922 Spruce Street

**Therapeutics**

A DEPARTMENT DEALING IN THE IMPROVEMENT OF DRUGS  
A LABORATORY FOR THE DIAGNOSIS OF THE USE OF DRUGS  
AND CHEMISTS FOR THE TREATMENT OF DISEASES

**USE AND ABUSE OF CATHARTICS\***

*Continued from page 1877*

**CASCARA SAGRADA**

The former official name of this drug, *rhamnus purshiana*, so called after F. F. Pursh, who described the plant in 1814, has been changed by our present pharmacopœia in favor of the older, shorter, and more authoritative name *cascara sagrada* (sacred bark), given to it by the early Spanish settlers of California, who found this bark used by the native Indians as a cathartic.

Though it was not until 1878 that the drug was introduced, it gained in favor so rapidly that it is now official in all the pharmacopœias excepting the Finnish and the Portuguese, and it is one of the most generally used drugs. Granting that, like all other cathartics, it is employed much oftener than it should be, and admitting that there is such a thing as fashion in the use of drugs, yet we must recognize that a substance with such a history must have some merit.

Experience shows that it is a mild yet reliable cathartic, quite free from tendency to griping and almost devoid of contraindications, a remedy which does not readily lose its effect on prolonged use. As it acts by stimulating peristalsis, it is especially indicated in atonic constipation, such as that of the bed patient. It is mild enough to be used in pregnancy. It would, of course, be contraindicated in spasmodic constipation. Occasionally one finds a patient in whom it fails to act. For such, *sema* forms a good succedaneum.

*Cascara sagrada* is rather slowly acting, requiring from six to ten hours for effect. Hence, when a single dose is to be given, it is best administered at bedtime. More commonly, and perhaps more efficiently, it is given for the purpose of increasing the irritability of the intestinal musculature by being administered in divided doses, either before or after meals, and at bedtime.

*Cascara sagrada* lacks its intensely bitter taste. This is so marked that *cascara* should not be prescribed in the bitter form without asking the patient whether he is willing to take either mealtime. However, the bitter taste can be practically abolished by treating the bark with a dilute solution of magnesia, during its extraction. This is done in the preparation of the aromatic fluidextract of *cascara sagrada*, U. S. P., which, sweetened with glycerol, sucrose and saccharin, and flavored with a mixture of anise, nutmeg, coriander and cardamom, constitutes a veritable masterpiece of pharmaceutical engineering. It is pleasant enough for children to take without protest. However, the bitterness is removed at the expense of some activity, so that the relative efficiency of the aromatic fluidextract to the fluidextract is 2 to 4 to 3 or 4. This can, of course, be remedied by suitably large dosage. For the child, it is almost the administration of the bitter fluid

extract is little less than inhuman, the following dosage of the aromatic fluidextract may be required:

	C.c.
Child, 6 months old	1
Child, 18 months old	From 2 to 3
Child, 3 years old	4
Child, 5 years old	From 4 to 8
Inf. adults	From 4 to 15

The expense is probably the only objection of using this preparation in the adult, for the plain or bitter fluidextract of *cascara sagrada* is effective in much smaller dosage (from 1 to 4 c.c.). The bitterness of this preparation is best overcome by having the patient put the dose into gelatin capsules just before taking. One or two of the larger sized gelatin capsules (00) filled with the fluidextract generally suffices to secure daily evacuation, especially when taken after each meal and at bedtime. Owing to the presence of 75 per cent. water in the fluidextract, such capsules cannot be kept on hand or prepared by the druggist. Patients readily fill these capsules for themselves, when provided with a medicine dropper.

The bitter fluidextract taken without encapsulation might be valuable in a case in which, in addition to constipation, anorexia is to be combated. For such a patient, this prescription might be of advantage:

	C.c.
℞ Fluidextract of <i>cascara sagrada</i> .....	30
Compound tincture of gentian.....	30
Mix. Label: One-half to one teaspoonful, in a little water, half hour before meals.	

In this prescription the compound tincture of gentian is merely used as a vehicle to avoid prescribing of dropdosage, which, being less convenient, should be employed only when distinct advantage is gained thereby, as in case of ascending or descending dosage. To this prescription, tincture of *nux vomica* might be added with possible advantage in doses of 1 c.c., unless the patient is suffering from excessive reflex excitability.

It is often successfully employed as an adjunct to the dietetic and exercise treatment (discussed under "Bran and Agar") of chronic constipation, in the following manner: The patient, provided with a prescription for the fluidextract (bitter preferred, but the aromatic if the patient objects to bitterness), should first of all determine the smallest dose required by him to obtain an action of the bowels at least once and not more than twice a day. He should be told that the medicine is merely given him to provoke a call to stool; and that, if this is neglected, the previous day's dosage has been wasted. As initial dose a half teaspoonful might be suggested, to be taken before meals and at bedtime. This dose is used regularly for a week; then half the dose is continued for a week; and this again cut in half and taken for a week; and so on, until it has been reduced to but a drop or two, when it might be discontinued. A patient who fails to respond to a faithful application of this combination therapy is in need of some form of physical treatment (enemas, massage, electrotherapy or surgery), after a careful and thorough study of his case (including roentgenologic examination); and, if physical therapy is inapplicable or fails, may have to be fitted with a habitual cathartic, for which purpose administration in pill form is best.

The extract of *cascara sagrada* is the least reliable *cascara* preparation. While the average dose of this preparation is given by the pharmacopœia at 0.25 gm., which makes a good sized pill, even two or three times this dose may fail. Extract of aloes is so much sup-

\* This is the title of a series of articles in the pharmacology, chemistry and pharmacy columns of the journal, text and illustrations. The first article appeared October 1, 1919.

rior a cathartic for administration in pill form that the extract of cascara sagrada is likely to be useful only in the most sensitive cases of obstinate constipation.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

### LACTIC ACID-PRODUCING ORGANISMS AND PREPARATIONS\*

Milk soured by the accidental presence of acid producing bacteria (buttermilk, etc.) or by the intentional addition of certain strains of bacteria with or without the association of alcohol-producing yeasts (kefir, kumyss) has been used as a food for centuries. This is due to the fact that the products were palatable to many or to a very general opinion among the laity as well as among physicians that they were advantageous for certain disorders of the gastrointestinal tract. A great stimulus to the employment of fermented milks was given by the theories of Metchnikoff regarding intestinal putrefaction. These theories, entirely unsupported by scientific evidence, were in part that the products of intestinal putrefaction, elaborated chiefly in the large intestine, were absorbed and largely by their action on the walls of the blood vessels produced arteriosclerosis and premature senility. He also advanced the theory that the growth of the proteolytic bacteria, many of them anaerobes, which elaborated these poisons could be modified or prevented by the presence in the intestines of lactic acid-producing bacteria, especially *Bacillus bulgaricus*. No one seriously subscribes to these opinions at the present time; but, on the other hand, there is evidence that the administration of sour milk products is at times beneficial. This is particularly true in pediatrics. In this field fermented milks have found a wide application. They are used in vomiting and in acute diarrhea as well as in chronic disturbances of the gastrointestinal tract. Under certain conditions it may be advisable to give very little fat; under others a diminution of this may not be necessary. By the use of cultures of acid-producing bacteria milk of any fat content may be fermented and the fermentation may be inhibited at any time. On what the particular value of these milks depends is not known at the present time. There can be no doubt but that a wide clinical observation gives a basis for the opinion that for certain types of gastric and intestinal disturbance fermented milk accomplishes more than sweet milk with a similar fat, sugar and protein content. Some acid producing organisms give rise to much more uniform, smoother products than do others. Bacteria of the Bulgarian bacillus group, usually in association with *Streptococcus lacticus* have been found particularly satisfactory.

There is little evidence showing that organisms of the Bulgarian group can be implanted in the intestinal tract. They may be found in the stools so long as they are ingested in considerable numbers. As soon as the ingestion of them ceases they disappear from the stools.

There is little satisfactory proof to indicate that liquid cultures or aqueous suspensions of lactic acid-producing organisms are of value as local applications to mucous membranes or in arresting putrefaction or suppuration in wounds, abscesses and sinuses. In such conditions their use seems to be still in the experimental stage.

Sour or fermented milk may be administered in the form of buttermilk or soured skimmed milk, the lactic acid being

produced by action of the paralaetic acid organism *Streptococcus lacticus* which grows readily at room temperature, or in the form of sour milk produced by *Bacillus bulgaricus*, alone or in the presence of *Streptococcus lacticus*. Kefir and kumyss are produced by the action of lactic acid-producing organisms associated with an alcohol-producing yeast, which also acts on the proteins of milk and renders them somewhat more digestible.

When the ferments are administered in the attempt to cause their implantation in the intestinal tract, the Bulgarian bacillus is commonly, though without good reason, given preference, either in the form of tablets or of liquid cultures. Liquid cultures, and still more the tablets, containing the Bulgarian bacillus deteriorate with age, the deterioration being retarded by low temperatures. All lactic acid ferment preparations must be stored in an ice-chest and should be marked with an expiration date, after which they are not to be used. Bacteriologic examination of various commercial cultures and tablets has often shown them to contain few, if any, living Bulgarian organisms.

*Bacillus bulgaricus* belongs to a group of bacteria which has not received much scientific attention. This group is widely distributed through nature. *Bacillus bulgaricus* is a long bacillus, sometimes fairly slender and sometimes fairly thick. It has a tendency to filament formation in old cultures. It grows preferably under anaerobic conditions, but grows well also under aerobic conditions. Different strains vary in this respect. Young cultures are gram-positive, but in old cultures gram-negative forms may appear. If the gram stain is applied and a red counter-stain used, one filament may appear blue in some parts and red in others. Sometimes there is a tendency to granular staining if methylene blue is used. Branching is occasionally observed, the bacillus taking on the shape of the letter "X" or "Y", and also resembling another organism of this group, *Callosium bifidum*. Carbohydrates are of material aid in successful cultivation of this bacillus. Broth with 2 per cent. dextrose is quite suitable for most strains, especially if calcium carbonate in the form of pieces of marble is added, so that the acid formed during growth is promptly neutralized. The medium par excellence is milk or some medium prepared from milk. Milk agar prepared by precipitating the casein and dissolving agar in the whey, is an excellent medium, especially if dextrose is added. Milk is acidified rapidly and a coagulum is formed with little separation of whey. The amount of acid formed varies with different strains. 1 to 3 per cent. or even more being attained.

Slightly different varieties of *B. bulgaricus* are used for the preparation of a milk which is usually called Bulgarian milk. In some instances the milk becomes more or less slimy; in others, the coagulum is smooth and of a creamy consistency. There should be little or no separation of whey. The delicate character and palatability of the product depends largely on the early interruption of the incubation period, and on keeping the milk at a low temperature.

The acid produced is 94 per cent. lactic acid. It has been stated that the butter fat and the casein are decomposed. If this is true the reaction is slow and the result not noticeable for several days.

The group of bacilli to which *B. bulgaricus* belongs is sometimes called "lactobacilli." They are able to multiply in the presence of considerable amount of acid and therefore belong to the group often misnamed acidophil. They are not acidophil in the true sense of the word, but are acid-resistant. Whether we are justified in distinguishing species in this group, or only varieties, remains a subject for research. Probably the lactobacilli form a large group consisting of many varieties, as does the *B. coli* group or the group of streptococci. Research will probably show that some varieties retain their properties with tenacity while other varieties are readily transformed. Market milk usually contains bacilli of this group. The optimum temperature for cultivation is about 45°C. Milk incubated at this temperature will, as a rule, turn very sour in the course of twenty-four to forty-eight hours and show an acidity of from 2 to 4 per cent. The lactobacilli have been considered active in the ripening of certain cheeses. They are found in the feces of man and animals. It is stated that the feces of infants can be used for the preparation of buttermilk after several transfers through milk. The Bulgarians, if they look their "mava," which is the name of the starter for their sour milk can replace it by using part of the stomach or intestines of a calf.

Cultures may be prepared in broth containing dextrose, or better in whey broth, whey agar, or in sterilized milk. Viable cultures decrease rapidly. Frequent transfers are therefore necessary. To preserve a culture in best condition it should be transferred at least once every two days. A milk culture will contain living bacilli for many days, but their activity becomes impaired.

**Infant Mortality.**—The infant mortality rate throughout the birth registration area as a whole that is the number of deaths under 1 year of age per thousand born alive was 93.8 in 1917 as against 101 in 1916 and 100 in 1915. Among the twenty states these rates ranged from 67.4 for Minnesota to 119.9 for Maryland. *Bulletin*, State Board of Health of Rhode Island, August, 1919.

\* See also article in Propaganda department, this issue.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 20, 1919

This issue of THE JOURNAL was made up during the time the strict orders of the Fuel Commission were in force. These prevented our printing department from working more than three days a week. When the order was rescinded it was too late to rearrange the issue, as the front and last forms had already been printed. This explains the small size of this issue. It will be noticed that the advertising as well as the reading pages have been reduced; this was made possible through the courtesy of some of our advertisers who complied with our request to omit the usual insertion of their announcements. We hope to catch up next week, although handicapped with a holiday and the index number.

## HYPERTENSION AS AN EXPRESSION OF THE LACK OF THE WELL-BALANCED LIFE

Within comparatively few years the sphygmomanometer has won a permanent place in the armamentarium of the physician. Like other instruments of precision, it has enriched the technic of diagnosis and made therapy more easily evaluated. Systolic and diastolic pressures and the difference between them known as pulse pressure have become something definite. Hypotension and hypertension have attained a familiar soundness among laymen; so that a well known physician, referring to the case with which high blood pressure can now be diagnosed, said of the use of the instrument: "I think any social worker would be better for knowing it and could learn it in fifteen minutes, and almost out of the simplest, it is the most important of all medical tests."<sup>1</sup>

The "popularizing" of an instrument of precision or of a diagnostic technic is likely to lead to misinterpretation, particularly of the sort that represent the relation of cause and effect. The occurrence of sugar in the urine is often thought of as a disease, whereas glycosuria is, of course, merely a symptom. The

interrelations between hypertension and conditions that often occur along with it have also been much misunderstood. The familiar statement that "there are two main causes of high blood pressure—arteriosclerosis and kidney trouble"<sup>2</sup> has lately been called into question by those who have carefully analyzed the problem. Whatever the ultimate origin may be, the immediate cause of arterial hypertension must be either an increased output from the heart or an increased resistance to the escape of blood from the larger arteries. The latter alternative seems to be the only tenable one on the basis of the evidence now available. The resistance that occasions the hypertension is by no means always due to sclerosis of the larger vessels; for there are records of not a few carefully studied cases occurring without evidence of either kidney or arterial disease. There is undoubtedly often an association of sclerotic changes and high pressure; but it does not follow that this is invariable or that the hypertension is the sequence.<sup>3</sup> A recent writer<sup>3</sup> has thus presented the logic of the situation: The finding of a certain pathologic lesion at postmortem is no proof whatever that this lesion was the cause of the signs or symptoms during life. A lesion may very well be the end of a physicochemical or metabolic process which is not demonstrable at necropsy. It would be equally logical, for instance, to conclude that the left ventricular hypertrophy or an apoplexy is the cause of hypertension, although we know that these lesions are results and not causes.

Hypertension may be regarded as a sort of compensatory process in an attempt to bring greater efficiency to an impaired circulation. If we may think of arteriosclerosis as at least occasionally secondary to this deviation from the normal—as a sequence to circulatory decompensation or even as independent of it—to what shall the ultimate etiology of hypertension be ascribed? If arteriosclerosis and Bright's disease have the same pathogenesis, the lesion being determined by the nature of the organ or tissue involved, what induces the primary vascular or circulatory defect? These questions cannot yet be answered definitely. To attribute them to excesses in eating or drinking, to tobacco or alcohol, to undue discharge of epinephrin from overstimulated suprarenal structures, to the damage of "wear and tear," is to veil our ignorance in well sounding words. Without attempting to determine the "why" of hypertension, Moschowitz<sup>3</sup> has ventured to describe a type of person, conforming to certain physical and psychic complexes, in whom hypertension is very likely to occur. Here is his picture:

The patients are overweight and sometimes even obese. The neck is short, the muscles are soft, their bodily movements are sluggish, their carriage and walk are ungraceful and they lack the spring and élan of the former athlete.

2. Campbell Hewlett, A. W.: *Monographic Medicine*, New York, 1: 107, 1916.

3. Moschowitz, E.: *Hypertension: Its Significance, Relation to Arteriosclerosis and Nephritis and Etiology*, *Am. J. M. Sc.* 158: 698 (Nov.) 1919.

1. Clegg, R. C.: *A Layman's Handbook of Medicine*, Boston, 1916, 274.

Physically, these people are tense; they pursue their vocation with tremendous seriousness and worry over trivialities. Phlegm and hypertension are, in my experience, antagonistic. Furthermore, these individuals have narrow intellectual horizons. Their interest in anything outside of their business is desultory. They have no hobbies.

The prototype of the candidate for hypertension whom Moschowitz has thus cleverly portrayed shows his most conspicuous mental incapacity in an inability to play. If it shall prove of value in prophylaxis to know the type, we must regard him, according to Moschowitz, as the antithesis of the child, both in mind and in spirit. If the psychic, as well as the physical, takes a part in the development of hypertension, we may well advocate, vigorously and often, a larger element of play in the routine of those who conform to the type. If age is not merely a matter of years, we must keep alive that spirit of childhood which is not "blighted by the premature struggle for existence or the gloom of a depressing environment." In anticipation of the danger of hypertension we must put back play into the lives of those who know only adult work; for in a well balanced life the spirit of the child, with its humor, imagination, its enthusiasm for sport and love of vacations furnishes that which "neutralizes the corroding acid of the 'fret and fever' in our lives."

#### GOVERNMENT TRUSTEESHIP OF MEDICAL PATENTS

In the various scientific departments of the national government, workers have discovered new methods of procedure, or new products, which gave promise of benefit to mankind. Many of these discoveries have been patented and dedicated to public use, though relatively few have yielded practical results, the ideas having been a contribution to academic discussion rather than a stimulus to industry. The reason is apparent: Capital will not venture in a new industrial enterprise unless it has some degree of protection during the developing period—that is, a limited monopoly. A concomitant drawback under our present system of public owned patents has been the lack of reward or adequate recognition of the government inventor; this dulls the incentive to create new improvements or useful additions.

As an attempt to remedy these evils, there has been introduced recently in both houses of Congress a bill "authorizing the Federal Trade Commission to accept and administer for the benefit of the public and the encouragement of industry, inventions, patents and patent rights . . . as these may from time to time be tendered it by employees of the various departments or other establishments of the government or by other individuals or agencies" (studies ours). It is proposed that the commission shall grant licenses for the use of the inventions, thereby collecting fees,

a certain percentage of which would be disbursed for remuneration to the inventors of such patents as have proved meritorious. Thus the advantages would be the commission of a definite official agency to be responsible for the patents, to be alert to see that the patents are respected, and to insure adequate recompense to both the licensee and the patentee, without undue commercial exploitation. But of greater interest, especially to the medical profession, is the possibility of a satisfactory patenting of medicinal and surgical articles; the bill provides specifically that, in the interest of the public, "other individuals" may tender their rights to the Federal Trade Commission.

It has been regarded as against the principles of medical ethics to patent instruments or medicaments for personal gain. However, as was pointed out recently in THE JOURNAL,<sup>2</sup> this does not mean that patenting *per se* is wrong; in fact, it is at times desirable to patent new discoveries, especially drugs, in order to insure reliability. The problem has been how to make available the patented product in the interest both of the public and of medical science. It would seem that the proposed bill suggests a means, acceptable to the medical profession, for the control of patents in the fields of medicine and surgery; the success will depend on the wisdom exercised by the Federal Trade Commission in the method of granting licenses. Judging from the recent activities of this body in the licensing of former enemy owned patents (such as barbital, procain and arspenamin), a wise policy will probably be followed. The bill as proposed gives opportunity for the medical research worker to obtain recognition, and possible emoluments, for distinctive contributions, without making him subject to criticism. It contains many constructive possibilities, and should receive the endorsement of those interested in the altruistic success of science.

#### BOTULISM: II

In one respect the work of the Harvard investigators referred to last week<sup>3</sup> has thrown some light on the possibility of botulism poisoning from factory canned goods. Both Weinzirl<sup>4</sup> and Cheyney<sup>5</sup> have shown that commercial canned goods, as found in the markets, are not always sterile. The proportion of cans containing viable spores of aerobic organisms varies according to the foodstuff, but may reach as high as 25 per cent. (canned meat). As long as access of air is shut off, these aerobic spores do not develop; and the canned food, though not sterile, remains unpoisoned. If spores of anaerobic bacilli are present originally in the food

<sup>1</sup> The Journal, December 10, 1934, Abstracts, General Commission, I, A, 181-182, 73, 74, 75, 76, 77, 1935.

<sup>2</sup> Botulism, *Laboratory*, J. W. M. A. 73: 106-110, 1934.

<sup>3</sup> A. Weinzirl, *J. Biol. Chem.*, 111: 119-126, 1935.

<sup>4</sup> Cheyney, *J. Biol. Chem.*, 111: 127-134, 1935.

<sup>5</sup> J. C. Cheyney, U. S. W. A. 1935, 11: 100-101, 1935.

material, they too may resist heating; but they may subsequently grow in the absence of oxygen, leading to swelling of the can, which is then discarded as not being merchantable. The odors of spoiling or souring that appear usually to be caused by *B. botulinus* constitute an additional safeguard, and these signs of warning may conceivably be a more efficacious protection in the case of canned foods purchased in the market than in those prepared in the household. There seems no reason for supposing that food material contaminated with the spores of *B. botulinus* may not be subjected to ordinary factory processing without destruction of the spores; later these spores may germinate and produce a potent toxin. The extraordinarily small number of botulism outbreaks traced to factory canned goods indicates that practically the danger is very slight. This, however, does not mean that every reasonable precaution against its occurrence should not be taken.

Little has been known until recently about the distribution and habitat of *B. botulinus*. Outbreaks of botulism have been reported in Belgium, France and Germany; but it is a singular fact, often commented on, that Great Britain appears to have been entirely exempt. In the United States the majority of the reported outbreaks have occurred in California, or have been due, as in the case of the ripe olives referred to before, to foods packed in that state. Cases have occurred, however, in Idaho, Colorado (attributed to food canned in Kansas), Indiana (source of food unknown), Massachusetts and other localities. Particularly interesting observations have been made on the relation of *B. botulinus* to forage poisoning, and the specific organism has been isolated from material implicated in forage poisoning both in Kentucky<sup>6</sup> and in Illinois.<sup>7</sup> There is thus evidence that *B. botulinus*, although perhaps relatively common on the Pacific Coast, occurs in widely separated parts of the country.

Apart from actual outbreaks of botulism, the bacillus itself of late has been rarely found in nature. Kemper and Holark,<sup>8</sup> in 1897, reported finding the organism in the intestinal contents of a normal hog; but until the recent work of Burke,<sup>9</sup> this instance has remained practically alone. Mrs. Burke has succeeded in isolating *B. botulinus* in seven out of 235 cultures made from material collected in five localities in central California. Four of the five localities visited yielded the organism, the exception being a deserted ranch. The cultures covered a wide range of material, *B. botulinus* being found in such diverse objects as the leaves of the bean plant, moldy hay, bush beans, cherries and spiders. Mrs. Burke believes that the evidence

strongly suggests that *B. botulinus* may be closely associated with or disseminated by spiders or insects common in gardens in California. It is clear from these observations that the organism may be present on fruits or vegetables when they are picked. Further observations of this character are needed to determine whether *B. botulinus* occurs as commonly in other parts of the United States as in California, and whether in that state certain localities are more seriously infested than others.

Our present knowledge of this important pathogen indicates that it is of more common occurrence in some areas than in others; that it may find its way into canning factories as well as into the family kitchen; that its spores may survive relatively high temperatures to germinate subsequently and produce a potent toxin, and that in spite of the usual warning given by signs of decomposition, contaminated food may be eaten and cause death. Methods of canning on a large and on a small scale should be devised which will kill the spores of *B. botulinus*. Meanwhile we may urge again, as we have heretofore, that canned food showing signs of spoiling should not be eaten. It should also be remembered that the toxin of *B. botulinus* is destroyed by boiling, so that canned foods boiled before they are eaten are rendered materially safer.

## Current Comment

### WILL YOU HELP?

With the expiration of the calendar year, subscriptions to THE JOURNAL and Fellowship dues for 1920 will become payable. To send a bill under first-class postage to each subscriber and Fellow entails a total expense of several thousand dollars, and is more or less a dispensable formality. Therefore, instead of a personal statement being mailed, a slip for 1920 subscription and dues will be inserted in THE JOURNAL next week. This slip, though less formal than the personal statement, will perform its essential functions. It will remind you that dues are payable, and it will be a convenience in remitting. We are counting on your cooperation.

### THE PASSING OF THE AMERICAN JOURNAL OF OBSTETRICS

The publishers announce the discontinuance of the *American Journal of Obstetrics and Diseases of Women and Children* with the issue of December, 1919, after fifty-one years of continuous publication. It was founded by Dr. Benjamin F. Dawson in May, 1868, and continued as a quarterly until 1872, when it was taken over by William Wood & Company and changed to a monthly. Dr. Dawson was succeeded as editor by Dr. Paul F. Munde and he, in turn, by Dr. Brooks H. Wells, later with Dr. George W. Kosmak. Since the death of Dr. Wells

<sup>6</sup> Graham, Brewster and Post, *Bull. U. S. Geol. Surv.*, 1897, p. 55, Kentucky Agr. Exp. Sta. 107.

<sup>7</sup> Graham, Brewster, Brewster and J. S. Smith, *Forage Poisoning, The Relation of B. botulinus to Forage Poisoning*, U. S. Geol. Surv. Geol. Surv. Cir. 100, 1904.

<sup>8</sup> Kemper and Holark, *U. S. Geol. Surv. Bull.*, 1897, p. 85.

<sup>9</sup> Burke, George, S., *The Occurrence of Botulism in California*, *Nature J. Bacteriol.*, 4: 1-11 (Sept. 1919).

in 1917, Dr. Kosmak has acted as editor. As its name indicates, when this journal was started it was intended to fill a need, for then it was popular for a physician to claim as a specialty obstetrics and the diseases of women and children, these comprising the bulk of practice. Today, however, they are practically three distinct specialties linked only by a weak relationship. The *American Journal of Obstetrics* has had an honorable and useful career, and has been a credit to both its publishers and its editors.

**CHANGING THE FLORA OF THE  
INTESTINAL TRACT**

In spite of scientific evidence demonstrating the difficulties of changing the intestinal flora,<sup>1</sup> some physicians continue to recommend the use of organisms of the *Bacillus bulgaricus* group to displace other supposedly harmful intestinal bacteria. Without denying the possibility that certain forms of bacterial infection of the digestive tract are harmful, it is not untimely to point out again that the mere administration of *Bacillus bulgaricus* or similar organisms will not result in changing the preexisting intestinal flora. Recently Distaso and Sugden<sup>2</sup> have demonstrated that those organisms which produce indoxyl and allied substances in the test tube are the same organisms that produce them in the human body with the resulting appearance of indicanuria. As an incident in this investigation, the authors found that it was impossible in the lower animals to displace the existing intestinal flora by feeding antagonistic bacteria. On the contrary, they showed that all that was necessary to produce this desirable effect was a change in the diet of the animal. It cannot, of course, be definitely concluded from these experiments that a similar course of events takes place in human beings; but the work strongly emphasizes that the best means to reduce one variety and to increase another variety of bacteria in the intestinal tract is to change the character of the diet. In lower animals, when the appropriate diet is introduced, the bacterial substitution takes place automatically.

**ARROGANCE NOT DEFEATED**

The *New Freie Presse* of Munich recently discussed, in a most optimistic manner, the situation of the German chemical industry:

German brains, it is now planned, are to be fired by esterite gold and pressed into the service of our former enemies, principally in America, where drug, chemical products and dyes are so awfully scarce. American indigo, it is said, has been rejected by the dyeing industry, the same as American salvarsan by physicians. No wonder Americans have offered a Munich chemist an annual salary of 2,000,000 marks.

To those who are familiar with what American chemical industry has accomplished during the war, this item would be amusing if it did not reveal the fact that the old arrogance and conceit, which it was hoped the war would somewhat modify, still dominate to a considerable degree the German mind.

<sup>1</sup> Compare Diet and Intestinal Bacteria, *Chloral J. A. M. A.* 7:2:1844 (Dec. 13, 1919).  
<sup>2</sup> Distaso and Sugden. *Biochem. J.* 13:151, 1919.

**Association News**

**THE NEW ORLEANS SESSION**

**Address of the Local Committee on Arrangements**

The Local Committee on Arrangements for the New Orleans session, April 26-30, 1920, the personnel of which was announced last week (page 147), requests that all communications for the attention of the Local Committee on Arrangements, or the chairman of any of its subcommittees, shall be mailed to Room 1216, Maison Blanche Building, New Orleans.

**Medical News**

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATIVE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

**CALIFORNIA**

**Tax on Physicians.** By a law of California, an annual tax of \$2 due, Jan. 1, 1920, is payable by every individual who holds any form of certificate which entitles him to practice any system of healing art in the state. If the payment is not made within a period of sixty days, delinquency becomes operative and a fee of \$10 is required to reinstate the certificate of such delinquent.

**Injunction Granted Health Institution.**—The San Diego Society for the Cure and Prevention of Tuberculosis won a victory on November 29, when Judge Lewis granted a temporary injunction to prevent the city recorder of East San Diego from further interfering with the operation of the hospital. The charge against the society was that it had violated an ordinance prohibiting the maintenance of a hospital within the corporation of East San Diego. The hospital maintained, first, that it was established previous to the incorporation of East San Diego, and, second, that it is conducted under the laws governing the state board of health, and that a municipality cannot pass ordinances conflicting with a state law.

**ILLINOIS**

**Hospital Staff Changed.**—Dr. Charles B. Caldwell of the Florida State Hospital has been appointed assistant superintendent of the Lincoln State Colony to succeed Dr. Thomas H. Leonard, resigned.

**INDIANA**

**County Honors Service Men.**—The meeting of the Grant County Medical Society held in Marion, November 27, was especially designed to honor its members who were in the army service during the world war. Drs. Erle O. Daniels, Joseph P. Pearle and others of the service men responded to toasts.

**Personal.** It is reported that Dr. Edwin Walker, Evansville, who has been seriously ill for several months, is slowly gaining in health. Dr. R. H. H. Bandy, mayor of Muncie, is said to have been found guilty November 11 of a conspiracy to use the mail to defraud, to have been fined \$1000 and sentenced to two years imprisonment in the federal penitentiary, Atlanta, Ga. Dr. Horatio H. Kappert, secretary of the Colonial Board of Health, was resigned and has been succeeded by Dr. James W. Leonard. Dr. Homer N. Oliphant, National Military Home, has been appointed associate surgeon for the Clover Leaf System at Frankfort. Dr. George S. Miles, superintendent of the Indiana School for Feeble-minded, Fort Wayne, has resigned.

**MARYLAND**

**Annual Meeting of Baltimore City Medical Society.** At the annual meeting of the Baltimore City Medical Society held December 5 at Osher Hall the following officers were elected: Dr. Harvey B. Stone, president; Dr. Edward A. Leeper, vice president; Dr. Frank S. Lynn, secretary, and Dr. Charles E. Brack, treasurer. Dr. Guy L. Hanson, the retiring president, was appointed a member of the board of censors.

**Building for Hygiene School.**—On account of the destruction by fire of the School of Hygiene located on the 111

buildings of the Johns Hopkins University, a resolution granting the Johns Hopkins University permission to erect a temporary frame building for the use of the school was introduced into the Baltimore City Council recently and, under suspension of rules, referred to Building Inspector Osborne for report and recommendation. The building is to be 120 by 50 feet and two stories in height.

**Plans for New Hospital.**—Plans for a hospital at Curtis Bay have been drawn and the members of the Curtis Bay Board of Trade, which include the heads of virtually all the manufacturing enterprises in the district have decided to petition the next legislature which convenes in January, for funds to establish the institution. A hospital is needed in that locality in the case of accident at the plants, the patient must be sent to the South Baltimore General, Mercy or University Hospitals, all of which are a considerable distance from Curtis Bay.

**Personal.** Dr. James J. Mills has fully recovered from an attack of pneumonia and has returned to his home in Baltimore. Dr. Charles B. Thompson, secretary of the Mental Hygiene Society, whose office was in Levering Hall, which was gutted by fire on November 27, when McJoy Hall and other buildings of the old Johns Hopkins University unit were destroyed, has announced that all records of the society have been found intact and that the manuscript of the book on mental disorders in which he has been working for several years was not destroyed.

#### MINNESOTA

**Personal.**—Dr. George W. Beach, superintendent of the Minnesota State Sanatorium, Walker, has been appointed chief of medical activities under the Serbian Relief Committee of America, and will leave this month for his new headquarters at Cacak, Serbia.

**Pioneer Honored.** Dr. Eysander P. Foster, Minneapolis, believed to be the oldest pioneer in Hennepin County, who came to St. Anthony in the summer of 1848, and later served in the Civil War, was the guest of honor at the meeting of the Territorial Pioneer Women's Club, and the Territorial Doctors, November 24, on the occasion of Dr. Foster's eighty-fourth birthday.

**Southern Minnesota Officers.** At the annual meeting of the Southern Minnesota Medical Association held in Mankato, December 1 to 4, Fairmount was selected as the next place of meeting and the following officers were elected: president, Dr. Herbert Z. Giffin, Rochester; vice presidents, Dr. Arthur T. Wilson, Minneapolis, and Walter J. Richardson, Fairmount; secretary, Dr. Henry T. McGuigan, Red Wing (retired); and treasurer, Dr. George F. Merritt, St. Peter (retired).

**Conservation of Vision.** At the last session of the legislature a bill was passed providing for the establishment of classes for the conservation of vision, by appropriating a sum of \$200 per annum for each child requiring the special benefit of such classes. Mr. Meyer of Ohio has been appointed secretary of the department, and Dr. Douglas F. Wood, Minneapolis, an ophthalmologist, has donated his services for the examination of candidates and treatment of children admitted for conservation of vision classes.

#### MISSOURI

**Semicentennial of Dr. Griffith.** At the meeting of the Jackson County Medical Society, December 2, it was decided that a memorial be given at 10 o'clock, March 4, 1920, in honor of the eminent authority of the entrance into practice of Dr. Jackson T. Griffith, Kansas City.

**New Officers.** At the annual meeting of the Jackson County Medical Society, held in Kansas City, December 2, following officers were elected: president, Dr. John F. Boush, Springfield; secretary, Dr. George E. Bellows, secretary, Dr. Paul H. Winkler, and treasurer, Dr. William F. Kuhn. —**International Association of Ex-Medical Officers of the United States.** A meeting of Ex-Medical Officers of the United States was held at the meeting held in Springfield, Missouri. Dr. William A. Delzell, Springfield, was chosen president, Dr. Louis M. Edens, Cadoux, vice-president, Dr. Horace A. Lewis, Springfield, secretary, Dr. Robert M. Lamm, Springfield, corresponding secretary, and Dr. James H. Fairright, Springfield, treasurer.

#### NEW YORK

**Personal.** Dr. David H. Atwater, Rochester, has succeeded Dr. Milton Chapman as one of the two coroners of Monroe County.

**Society of Medical Jurisprudence Elects.**—At the three hundred and fifth regular meeting of the New York Society of Medical Jurisprudence, December 8, the following officers were elected for the ensuing year: president, Dr. Nathan B. Van Fossen, New York; vice president, Charles Oakes, Esq.; treasurer, Charles P. Blaney, Esq.; corresponding secretary, Dr. Edward E. Hicks, Brooklyn; and recording secretary, Dr. L. Howard Moss, Richmond Hill.

#### New York City

**Personal.** Dr. Mark J. Schoenberg has been appointed adjunct consulting ophthalmologist at the Presbyterian Hospital.—Dr. Royal S. Copeland, commissioner of health, is reported to have resigned, December 5, on account of the refusal of the comptroller to permit the Board of Estimates to pass on an appropriation of \$30,000 for the treatment of drug addicts. The mayor refused to accept the resignation and intimated that the board would eventually make the appropriation.

**Reconstruction Commission Urges Increased Health Activities.**—A report recently submitted to Governor Smith by the New York State Reconstruction Commission contains recommendations urging the establishment of community health centers throughout the state. Since the appointment of the commission last January, its committee on public health has been studying the problem of community health measures. In twenty-nine communities that reported to the committee there were only five clinics for children of the preschool age, compared with forty-eight infant welfare stations. The ideal plan for welfare work would be to house all activities in one building: child welfare work, prenatal, dental, tuberculosis and general medical clinics. This work, in the opinion of the committee, should be taken out of the field of private philanthropy and should be fully supported by the state and the local municipal governments. The report also recommends an extension of maternity center work, the adoption of ordinances requiring the pasteurization of milk, and the establishment of new courses to fit women to do health work below the technical standard required of the registered nurse. The report says that a year of training in a hospital, with a large experience in bedside care of the sick, would fit a large number of women so that they would be able to care for most cases of illness.

#### OHIO

**Health Commissioner for Toledo.**—An examination board composed of Drs. Walter W. Brand, Chester W. Waggoner and William H. Fisher, has been appointed by the civil service commission to conduct the examination for full time health officer of Toledo. The position will pay a salary of \$6,000 a year.

**Personal.**—Dr. Paul G. Woolley, Cincinnati, is reported to have accepted the direction of a laboratory for medical diagnosis at Detroit.—Dr. Nolan E. Leake, Van Wert, who has been two years in the United States service, has returned and resumed his position as pathologist at the Van Wert County Hospital.

**Tablet Unveiled.**—A memorial tablet to the late Dr. Phineas Sanborn Conner, Cincinnati, was unveiled at Good Samaritan Hospital, November 12. Dr. Conner was a member of the staff of the hospital for forty years. Exercises were held in the chapel and addresses were delivered by former students of Dr. Conner, including Dr. Louis Schwab, Robert Carothers and Clement C. Fife. The tablet was unveiled by a grandson of Dr. Conner.

**Hospital Standardization.**—Hospital executives from various parts of the state met in conference called by the state department of health, December 3, at which questions arising as a result of recent legislation regarding the registration, definition and classification of hospitals were discussed by Dr. Andrew R. Warner, secretary of the American Hospital Association, State Senator Howell Wright, secretary of the Cleveland Hospital Conference, and others.

#### OKLAHOMA

**Personal.**—Dr. George W. Goss, Pawhuska, has been appointed health commissioner for Osage County.—Dr. Wilber E. Rammel, Bartlesville, who was operated on recently for the removal of gallstones, is reported to be convalescent.

**University Hospital Dedicated.**—The State University Hospital, Oklahoma City, established primarily to serve those citizens of the state who would otherwise be unable to secure satisfactory hospital service, was formally dedicated Novem-

ber 13. Dr. Jabez N. Jackson, Kansas City, Mo., delivered the dedicatory address. The hospital contains 175 beds of which twenty-five are in private rooms, eight wards, containing separate wards for men and women, and for white people and negroes. There are five operating rooms and ample diagnostic laboratories.

PENNSYLVANIA

**Personal.**—Dr. Theodore H. Jones, West Hickory, was operated on at St. Mary's Hospital, Rochester, Minn., November 22, and is reported to be doing well.

**Mellon Lecture.**—The annual Mellon lecture of the Society for Biological Research of the University of Pittsburgh will be delivered by General William C. Gorgas at Pittsburgh on Jan. 8, 1920. The subject of the address will be "Yellow Fever." General Gorgas has just returned to the United States from an extensive trip through Central and South America. In his address he will describe the present plans and progress of the work on yellow fever.

**Millions to Hospitals.**—By the will of Henry C. Frick, the residuary estate is to be divided into 100 shares valued at about half a million dollars each. Of these, Mercy Hospital receives ten shares, or about \$5,000,000, and each of the following institutions receives one share valued at about \$500,000: Pittsburgh Free Dispensary; Western Pennsylvania Hospital, Pittsburgh; Uniontown Hospital; Cottage State Hospital, Connellsville; Westmoreland Hospital, Greensburg; Mount Pleasant Memorial Hospital; Braddock General Hospital; Homestead Hospital; Children's Hospital, Pittsburgh; and Allegheny General Hospital, Pittsburgh.

Philadelphia

**Personal.**—Dr. Richard M. Pearce has been appointed chief director of the Division of General Medical Education of the Rockefeller Foundation. Dr. Joseph M. Sterling has been selected as assistant in the state tuberculosis dispensary. Dr. Norman S. Rothschild has been made an assistant in the prenatal clinic and Dr. John D. Donnelly has been appointed head of the baby dispensary of the Phipps Institute. Dr. Dorothy Child, who spent a year in France in charge of the Children's Hospital, Avion, has been appointed head of the division of child health, a recently created branch of the state department of health. Dr. Elizabeth O. White has been appointed assistant to Dr. Child. Capt. Orlando H. Petty, attached to the Fifth Regiment, U. S. Marine Corps, has been awarded the Congressional Medal of Honor by President Wilson for courageous care of wounded during the battle of Belleau Wood, June 11.

**Pathologic Laboratory Dedicated.**—December 11, a new pathologic laboratory was dedicated at the Philadelphia General Hospital. The building, which is three stories high, cost with equipment about \$300,000. It was built with an appropriation from the city councils, which have also provided an annual budget for a corps of men in all departments of laboratory work. The exercises were opened with a brief address by Dr. Riesman, chairman of the committee on dedication. Dr. Wilmer Krusen, director of public health and charities, received the keys from the architect, Mr. Philip Johnson, and accepted them on behalf of the mayor of the city. The principal address was delivered by Dr. William H. Welch of Johns Hopkins University, who spoke of the important part played by morbid anatomy in the advancement of medicine. Drs. Arthur Dean Ewan, Chicago, and Louis B. Wilson, Rochester, Minn., also spoke. Inspection of the building followed the exercises.

CANADA

**University Will Rebuild.** Laval University, Montreal, will raise \$3,000,000 for the purposes of a new university, to replace the old buildings recently destroyed by fire. The building of students' quarters was also mooted at the organization meeting, as well as pensions for all the members of the staffs of the various faculties.

**Personal.**—Sir Andrew McPhail, Montreal has resigned as chief editor of the *Canadian Medical Association Journal*, on account of impairment of vision. Prof. John G. (Alan) has resigned from the chair of pathology of McGill University, Montreal, to accept the chancellorship of the University of Liverpool, England. Major Fred J. Colling, C. A. M. C., Toronto, who had charge of the medical services for the British military mission, Siberia, has returned to Toronto. Previous to going to Siberia he served three years with the Royal Army Medical Corps in France. Dr. J. Harold

White, Moose Jaw, Sask., who saw service with the Royal Army Medical Corps in Gallipoli, Egypt, and other places, and who was also on the western front, passed through Toronto recently on his way to the Pacific coast. He will return east shortly and spend the winter in Peterboro, Ont.

Dr. John B. Playter McMurrich, professor of anatomy in the University of Toronto, and director of the anatomic department, has been elected dean of the faculty of arts. Dr. George F. Stephens has been appointed superintendent of the Winnipeg General Hospital. Dr. Henry R. Storrs has been appointed superintendent of St. Paul's Hospital, Vancouver, B. C. Dr. William C. Arnold, Dubuc, Sask., head of the medical branch of the Soldiers' Civil Reestablishment for Saskatchewan, has been appointed deputy director of medical service for Canada with the department.

GENERAL

**Change of Meeting Place.**—Unavoidable circumstances have necessitated the change of the meeting place of the Federation of American Societies of Experimental Biology. This meeting, which was to have been held at Toronto, December 29 to 31, will be held on the same dates at Cincinnati.

**Tri-State Physicians Elect Officers.**—At the thirty-fifth annual meeting of the Tri-State Medical Association of Mississippi, Arkansas and Tennessee, held in Memphis, November 18 to 20, under the presidency of Dr. James W. Gray, Clarksdale, Miss., the following officers were elected: president, Dr. John F. Sanders, Blytheville, Ark.; vice president, Drs. Thomas F. Hudson, Lunxora, Ark.; secretary, Dr. Arthur F. Cooper, Memphis, and treasurer, Dr. James A. Vaughan, Memphis (re-elected).

**The Work of Nurses in the War.**—A report of the work of army nurses on the western front, from May 8, 1917, to May 31, 1919, has been rendered to the Surgeon-General, by Miss Julia C. Stimson, acting director of the Army Nurse Corps. Of the 21,430 nurses of the Army Nurse Corps, 10,245 saw overseas service, 260 died, and three were wounded in action. All of the nurses of the American Expeditionary Forces were graduates and were recruited largely through the nursing service of the American Red Cross.

**Deficiency Appropriation Asked for Regulating Sale of Biologic Products.**—A deficiency appropriation of \$25,000 is asked by the United States Public Health Service to carry out the provisions of the act to regulate the propagation and sale of viruses, serums, toxins and analogous products, the expenditures being held necessary between February and June, 1920. The sum of \$30,000 additional is asked for the purchase and installation of furniture and equipment for additions to the Hygienic Laboratory at Washington, D. C.

**Bequests and Donations.** The following bequests and donations have recently been announced:

The city of Monticello, Ill., for the maintenance of a public hospital, \$100,000 and his residence property by the will of John Kirby, Monticello, Ill., and an additional \$5,000 in case this bequest proves insufficient.

Hospital for Sick Children, Toronto, \$5,000 by the will of W. D. Methew, Toronto.

Hospital for sick children, as a wing to the General Civic Hospital, Ottawa, Ont. \$100,000 by the will of Hiram Rowley, Ottawa.

St. Vincent's Hospital, New York City, \$3,000 on the death of the testator, by the will of Mr. Fannie Rockwell Dennis.

Army, N. Y., Hospital for the voluntary estate value of \$10,000 by the will of Ethan M. Robinson.

**Expenditures for Public Health.**—A number of reports on general medical and public health subjects have been made by the executive departments to the Congress. The Surgeon-General of the Public Health Service has reported the expenditure of \$197,708.74 of an appropriation of \$400,000 for the prevention of the spread of epidemic diseases. The expenditures are listed as follows: plague eradication measures—Louisiana, \$21,150, California \$25,518, Washington \$4,280, trachoma—Virginia \$519, Kentucky \$27,728, Tennessee \$3,477, North Dakota \$3,521; typhus fever prevention, Texas border \$40,296. Preventive measures, Cuba \$3,500, Baltimore quarantine \$12,140, Mexico \$2,531, South America \$2,516, China \$3,148, Italy \$2,750, miscellaneous \$17,471.

**Bill to Administer Patents.**—A bill to enable the Federal Trade Commission to act as trustee for patent has been introduced in both Houses of Congress. It reads:

ed, and otherwise to administer, on behalf of the United States, under such regulations and in such manner as the President shall prescribe, inventions, patents, and patent rights which said commission deems it to be in the advantage of the public to be so accepted, as these may from time to time be tendered it by the employees of the various departments or other establishments of the government, or by other individuals or agencies, and to cooperate, as necessity may arise, with scientific or other agencies of the government in the discharge of the duties herein set out.

Sec. 2 That the Federal Trade Commission be, and is hereby authorized, and empowered to collect fees and royalties for licensing said inventions, patents, and patent rights in such amounts and in such manner as the President shall direct, and shall deposit the same with the Treasurer of the United States, and of the total amount of such fees and royalties so deposited a certain percentage, to be determined by the President, shall be reserved, set aside, and appropriated as a special fund to be disbursed as directed by the President to remunerate inventors for some of their inventions, patents, and patent rights contemplated by the act as may prove meritorious and of public benefit.

Sec. 3 That the appropriations of any governmental department, bureau, office, or establishment, are hereby made available for the payment of the cost of the Patent Office for and in connection with the granting of patents contemplated by this act.

FOREIGN

**Personal.**—Dr. John Graham has been appointed professor of anatomy in Anderson College of Medicine, Glasgow, succeeding Dr. Alexander M. Buchanan, deceased.—The Royal Society of London has awarded the Copley Medal to Prof. W. M. Bayliss for his contributions to general physiology and biophysics.

**Professorial Appointments.**—At the University of Lyons, Dr. Mouriquand has been appointed professor of general pathology and therapeutics in place of Professor Lesieur, deceased, and Dr. Pelicard has been appointed professor of general anatomy and histology, succeeding Professor Renault, who has retired from active service.

**Secure Passage Early.**—The International Congress of Surgery will convene in Paris, July 19, 1920. On account of the expected rush of tourists next season, it is suggested that those who wish to attend the congress, engage their steamship passage as soon as possible. It is estimated that at least two million tourists will leave the United States next season.

**Personal.**—Sir William Osler, Regius professor of medicine at Oxford University, who is reported to have been seriously ill with bronchial pneumonia, is now said to be improving.—Dr. William W. Peter and family sail from San Francisco for China, December 13, on the Pacific Mail Steamship Company, and are due to arrive in Shanghai, Jan. 10, 1920. Dr. Peter has been for ten years a missionary in China.

**Biologic Products Legislation in Spain.**—The government of Spain has recently adopted regulations governing the manufacture, sale and importation of biologic products. Hereafter, before any product can be sold in Spain it will be necessary to obtain a license from the Inspeccion General de Sanidad. In the case of foreign products, their importation will be permitted only in case they have been licensed by the Inspeccion General de Sanidad, in addition to complying with all requirements for Spanish products.

**Franco-Swiss Interuniversity Conference.**—Delegates from French and Swiss universities met recently at Geneva to make arrangements for interchange of students and professors with a view to corresponding work. Professors from Lyons and Universites of Lille were the French delegates for the medical schools, and they established the standards and requirements being practically identical in France and Switzerland, in the medical courses which correspond in corresponding semesters in either country. The same procedure in the other, Switzerland was arranged for the professors from Latin Switzerland and those from German Switzerland. The arrangements have to be ratified by the proper authorities before they can go into effect and they are expected to be certain.

LATIN AMERICA

**Paraguay Organizes for the Fight Against Tuberculosis.**—The *Revista Medica* states that the Liga paraguaya anti-tuberculosa has recently been organized at Asuncion. The committee include Drs. A. Barbero, president, J. B. Benza, vice president, J. M. Mernes, secretary, and J. P. Vera, treasurer. One of the first steps taken by the new league was to send a note of thanks to the association of women which has been collecting funds for construction of a pavillion for the tuberculous.

Government Services

Personnel of the Medical Department

For the week ending December 12, there were on duty in the Medical Corps 2,244 officers; the Medical Reserve Corps contained 4,114, an increase of 116 over the previous week.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

	<i>ALABAMA</i>	<i>NEW YORK</i>
Dolan	Mixon, P.	Brooklyn
		Casgrande, J. T.
		Divine, W. E.
	<i>MICHIGAN</i>	Norwich
Detroit	LeGallee, G. M.	Hansheer, W. C.
		<i>PENNSYLVANIA</i>
	<i>NEBRASKA</i>	Philadelphia
Omaha	Wear, J. W.	Comiole, J. V.
		<i>VIRGINIA</i>
		Front Royal
		Klein, H. L.

Foreign Correspondence

MEXICO CITY

Nov. 30, 1919.

The Academy of Medicine

This association has moved its offices to the medical school building which it occupied once and was compelled to give up about four years ago. In the meetings held last month, several important subjects were discussed. Dr. Demetrio Lopez reported that he has begun to use the method recommended by Danielopulo for the treatment of typhus fever. This treatment consists, as can be seen from an abstract in THE JOURNAL (March 23, 1918, p. 891) in administering intravenous injections of chlorinated artificial serum. Lopez, although not committing himself definitely, because of the small number of patients he has treated, says that the treatment has impressed him very favorably. The vacuum extraction of cataract according to Barraquer's method (summarized in THE JOURNAL, Oct. 25, 1919, p. 1318, and Dec. 8, 1917, p. 2006) was the subject of another communication by Dr. Velez. After studying carefully the technic of the Spanish oculist, he has practiced the operation both on cadavers and on patients, and declares himself pleased with the results. Dr. Velez showed Barraquer's original apparatus, and explained the advantages of substituting the aspirating pump of the original apparatus, which is operated by hand (somewhat like a bicycle pump but in the reverse direction), for one operated by electricity. Dr. Perrin presented a paper illustrated with films on the development of the embryo, and explained the different stages of the sea urchin after fecundation. Drs. Villarreal and Arroyo discussed the treatment of malignant cancer of the uterus through electro-coagulation and radium and the different methods of staining *Sprochaeta pallida*, and the respective diagnostic value of these methods.—As a guest of honor, the session of the 19th instant was attended by Dr. Roberto Maurer, the medical officer of the Uruguayan cruiser *Uruguay*, who is also connected with an official mission from his country to Mexico. Dr. Antonio F. Alonso, former corresponding member of the academy in the city of San Luis Potosi, after fulfilling the association requirements, has been appointed to a vacancy in the section on ophthalmology.

Sanitary Conditions in Mexico

There were only thirteen cases of typhus fever in this city during October. According to the sanitary authorities, this is due to compulsory bathing and delousing among the lower classes. There have been observed many foci of malaria of the acute, hemorrhagic type in different parts of the country. Such foci have been found in different states of the Pacific Coast from Sonora to Chiapas, on the Mexican Gulf, Tamaulipas, Veracruz, etc., and even in the center of the country as, for instance, at Guanajuato.

None of the gulf ports have been invaded by the plague, in spite of the active commercial relations with New Orleans, because even before official notice was received of the occurrence of plague in the United States, the department of public health of Mexico quarantined the ships proceeding from New Orleans.

Nothing new has been heard about yellow fever in Yucatan. It is understood that the disease is still present, since the quarantine against the port of Progreso is still in force.

**The Blind**

According to statistics that have been compiled recently, there are about 120,000 blind in this country, among a population of about 16,000,000. About 80 per cent of these cases seem to be due to ophthalmia neonatorum.

**Monument to a Physician**

There has been built in the cemetery of Tepeyac a monument to Dr. Antonio Márquez, who belonged to the Cruz Blanca (White Cross) Association. Dr. Márquez lost his life in this city when he was attending professionally the numerous persons wounded during one of the riots engineered by the reactionaries to depose President Madero in February, 1913. The monument was built on the initiative of the above mentioned society and the inauguration was attended by many prominent persons.

**Donation**

Mr. Edward L. Doheny, president of an American oil company, has given the sum of 4,000 pesos (about \$2,000) to the Sociedad Protectora del Niño (Infant Welfare Society). Other persons have also made generous gifts, among them being Mrs. Esther C. de Nieto.

**Personal**

Dr. Agustin García Figueroa, director of the National Library and well known as an author and politician, has died.—Dr. E. Caturegli has been appointed on an official mission to London. Drs. Ocaranza and Izquierdo, professor and assistant professor of physiology in the school of medicine, have been designated members of the American Association for the Study of Internal Secretion.—Dr. F. Castillo has begun to discharge his duties as chief of the medical-legal corps of the federal district.—Dr. Pedro Fuentes has been appointed member of the superior board of public health to fill the vacancy left by the death of Dr. Fructuoso Valdés.—Dr. Theodore C. Lyster, former colonel of the U. S. Army, is now in Mexico representing the yellow fever commission of the Rockefeller Foundation, headed by General Gorgas. Dr. Lyster has conferred with Dr. Jose Maria Rodriguez, director of the superior board of public health, who offered to help him in every possible way. Dr. Lyster expects to visit Merida, Yucatan, to continue his experiments on yellow fever; and after completing his work there, plans to go to Brazil.

**LONDON**

Nov. 19, 1919

**The Declining Birth Rate**

The great loss of life in the war has drawn increased attention to our declining birth rate. At the last sitting of the National Birth Rate Commission, Sir Rider Haggard (the author) said that within the last half century it had become known that the birth rate could be kept down by artificial means. Woman had once more eaten of the fruit of a forbidden tree of knowledge. At first, the practice was confined to the upper classes, but now it seemed that it was gradually spreading through the whole community of every western nation and in one, France, was in full operation, so that the death rate exceeded the birth rate, which continued to fall. In our educated and professional classes many causes combined to prevent increase, as was evidenced by the number of "only sons" killed in the war. The maternal instinct was not highly developed in a considerable proportion of modern women, nor was the paternal instinct always strong in men. It was not right that civilized woman should become a breeding machine, but if able to do so without injury to health, a married woman should enrich the population by four or five children. Yet the average number of children in the classes mentioned was 2.3. The teeming millions of the East were ancestor worshippers and polygamists. Unless some startling change occurred, it appeared as though within the next two centuries the dominion of the western races would cease, as that of Rome ceased, perhaps before a new influx from the East beneath which their remaining population would be submerged. He saw only one hope. Perhaps the vast female electorate, which was coming into being, would as a mass bring pressure to bear on individual selfishness, and change the attitude of the nation toward this vital problem.

At the church congress, Dr. Amand Routh (the gynecologist) read a paper on the birth rate. He said that the

natural increase of population for the first time in our statistical history had ceased, for during the six months ending March 31, last, the deaths in England and Wales, exceeded the births by 126,445. Smaller families in the upper and middle classes were mainly the result of widespread knowledge of how to prevent conception. It was often arranged before marriage or early in the honeymoon that for a certain number of years conception was to be avoided. Was it ever right to avoid conception permanently in the marriage state? He believed not except for medical reasons. The ideal would be that no methods of conception control, except abstinence, should be used without previously obtaining the advice of a physician. There were medical reasons why a given couple should not have further children; but the physician should decide. There were four groups of alternatives which under varying circumstances might be adopted to discourage artificial control of conception: continence; occasional abstinence "with consent for a time," as advocated by St. Paul; midintermenstrual abstinence, as sanctioned by most of the churches, and natural alternatives to conception control. The question to decide was whether the relatively poor who had large families should be so educated in all the methods of conception control that they should have the same knowledge and be supplied with the same appliances as the rest of the community; or whether we should not concentrate rather on educating the middle and upper classes and warn them through the agencies of the church and the medical profession of the dangers, national disloyalty and moral wrong of contraceptives. Our nation owed its position in the world to its former large families and could not have too many children today for it to protect and populate its colonies.

**PARIS**

Nov. 13, 1919.

**Loss of Life in the War**

M. Louis Marin has just published statistical information covering the loss of life caused directly by the war of 1914-1918, as shown by official reports from all branches of the service.

The losses of the French army (officers and privates) up to the time of the armistice, Nov. 11, 1918, according to the figures established up to June 1, 1919, were 1,354,400. Since the armistice, 600 officers and 28,000 privates, under treatment in the hospitals, have died as the result of wounds or disease. The losses in the French land forces, as reported June 1, 1919, have risen to 1,383,000; but the death of only 1,322,400 is definitely known, the balance, 20,600, being unaccounted for. This final report of losses (dead and unaccounted for) represents 16.44 per cent of the mobilized war effective of 8,410,000 men (195,000 French officers, 7,740,000 French privates, 200,000 territorials from northern Africa, and 215,000 colonial troops).

Since the beginning of the war, 4,193,981 wounded and 4,988,213 sick have been admitted to hospitals. Many men were admitted several times. M. Marin estimates the number of wounded officers and privates at 2,800,000.

The total losses of the French land forces are, therefore, 1,383,000 killed (dead or unaccounted for) and 2,800,000 wounded, half of whom were wounded more than once. Of the 1,383,000 killed, 36,800 were officers. The number of French prisoners captured during the war was 495,400.

The final report of losses in the French navy cover 10,515, of whom 5,521 are known to have died, while 4,994 were unaccounted for.

The losses in the allied armies up to Nov. 11, 1918, in dead and unaccounted for were: Belgium, 440,000; Great Britain, 809,000 (682,400 from the United Kingdom and 126,600 from British dominions and colonies); Greece, 12,000; Italy, 494,000; Roumania, approximately 500,000, which includes, however, living prisoners; Russia, 1,200,000 (based on doubtful information dating from October, 1917); Serbia, 297,000; and the United States, 114,000.

The number of living prisoners up to Nov. 11, 1918, for the various allied armies was: Belgium, 70,000; British Empire, 171,000; Greece, 7,400; Italy, 485,000; Russia, 2,000,000; Serbia, 82,400; and the United States, 4,800.

The losses in the enemy armies are thus estimated by M. Marin: Austro-Hungarians, 1,522,817 killed or unaccounted for (presumably dead); Bulgarians, 101,224 killed or unaccounted for; Germans, 2,041,000 killed and unaccounted for (presumably dead); and Turks, 325,000 killed.

**Birth Rate Propaganda and the Election Campaign**

The Comité permanent de la natalité (created by the Congrès national de la natalité et de la population held in Nancy,

Sept. 25 to 28, 1919 (THE JOURNAL, Nov. 1, 1919, p. 1377), has decided to initiate very active propaganda in favor of such legislative measures as appear indispensable to effect an increase in the French birth rate and to establish anew vigorous and prolific French families. The Comité permanent de la natalité was presided over by M. Paul Deschanel, president of the chamber of deputies. In a public declaration the committee demands that the candidates at the parliamentary elections shall insert in their platform the following legislative measures: (1) the household franchise, a bill that proposes to amplify the elective franchise of the heads of families; (2) relief of heads of large families from the unusual financial burdens now resting on them; (3) special concessions, premiums and gifts in favor of large families; (4) the campaign against wretched tenement houses, with a view to procuring hygienic apartments and good moral surroundings for large families; (5) repression of abortion and the so-called neomalthusian propaganda; (6) the accord of the right of direct summons to the Public Morality League (in consideration of the furnishing of suitable bonds), in order that the league may be given the opportunity of "cleaning up" a street and of watching over and endeavoring to make more effective the laws for the protection of the family and of childhood; (7) relief, in time of peace, of large families from a portion of their military burdens, and (7) the establishment of a national office in charge of all matters pertaining to the raising of the birth rate.

#### Personal

At a recent meeting the Academy of Medicine elected Dr. Vaquez to active membership in the section on therapeutics and natural history as applied to medicine, to succeed Fr. L. Ranhaud Blanchard. Dr. Vaquez is professor of internal pathology on the Paris Faculty of Medicine.

#### Death of Dr. J.-L. de Lanessan

Dr. J.-L. de Lanessan, former minister of marine, died recently in his estate at Ecouen, at the age of 76. De Lanessan was born at Saint-André-de-Tulzac, July 13, 1843. He studied medicine for a time, and later was admitted to the naval sanitary corps, from which he resigned in 1870 and returned to Paris, where as a collaborator of Baillon he became agrégé professor of natural history on the Faculty of Medicine. During this period he published the "Manuel d'histoire naturelle médicale." Later de Lanessan was tempted to enter politics. He became municipal counselor at Paris in 1879, and two years afterward he was elected to the chamber of deputies. His knowledge of colonial affairs caused him to be appointed in 1891 governor general in Madagascar. In 1899, he accepted, in the Waldeck-Rousseau cabinet, the office of minister of marine, in which position he displayed great activity and put through a number of important reforms. De Lanessan published a large number of works on political subjects: "De la colonisation," "Nos forces navales," "Nos forces militaires," "Le Bilan de notre marine," "Les Empires germaniques," "Histoire de l'Entente cordiale franco-anglaise," etc.

### Marriages

ROBERT NICHOL NELSON, Horton, Wis., to Miss Pauline M. Donald of Prescott, Ariz., September 17.

EDITH HARRIS ANDERSON, Omaha, to Miss Helen McDaniel, at Chicago, September 3.

JOHN A. WELLS, Hales Corners, Wis., to Miss Lillian Corbett of Burlington, Wis., October 22.

JOHN H. WATSON, to Miss Zoe Burnsted, both of Chetek, Wis., October 22.

THEODORE LINDENSON GILBERT, Dallas, Texas, to Miss Dorothy Balfour at Gard, Ct., E. I., N. Y., October 4.

ANDREW P. KENNEL, Cthersville, Ind., to Miss Mentoria M. Dodge, October 5.

FRANK LAURE WYSON, to Miss Jennie Goodwin Snead, both of Linton Park Va., October 25.

EMMETT FRANCIS REESE, to Miss Lynie Ridley, both of Courtland Va., November 5.

WILLIAM RUSSELL ELLISON, Baton Rouge, La., to Miss Mary Wynona Simmons of Enterprise, Ala., November 4.

STANLEY J. BOWN to Miss Anna Mae Martin, both of Richwood, Ohio, November 15.

### Deaths

Louis Augustus Speth, Philadelphia; Bellevue Hospital Medical College, 1894; aged 56; a graduate of the New York College of Pharmacy, in 1891; a veteran of the war with Spain; acting assistant surgeon, U. S. Army, from 1900 to 1902, with service in the Philippine Islands; from 1907 to 1909 on duty with the Panama Canal Commission; major, M. R. C., U. S. Army, and honorably discharged Dec. 12, 1918; died in the Abington (Pa.) Memorial Hospital, December 3.

Edward O. Powers, Baton Rouge, La.; Tulane University, New Orleans, 1896; aged 54; a member of the Louisiana State Medical Association; a member of the general assembly from 1904 to 1908, and of the state senate since 1916; died in the Baton Rouge Sanitarium, December 1, as the result of injuries received in an automobile accident, November 29.

Paul Barnett Coble \* Capt., M. R. C., U. S. Army, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1905; aged 35; died, May 11, at Camp Hospital No. 1, Gondrecourt, France, from the effects of phosgene self-administered, it is believed, with suicidal intent.

Samuel Houston Landrum \* Altus, Okla.; University of Nashville, Tenn., 1899; aged 52; honorably discharged as lieutenant, M. R. C., U. S. Army, Dec. 21, 1918; while making a night call near Altus, during a blizzard, November 27, was killed by the overturning of his automobile.

Henry Clinton Hood, Palm Beach, Fla.; Long Island College Hospital, Brooklyn, 1883; a pioneer practitioner of Palm Beach; a member of the Inlet commission and during 1917 a member of the legislature; died at the Emergency Hospital, West Palm Beach, November 18.

Otto Nicholas Bergmeyer, Dayton, Ky.; Eclectic Medical Institute, Cincinnati, 1916; aged 31; who was honorably discharged as first lieutenant, M. R. C., U. S. Army, Jan. 9, 1919; died, in Seton Hospital, Cincinnati, November 24, after an operation for appendicitis.

Washington Kilmer, Orlando, Fla.; Albany (N. Y.) Medical College, 1860; aged 81; a member of the Florida Medical Association; a veteran of the Civil War; one of those who combated yellow fever during the epidemic in Florida in 1887; died, November 24.

George Hamilton Stubbs \* Birmingham, Ala.; Southern Medical College, Atlanta, Ga., 1895; aged 50; oculist and aurist to St. Vincent's and Hillman hospitals, and to the Southern and Alabama Great Southern Railroads; died, November 28.

James M. Walker, Denver; Homeopathic Medical College of Missouri, St. Louis, 1871; aged 72; for six years a member, and for three years president of the State Board of Medical Examiners; a veteran of the Civil War; died, December 3.

Vaulx Gibbs, Chattanooga, Tenn.; University of Nashville, Tenn., 1878; aged 63; a member of the Tennessee State Medical Association; formerly physician in charge of the East Tennessee Home for Disabled Soldiers; died, November 30.

Henry Gansevoort Cooke, New Brunswick, N. J.; College of Physicians and Surgeons in the City of New York, 1857; aged 86; formerly a member of the attending staff of Wells Memorial Hospital, New Brunswick, died, December 4.

James Haggerty Struble, Kearny, N. J.; Albany (N. Y.) Medical College, 1869; aged 77; a veteran of the Civil War; formerly practitioner and druggist in Passaic, N. J.; died in the Home for Disabled Soldiers, Kearny, December 3.

David Albert Gleason, North Bennington, Vt.; Baltimore Medical College, 1896; aged 49; a member of the Vermont State Medical Society, district surgeon to the Rutland Railroad; died, December 4, from cerebral hemorrhage.

Charles Pickhardt Haller, Bridgeport, Conn.; Hahnemann Medical College, Philadelphia, 1902; aged 49; honorably discharged as captain, M. C., U. S. Army, May 11, 1918, on account of physical disability; died, November 9.

Lionel Rideout Lumby, Pontiac, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1893; aged 54; a member of the Michigan State Medical Society; died, November 21, from angina pectoris.

T. Eugene Stokes, Greenville, S. C.; Atlanta (Ga.) Medical College, 1889; was killed near Duncan Mills, November 24, by the overturning of the automobile in which he was riding.

\* Indicates "Fellow" of the American Medical Association.

## The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOHNSON'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY, AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID ILLICITLY PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

### LACTIC ACID FERMENTS

#### Report of the Council on Pharmacy and Chemistry

The following report has been authorized for publication by the Council. The revised general article on Lactic Acid-Producing Organisms and Preparations, which will appear in New and Nonofficial Remedies, 1920, is published in the New and Nonofficial Remedies department of this issue of THE JOURNAL.

W. A. PUCKNER, Secretary.

In preparing the 1920 edition of New and Nonofficial Remedies it seemed desirable to give careful reconsideration to the use, in medicine, of lactic acid bacteria—and products prepared by means of these bacteria—in relation to practical therapy. A special committee consisting of a physiologic chemist (Lafayette B. Mendel, chairman), a pediatricist (John Howland), an internist (W. P. Longcope), a rhinologist (H. I. Lillie), and a bacteriologist (L. F. Rettger) took up the problem. The following circular letter was sent to a large number of well-known bacteriologists, clinicians and manufacturers who might be assumed to have experience or information which would enable them to express a helpful opinion on certain debated questions relating to the practical use of lactic acid bacilli in clinical medicine:

"Dear Doctor: The Council has been discussing the question as to whether or not the lactic acid-producing organisms, and preparations produced by their action, shall be retained in New and Nonofficial Remedies; and if so, what, if any, revision should be made of the general discussion now appearing in the book.

"Although there is still wide diversity of opinion as regards the possible value of these products, either as administered by mouth or for application to arrest putrefaction in wounds, the enthusiastic support of their use on the part of their former advocates seems to have abated in recent years. As the time for more exact judgment concerning their therapeutic value appears opportune, the Council would value your opinion on any or all of the following questions:

"1. Do you regard the administration of milk soured by means of the Bulgarian bacillus, alone or in combination with other organisms, to have advantages over the administration of sweet milk, buttermilk or milk soured in the ordinary way? If so, what advantages may properly be ascribed to milk preparations obtained by action of the Bulgarian bacillus?

"2. Do you consider it rational to administer preparations containing viable cultures of the Bulgarian bacillus with the expectation of securing their implantation in the intestinal canal? On what facts or evidence do you base your opinion?

"3. Do you consider the application of cultures of the Bulgarian bacillus to infected suppurating sinuses, cavities, etc., rational? On what facts or evidence do you base your opinion?

"4. If in your opinion there is therapeutic value in products of Bulgarian bacilli, what revision of the article 'Lactic Acid Producing Organisms and Preparations' which now appears in New and Nonofficial Remedies (see enclosure) would you advise?

"5. Have you had occasion to employ preparations of viable cultures of *Bacillus acidophilus* for any of the purposes indicated in 2 and 3? Do you favor the inclusion of *Bacillus acidophilus* preparations in New and Nonofficial Remedies?

"In answering these questions it should be borne in mind that, though products shown to be worthless are not accepted for New and Nonofficial Remedies, preparations which give promise of therapeutic usefulness are accepted; in fact, New and Nonofficial Remedies is naturally a book devoted to medicaments in the experimental stage.

"Your reply to all or any of the above questions will be appreciated."

The replies to this letter, while they have been decidedly valuable to the committee, show considerable divergence of

Terrence Gustavus Riley \* Harrington, Del.; University of Pennsylvania, Philadelphia, 1888; aged 54; while performing a surgical operation at the home of a patient in Harrington, November 26, died suddenly.

William P. Gamber, Ann Arbor, Mich.; Western Reserve University, Cleveland, 1881; aged 64; formerly secretary of the board of education of Stanton, Mich.; died, November 17, from chronic nephritis.

Edward Blanchard Patterson, Sandpoint, Ida.; University of Michigan, Ann Arbor, 1886; aged 61; a Fellow of the American Academy of Medicine; died, November 5, after an emergency operation.

Hazenwood A. C. Bradfute, Loyston, Tenn. (license, Tennessee, 1889); aged 74; a practitioner for more than fifty years; a veteran of the Civil War; died, November 15, from bronchopneumonia.

Charles Winthrop Fish \* Los Angeles; Western Reserve University, Cleveland, 1884; aged 59; one of the founders of the Pacific Hospital; died, November 25, from septic pneumonia.

John McFaydan, Yuba City, Calif.; University of Pennsylvania, Philadelphia, 1876; aged 69; died in the Rideout Hospital, Marysville, Calif., November 24, from heart disease.

Thomas Greenwood Howard, Selma, Ala.; Washington University, Baltimore, 1868; aged 71; a member of the Medical Association of the State of Alabama; died, November 23.

Oliver M. Beck, Feesburg, Ohio (license, Ohio, years of practice, 1896); aged 86; a practitioner of Brown County for sixty-three years; died, October 23.

Virgil E. Andrew, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1890; aged 58; died, September 26, from cerebellar cyst.

Henry L. Hutson, Garwood, Texas (license, Texas, Fifth Judicial Board, 1901); aged 46; was found dead from heart disease, in his office, November 29.

Eleanor E. Fish, Chicago; Loyola University, Chicago, 1910; aged 50; died in a drugstore in Chicago, December 6, from organic heart disease.

W. G. Drummond, Bryan, Texas (license, Texas Twentieth Judicial District Board, 1899); aged 51; died, November 24, from cerebral hemorrhage.

Oscar L. Peak \* Topeka, Kan.; Cincinnati College of Medicine and Surgery, 1878; aged 70; died, November 29, from cerebral hemorrhage.

George W. Newcomer, Connellsville, Pa.; Physio-Medical Institute, Cincinnati, 1867; aged 74; a veteran of the Civil War; died, November 21.

William Benjamin Kayler, Toronto; Queen's University, Kingston, Ont., 1896; aged 58; died, September 7, from carcinoma of the stomach.

Clark Everon Brothers, East Akron, Ohio; Eclectic Medical Institute, Cincinnati, 1881; aged 66; died, December 2, from heart disease.

George W. Vickers \* Phoenix, Ariz.; Starling Medical College, Columbus, Ohio, 1882; aged 66; died, August 27, from heart disease.

Elizabeth Cubbage Geis \* Casper, Wyo.; Chicago College of Medicine and Surgery, 1914; aged 34; died, November 19, from pneumonia.

Gaston Boyd, Newton, Kan.; Medical College of Ohio, Cincinnati, 1874; aged 75; for several terms mayor of Newton; died, recently.

Francis M. Sexton, Las Cruces, N. M.; Tulane University, New Orleans, 1876; aged 69; died, November 3, from cerebral hemorrhage.

John Leffler, San Francisco, Cooper Medical College, San Francisco, 1874; aged 77; died, November 26, from chronic nephritis.

Harry Spenser Brown, Chicago; McGill University, Montreal, 1873; aged 73; died, November 26, from cerebral hemorrhage.

Homér W. Osborn, Cleveland; Homeopathic Hospital College, Cleveland, 1871; aged 76; died, November 20, from heart disease.

Laurence Frank Keith, Wareham, Mass.; Boston University, 1907; aged 36; died, September 19, from valvular heart disease.

Jonathan L. Wilkinson, Dundas, Ont.; Victoria University, Coburg, Ont., 1870; aged 80; died, October 4, from pneumonia.

opinion. In general it seems that the bacteriologists and scientific laboratory workers show far less enthusiasm for the claims of lactic acid bacteria to a place in practical therapy than do the clinicians. The information on many points is, however, still so vague and empirical that it is almost impossible to formulate a rational plan based on acceptable scientific evidence. In view of the enthusiasm with which the use of the products is heralded by a considerable number of clinicians, whose opinions are evidently based on empirical data, it seems advisable to the committee, pending the acquisition of further knowledge, to retain those preparations in N. X. R. in the present with a revised statement regarding their possible usefulness.

The committee's opinions have elicited the general opinion that the lactic acid bacilli must be effectively implanted in the alimentary tract by the cultures thereof and that it is not rational to attempt such an implantation. The overwhelming preponderance of opinion is against the usefulness of cultures of the bacilli in infected sinuses, cavities, etc.

In view of the uncertainty regarding the role of the bacilli in epilepsy the committee recommends that cultures in this connection be not included in N. X. R. at present.

Information from various sources indicates the importance of controlling the ability and purity of the cultures offered for sale. This the Council has done in the past and must do in the future. The committee submits a revised statement in N. X. R. 1-20 with the recommendation that all preparations of lactic acid products listed therein be made in conformity therewith.

sider "those cases in which directly following the influenza attack a typical but chronic epilepsy develops." He thinks that all of these cases end in recovery and believes that there is no case on record of permanent epilepsy following influenza. He then cites one case in detail, and proceeds to the discussion of "many other forms of convulsions and disturbances in movement" observed subsequent to influenza.

Leichtenstern also points out that the early German name for influenza, *Blut-katarrh*, had reference to the sudden onset of the disease, and cites various forms of convulsive onsets, as on pages 513 and 519 of the reference cited above, in these cases chiefly in children.

Other references are:

Rulemann, J. Die Influenza im den Winter 1889-1890, Leipzig, 1891 (a monograph of 188 pages).  
 Lindgraf: Gesellschaft der Charité Aerzte in Berlin; Berlin, Klin. Wochenschr., 1890, Nos. 9 and 12.  
 Van Deventer: Centralbl. f. Nervenh. u. Psychiat., 12: 49.  
 Jaccoud: Pathologie interne, Paris, 1870, p. 780; Nouveau Dictionnaire, Paris, 1873, Part 16, p. 740.

These references and a brief discussion of the subject were presented in the course of a more general article in the *Archives of Neurology and Psychiatry* (September, 1919, pp. 291-337).

Finally, one is moved to inquire if the child reported by Dr. Clark were not possibly hypophrenic or at least retarded to start with. A child capable, at 2 years of age, of only "some words" and the ability "to walk with slight support," would hardly be considered up to normal standards, unless the brief reference to these faculties has permitted too wide an inference.

KARL A. MENNINGER, M.D., Topeka, Kan.

Correspondence

"INFLUENZA AND EPILEPTIFORM ATTACKS"

*The Editor:*—Dr. L. Pierce Clark (*THE JOURNAL*, Dec. 5, 1919, p. 1772) introduces his report of a case of influenza and epileptiform attacks with the words: "Since no case has as yet been reported in which epilepsy or epileptiform attacks were apparently first initiated by influenza. . . ." Of course, Dr. Clark must mean that no such case has been reported from the 1918-1919 epidemic of influenza, since there are numerous cases in the literature from previous epidemics, at least one. But the present epidemic of influenza seemed to have a much more potent effect on patients already afflicted with epilepsy than of the direction of producing epilepsy or epileptiform syndromes. Maillard G. and Brune, in the *Annales de la Neurologie*, 27:70 [Feb. 10] 1919, consider the topic "Epilepsie et grippe" under the heads of (1) "The Influence of Influenza on Epilepsy," and (2) "The Influence of Epilepsy on Influenza" and the latter was certainly much more prominent in France than the former.

I have personally communicated with practically all the principal authorities in the United States in regard to the onset of influenza in epilepsy, and in answer to the query as to whether any case had been admitted for whose epileptic attacks followed had been given or considered a corroborating answer there was a unanimous reply of "None." (See *Medical History* series of nearly 180 cases of mental disease associated with influenza who had no such case, although we had a number of convulsed epileptics whose disease was undoubtedly associated with influenza.)

Consequently, Dr. Clark's claim for priority in the report of an epidemic case of epilepsy precipitated by influenza in the present epidemic is properly fully justified. In regard to the question as to whether in previous epidemics, one may well wonder (historically) a series of "Influenza Lectures" in the *Hygiene and Pathology of the H. Schuchardt* for 1890 may be consulted, and the matter is well summarized in his article on "Influenza, Enteriophaga, volume on Malaria, Influenza, Diphtheria and other pages 673 of the English translation "Influenza generally begins in children with an epidemic course, and very rarely in adults with typical antecedent attack, followed with total unconsciousness and convulsions, this is rare." Leichtenstern then goes on to con-

"THE OMISSION OF DRAINAGE IN COMMON DUCT SURGERY"

*To the Editor:*—I have welcomed the important communication of Drs. Richter and Buchbinder on this subject in *THE JOURNAL*, December 6. Although undoubtedly not giving the last word, the authors serve the good purpose of stimulating controversy on the vital subject of drainage of the common bile duct—a subject which in greater part surgeons the world over seem to regard as settled.

The authors emphasize the desirability of closing the abdominal wound without drainage in order to avoid adhesions, taking it for granted, I presume, that it would be superfluous to call attention to the much more serious and occasionally disastrous results which follow the prolonged loss of bile by way of the incision into the common duct. To surgeons who are not prepared to follow the example of Drs. Richter and Buchbinder I would recommend drainage of the common duct by a small tube passed well into it through the cystic duct. This is the method practiced by me at present. The incision into the common duct is closed with great care and the line of suture tested by injections through the tube in the two ducts. On the third or fourth day the tube is clamped and, if the bile is found to pass freely into the ductus choledochus, is removed. Usually the leakage thereafter of bile is insignificant in amount; there may even be merely a slight stain on the first dressing after removal of the tube.

All that we gain as a rule by drainage of the bile duct is relief of tension. This relief is afforded by drainage by way of the cystic duct and tends to insure prompt healing of the line of suture of the common duct. Aside from the deplorable condition of the patient brought about by the great loss of bile, it seems irrational to me to place a drain in the infected common duct through the line of the incision into it with the expectation that primary healing of the wound in the duct will usually take place. Unquestionably the entire line of suture, contaminated inside and out with pus-producing organisms and further imperiled by the presence of the tube, has in many instances broken down.

Very slim cigaret drains (three or four or more) should surround the tube in the cystic duct and be removed with it on the third or fourth day. The gauze tips which serve to hold the drains in place should project hardly if at all





giving notice and opportunity to furnish or offer it. Such cases are, of course, distinctively exceptional and consequently rare. When such exception is claimed, the question of a pressing necessity demanding and excusing prompt action before reasonable time for notice and opportunity thereafter for the employer to act becomes primarily an issue of fact.

#### What Constitutes an Insane Delusion

(*In re Sturtevant's Estate (Ore.)*, 180 Pac. R. 595)

The Supreme Court of Oregon, in holding that, as there was some evidence on which the testator in this will case could found a perfectly natural belief that his son had not dealt fairly with him, it was not an insane delusion although the belief was probably a mistaken one, says that a "delusion" is a fixed belief in a proposition which has no foundation in evidence, and which is so extravagant that a reasonable man would not adhere to it. It is a fixed and extravagant belief that a fact exists when there is no evidence to furnish a basis to such belief. The rule in regard to this matter is very similar to the rule adopted in Oregon in regard to the verdict of a jury. If there is any evidence to sustain the verdict, it must stand. So here, if there is any evidence to support the belief, it is not a delusion. Furthermore, it is not sufficient to show that a testator had delusions on some subject, if these delusions did not affect his mind in making his bequests.

## Society Proceedings

### COMING MEETINGS

Society of American Bacteriologists, Boston, Mass., Dec. 30-31.  
Southern Surgical Association, New Orleans, Dec. 16-18.

### SOUTHERN MEDICAL ASSOCIATION

Thirteenth Annual Meeting, held at Asheville, N. C., Nov. 10-13, 1919

(Concluded from page 1797)

#### Serotherapy of Whooping Cough

DR. R. M. POLLITZER, Charleston, S. C.: We must differentiate sharply between the use of a vaccine as a means of prevention or of cure. It is true that at times, when it is begun as a prophylactic, we realize after the first or second doses that the disease is present already. Nevertheless it may be used in well children as an immunizing agent before exposure or before the onset. The reports as to its efficacy are quite varying. In a few cases I have employed the vaccine in well children who have never had the disease. Subsequently they were unintentionally exposed and did not contract it.

#### Otitis Media

DR. LAWRENCE T. ROYSTER, Norfolk, Va.: Otitis media may occur with fever and without pain, or with pain and without fever. The former is more frequent in infancy and early childhood, while the latter is more likely to occur in later childhood. It is an error to suppose that because a child does not have an earache, there is no middle ear inflammation. In Norfolk the first outbreak of influenza affected comparatively few children, while, during the second, a comparatively larger number of children were affected. In both outbreaks, the incidence of otitis was large. The treatment of otitis media, uncomplicated by mastoid involvement, is comparatively simple, though the results are by no means always gratifying. I can see no rational reason for treating an otitis media by applications to the drum through the external auditory canal. I have seen more cases that were treated in this way eventually require an incision than I have seen cases subside under this treatment. Uniformly red drums, even without bulging, should be incised. In cases of slightly red membranes it has been my custom to use menthol, camphor and liquid petrolatum in the nose, with the idea that such a mixture contracts the swollen mucous membrane at the inner opening of the eustachian tube, and thereby

promotes drainage of the middle ear. When cases of middle ear inflammation are accompanied by tenderness over the mastoid cells it is generally agreed that the drum should be cut under the supposition that drainage of the mastoid cells through the middle ear is promoted. Conversely, then, why should not early incision be made, thereby promoting drainage and relieving pressure, thus preventing extension to these cells?

#### Cases of Spinal Muscular Atrophy Probably of Werdnig-Hoffmann Type

DRS. J. H. MAXSON KNOX, JR., and GROVER F. POWERS, Baltimore: We are inclined to believe that the symptoms in our three cases, namely, general symmetrical muscular weakness noted at birth with loss of reflexes, and diminution in response to electrical stimulation, can be explained most satisfactorily on the assumption of a primary spinal atrophy and secondary muscular involvement, although the possibility of a reverse process cannot be excluded. The third patient, who is still living, has apparently improved somewhat, which may be accounted for by the development of certain intact and innervated muscle fibers remaining. It would seem from a consideration of the growing literature that many transitional cases do occur between the group of cases described as myotonia congenita (Oppenheim) and those of infantile spinal muscular atrophy (Werdnig-Hoffmann), and that both these conditions may be due to a congenital defect in development of the lower motor neuron tract, affecting certain ganglion cells of the cord and the muscles they supply.

#### Treatment of Enterocolitis in Infancy

DR. W. W. HARPER, Selma, Ala.: The indications for treatment are: prompt cleaning of the intestinal canal by catharsis and enema; withdrawal of all food for from twenty-four to forty-eight hours; sowing of the intestinal canal with virile strains of lactic acid bacilli; an abundance of water by (a) mouth, (b) rectum and (c) hypodermoclysis; free administration of alkalis, and, if acidosis threatens, the use of carbohydrates; adoption of measures to prevent urinary suppression, and early return to the breast or bottle. As an initial purge, I prefer castor oil. If the first dose is vomited, a second dose is given at once; and if this is vomited, a third dose is given. From the three doses, sufficient oil will be retained to act. A soda enema (two teaspoonfuls of sodium bicarbonate to a quart of warm water) is given every six hours for the first twenty-four or forty-eight hours. These enemas clear the intestine of feces, and furnish water and alkalis to the tissues. All food is withdrawn at once and water is forced—the minimum amount of water to equal the amount of milk taken in health. When the infection is mainly confined to the colon, after the initial purge, paregoric is given to relieve pain and to diminish the frequency of stools. The enema is given only once a day, as frequent enemas irritate the bowel and disturb the patient. For tenesmus, and to hasten the cure, nothing has served me so well as an enema of silver nitrate solution, from 0.5 to 1 per cent. in distilled water. The intestine having been flushed with sterile tap water, 8 ounces of silver solution are allowed to run into the colon through a large catheter. While the patient is waiting to pass this, the mucosa of the rectum is painted with 12 per cent. silver nitrate. The whole painted area is neutralized by allowing a strong solution of sodium chloride to flow through the rectal catheter. This gives marked relief.

#### Report of Hepatic Aneurysm

DR. EDWARD B. ANDERSON, Chattanooga, Tenn.: The patient's history, his radial aneurysm, the hemorrhage in the liver, the gangrene in his toes and later his leg, caused by general arterial disease, makes it almost certain that the hemorrhage in the liver must have been the result of a rupture of a small aneurysm of one of the branches of the hepatic artery. The fact that it occurred in the substance of the liver, and that it was controlled by parenchymatous sutures (two mattress sutures) and a gauze pack, would indicate that only a peripheral branch was involved. This

is the rare and exceptional feature of the case. While the hepatic artery, or its branches, have been ligated eleven times, there are only two cases in which this ligation was done for aneurysm of the artery or its branches.

**Injuries of the Spleen: Report of Four Cases**

Dr. F. B. CRAWFORD, Cambridge, Md.—The two most significant symptoms that I have noted are absence of peristalsis and the transmission of the heart and respiratory sounds, so that they may be heard all over the abdomen. These, of course, especially indicate splenic injury, but do not always occur in the abdomen, and with a proper history would not be sufficient to prompt a presumptive diagnosis of splenic injury. In my second cases, the only sign of splenic injury was a slight tenderness in the left flank with transmission of the heart and respiratory sounds, and with these present in spite of the fact that the man had undergone a crushing of the left leg below the knee, we felt that it was possible to attribute the shock and anemic appearance to the leg injury, therefore, we first made an abdominal exploratory incision and found the spleen torn from the left to the right through the hilum, with the abdomen still well closed. Had the leg been amputated and the patient not to die without further examination of the abdomen, it would have died promptly, and the death attributed to shock following amputation of a crushed leg. The diagnosis is not to prompt laparotomy and removal of the spleen, as is usually practiced, as those patients have already lost a quantity of blood. If we depend on packing or suture, we are running a risk of recurring hemorrhage that is not desirable. Then, as a rule, splenectomy can be done more safely and with less operative trauma, than packing or suture.

**Surgical Intervention in Acute Intracranial Injuries**

Dr. YATES C. LEE, Atlanta, Ga.: Intracranial injuries should have free egress, preferably using magnesium sulfate, place ice caps to the head, and above all, insist on absolute rest. Chloral and bromids may be used by rectal or subcutaneous but not morphia, which interferes with respiratory conditions. Atropin, one-fifteenth grain hypodermically may be used for beginning edema of the lungs and headache. Force fluids and avoid excessive stimulation; but warmth and a free bowels by rectum are excellent to revive the patient from shock. Absolute rest is most essential, even more so than any other known medicinal therapy. During the convalescence, which should extend over months instead of weeks, the patient should be absolutely free from mental strain, physical exertion, or medication of any kind. It is very difficult for patients to work with physicians to understand this.

**Treatment of Empyema**

Dr. DONALD G. NASHVILLE, Tenn.—The treatment is more important than the pleura in ergo changes and more important than the term, thereby interfering with lung expansion. Ordinarily surgical methods for the various causes of empyema consist in aspiration, incision, rib resection and the employment of S. Leon, Ecklander and Fowler. Aspiration is more successful in certain and proper drainage, as the patient is better off, and the drainage will often necessitate a later, more risky and operations the results are very unsatisfactory, but the drainage ceases and the lung remains in an inflated position, if pus persists, or even if it is not present. In many respects a chronic empyema is more difficult to cure, like the usual empyema. It has been after a year's time the lung was not fully inflated. The same as Ecklander operation results in empyema. These and DeWeese have both shown, and hundreds of others have confirmed the observation, that if drainage is not made, and if empyema and the lung will expand. This, then, may be our practice in civil life in the treatment of empyema, and when one remembers the pronounced mortality in these cases, and the difficulty of obtaining the desired by various plastic operations, one must admit that here again we are indebted to military surgery for a great advance.

**Current Medical Literature**

**AMERICAN**

Titles marked with an asterisk (\*) are abstracted below.

**American Journal of Obstetrics and Diseases of Women and Children, York, Pa.**

November, 1919, 80, No. 503

- \*Induction of Labor by Modified Champagner de Ribes Bags. A. F. Maxwell, San Francisco.—p. 497.
- Amputation and Prostate Treatment of Unruptured Mammary Abscesses (Puerperal): Report of Eight Cases. J. P. Gardner, Toledo.—p. 506.
- \*Why Prenatal Care? C. A. Ritter, Kansas City.—p. 533.
- Legislative Measures Against Maternal and Infant Mortality: Multiple Practice Laws of States and Territories of United States. J. A. Foote, Washington, D. C.—p. 534.
- Sarcoma of Mesentery; Carcinoma of Fallopian Tubes. M. R. Robinson, New York.—p. 551.
- Large Subserous Tubal Cyst Causing Triple Torsion and Gangrene of Tube, Simulating an Ovarian Cyst with Twisted Pedicle. P. Oanz, Brooklyn.—p. 558.
- \*New Method (Resistance Coil Lamp) of Applying Heat to Patients in Surgical Shock. S. L. Freeman, Wilkes-Barre, Pa.—p. 561.

**Induction of Labor.**—Among 2750 obstetric cases at the University of California Hospital, bags have been employed for more or less classical indications to induce labor in sixty cases. The average duration for these has been twenty-three and one-half hours—twenty-seven hours average for the primipara of the series and twenty hours for the multipara. The shortest labor was four hours in a case of placenta praevia at term, the longest ninety-four hours. The bag was weighted in forty-nine of the sixty cases sufficiently to keep it tight against the cervix. Failure to maintain the pains after the bag was expelled undoubtedly accounts for some delay, yet the great majority of cases were thus followed. The lack of uterine irritability is evidence in that 79 per cent. demanded treatment because of cessation of pains or weak and inefficient contractions. The cervix was stretched slightly one or more times in 31 per cent. of cases. The membranes were ruptured in 17.8 per cent. of cases shortly after the bag was expelled; and pituitary extract was given in 30.3 per cent., in contrast to Reed's figures of 45 per cent. The bags remained in the cervix for an average of thirteen hours although the majority were expelled within ten hours. The bag was expelled spontaneously in all but three cases. Twice it was withdrawn because of the onset of convulsions and twice because labor did not ensue after it had remained in the cervix for thirty hours. The average time before pains followed the insertion of the bag was five hours and ten minutes. They began almost immediately in eleven cases. The fetal mortality was 15 per cent., four full term children and five premature. Maxwell says that the induction of labor in normal cases at term cannot be judged in the light of cases treated with bags for classical indications since the former deals with cases of normal uterine irritability. The wide variety of cases so treated by Reed and the character of his results forces Maxwell to the belief that the method is worthy of trial, not by practitioners but by teaching institutions.

**Why Prenatal Care?**—This paper was abstracted in THE JOURNAL, June 28, 1919, p. 1937.

**Applying Heat to Patients in Surgical Shock.**—Freeman describes a procedure which may be applied anywhere where an electric lighting current is available. The heat is constant, evenly distributed and is capable of raising the temperature in the bed several degrees. The device consists of shock blocks, bed and heating lamp, and is sold in any electrical supply store.

**Journal of Medical Research, Boston**

September, 1919, 10, No. 3

- \*Histologic Changes in Squamous Cell Carcinoma of Cervix of Uterus After Radiation. N. M. Alter, Baltimore.—p. 241.
- Studies on Compensatory Hypertrophy of Thyroid. II. (a) Hypertrophy in Autotransplants of Thyroid. (b) Does a Deficiency in Organ Function Influence Transplantability? (c) Hypertrophy in Multiple Transplants of Thyroid. L. Loeb and C. Hesselberg, St. Louis.—p. 265.

- \*Essential Atrophy of Pancreas. H. Oertel, Montreal.—p. 289.
- Pigmentation of Nerve Cells. H. Lipochrome a Plant Carotenoid Pigment. D. H. Dolley and F. V. Guthrie, Columbia, Mo.—p. 295.
- \*Quantitative Study of Wound Healing in Rat. I. Cell Movements and Cell Layers during Wound Healing. H. Akaiwa, St. Louis.—p. 311.
- Studies of Endothelial Reactions. Macrophages of Loose Connective Tissue. N. Chandler Foot, Boston.—p. 358.
- Quantitative Study of Wound Healing in Rat. II. Cell Growth During Wound Healing. H. Akaiwa, St. Louis.—p. 371.
- \*Primary Lymphoblastoma of Intestine; Three Cases. Plea for Logical Classification of Tumors. S. Graves, Louisville.—p. 415.
- Study of Oxidase Reaction with  $\alpha$ -Naphthol and Paraphenylenediamine. M. L. Menten, Pittsburgh.—p. 433.
- \*Three Cases of Combined Tumors of Kidney in Adults. F. B. Berry, Boston.—p. 459.
- \*Toxic Necrosis and Regeneration of Acinar Cells of Pancreas. F. Parker, Jr., Boston.—p. 471.
- Origin of Tumor in Mice. VI. Internal Secretion a Factor. L. Loeb, St. Louis.—p. 477.
- Blood and Bone Marrow in Yellow Cross Gas (Mustard Gas) Poisoning. Changes Produced in the Bone Marrow in Fatal Cases. E. B. Krumbhaar and H. D. Krumbhaar, Philadelphia.—p. 497.
- Growth of Tissues in Test Tube Under Experimentally Varied Conditions; Mitotic Cell Proliferation. L. Loeb and M. S. Fleisher, St. Louis.—p. 509.

**Cervix of Uterus After Radiation.**—Alter's study of about 275 specimens showed that the primary effect of the rays of radium in the case of the basal cell carcinoma of the cervix is the destruction of the cells of the malignant parenchyma. The increase of stroma is secondary, due to the disappearance of the parenchyma, having been formed mostly from wandering cells. The chromatin substance of the parenchyma cells displayed the greatest sensitiveness toward the rays of radium, showing conspicuous features of destruction. The protoplasm of the parenchyma cells shows marked but not such obvious changes.

**Essential Atrophy of Pancreas.**—Five cases have been studied by Oertel. There exists a well expressed essential atrophy of the pancreas due to loss and collapse of its parenchyma associated with irregular, diffuse, aborted regeneration. It leads anatomically to a definitely recognizable entity. It appears that this lesion represents a pathologic exaggeration of normal, physiologic processes of regression and progression which are constantly going on in the pancreas.

**Wound Healing.**—The points established by Akaiwa as the result of his study are: larger wounds close relatively more rapidly than smaller wounds. Shallow wounds close more quickly than the deeper ones. The contraction of the tissue does not participate in the processes leading to the closure of the wound.

**Primary Lymphoblastoma of Intestine.**—About 246 cases of lymphoblastoma of the intestine were collected by Graves from the literature and three new cases are added, in one of which the patient is in good health approximately three years after operation. One patient died with metastases in the lungs and elsewhere seven months after operation. In one case there is apparently recurrence within the abdominal cavity thirty-eight months after operation.

**Combined Tumors of Kidney in Adults.**—Of the three tumor specimens described by Barry the first contains the elements of a fibrosarcoma and of a suprarenal cell carcinoma; the second is a combination of a fibrosarcoma and of a papillary adenocarcinoma; and the third consists of a suprarenal cell carcinoma and leiomyosarcoma.

**Acinar Cells of Pancreas.**—The diseases in which toxic necrosis of these cells were found most frequently by Parker were pneumonia, diphtheria, acute peritonitis and other processes due to the streptococcus and pneumococcus, rarely to *Staphylococcus aureus*. Toxins which cause lesions in the heart, liver, kidney and suprarenals cause similar lesions in the acinar cells of the pancreas, which Parker says heretofore have been overlooked.

### Kansas Medical Society Journal, Topeka

October, 1919, 19, No. 10

- Potential and Acquired Static Flat Foot. E. H. Ochsner, Chicago.—p. 231.
- The Acute Abdomen. W. E. Mowery, Salina.—p. 240.
- Mental Disease after Influenza. K. A. Menninger, Topeka.—p. 243.

### Medical Record, New York

Oct. 4, 1919, 96, No. 14

- \*Angina Pectoris. H. C. Gordinier, Troy, N. Y.—p. 575.
- \*Auscultatory Percussion in Diagnosis of Cardiac Lesions. W. F. Milroy, Omaha.—p. 581.
- \*Therapeutic Problems in Pulmonary Tuberculosis with Disturbance of Cardiovascular System. F. Zueblin, Cincinnati.—p. 584.
- \*Blood Transfusion as a Therapeutic Aid in Subacute Sepsis Associated with War Injuries. A. Zingher, New York.—p. 588.
- A Returned Soldier Carrier of Meningococcus. C. H. Nammack, New York.—p. 590.
- Commotional Shock Caused by Shell Explosions. A. Leri, Paris, France.—p. 591.

**Angina Pectoris.**—Gordinier maintains that patients who have angina pectoris associated with or followed by myocardial insufficiency, and particularly auricular fibrillation, flutter, or alternation, should receive digitalis until relieved and then be treated for a long period of time with small tonic doses of the drug. After the paroxysm passes the patient should be advised to rest absolutely for a period of several days, and should be coached carefully in regard to diet, elimination, exercise and work. Iodids lessen the severity of the pain and widen the interval between the attacks, and may cause their cessation.

**Auscultatory Percussion in Diagnosis of Cardiac Lesions.**—Milroy again calls attention to the greater diagnostic value and accuracy of auscultatory percussion of the heart over other methods. He says that in ignoring this method of examination the profession has been depriving itself of an aid of the utmost value.

**Cardiovascular Apparatus in Pulmonary Tuberculosis.**—Zueblin points out that in the study of pulmonary tuberculosis certain disturbances bearing on the cardiovascular apparatus deserves attention. The heart and vessels show abnormal function and pathologic changes to a greater or lesser extent in tuberculosis. Deviations from normal function and size are of interest not alone from the diagnostic standpoint, but prognostically and therapeutically as well. Zueblin presents his findings in both male and female patients in various stages of tuberculosis as to the size and position of the heart and the character of heart sounds; also the pulse, blood pressure, cardiac activity and vasomotor changes.

**Blood Transfusion in Subacute Sepsis.**—Zingher advises that blood transfusions be used more extensively. The special indications considered are subacute sepsis, associated with extensive suppuration or with infected compound fractures, with anemia and emaciation of varying grades; also as a prophylactic measure in enfeebled individuals before severe operations and in cases of postoperative surgical shock resulting from extensive loss of blood during an operation. The transfusion should be of moderate amounts of blood from 250 to 300 c.c., and repeated, if necessary, every seven to fourteen days.

### Modern Medicine, Chicago

November, 1919, 1, No. 7

- Vital Statistics and the Practicing Physician. G. C. Whipple, Cambridge, Mass.—p. 553.
- \*Air Control and Reduction of Death Rate After Operations. F. Huntington, New Haven.—p. 555.
- Mercurial Poisoning. R. P. Albaugh, Cleveland.—p. 562.
- What the War has Taught us in Surgery. G. W. Crile, Cleveland.—p. 563.
- Health Education in Industry. W. A. Evans, Chicago.—p. 570.
- \*Industrial Clinics in General Hospitals. D. L. Edall, Cambridge, Mass.—p. 575.
- Physical Examination in Industry. G. D. Selby, Toledo.—p. 578.
- Malingering—Involving the Problem of Getting Sick or Injured—Employees Back to Work. J. C. Fisher, New York.—p. 582.
- Industrial Health Hazards. C. C. Luffer, East Pittsburgh.—p. 586.
- Treatment of Burns. W. L. Clark, Worcester, Mass.—p. 594.
- Nervous and Mental Disease Problem in Public Health. F. J. Williams, New York.—p. 601.
- Present Status of County Health Work in Tennessee. E. L. Bihagy, Nashville.—p. 609.
- Anti Tuberculous Campaign in Oklahoma. J. Scheytz, Oklahoma City.—p. 609.
- Columbia University Health Service. W. H. M. Chaffee, New York.—p. 611.
- How Tennessee Institute is Promoting Better Health Conditions in the South. J. A. Kenney, Tuskegee, Ga.—p. 617.
- Work of Visiting Housekeeper. F. K. Markson, Chicago.—p. 617.
- Consultation Service in Tuberculosis Work. D. B. Armstrong, Framingham, Mass.—p. 618.

**Air Control and Reduction of Death Rate After Operations.**—Huntington points out that variability of temperature is as important as humidity, but its effects are obscured in winter when the extreme aridity of our winter houses is the dominating factor. Variations of temperature are more important at the time of an operation than at the time of death, although at both times they have a large significance. Constant attention to variability during the entire time from an operation to the day of discharge from the hospital or sick room would apparently diminish the death rate by at least 20 per cent., in addition to the gain to be derived from proper humidity.

**Industrial Clinics in General Hospitals.**—The industrial clinic, according to Leisall, furnishes sources of new knowledge and opens the way to studies in new directions through an accumulation and analysis of records based on diseases and injuries of industry. A second noteworthy feature of the industrial clinic is the relation possible between the clinic and medical schools and the opportunity to train students into an appreciation of the place of medicine in industry. Although not a separate science, but a work based on various sciences, the study and recognition of the hazards of industry and their effects are a clear cut and well defined type of work.

**Treatment of Burns.**—In considering the treatment of a burn, Clark says, one must consider two things, the treatment of the burned individual and the treatment of the part burned. The treatment first should be directly for the burned individual. The local treatment of a burn is practically the same for first second and third degree burns. After the surrounding skin has been prepared and the blebs attended to, the burned area should be covered with a suitable sterile dressing. 1. Wet solutions of which the most favored are 1 per cent solution of picric acid and saturated solution of bicarbonate of soda. 2. Ointments of which the most used are boric acid and sodium bicarbonate, 3 per cent. 3. Special tar ointments. The following ointment was used by Dr. A. W. Coleford in the treatment of 8,000 burns:

	Gm. or Cc.	
Boric acid	33	gr. v
Calcium carbonate	66	gr. x
Salicylic acid	6	gr. ss
Sodium bicarbonate	30	gr. i

This ointment is this ointment in one-sixth strength from the start applied daily with aseptic precautions.

The following ointment was used at La Panne, Belgium, during the war.

... ..	1 part

The third type of primary dressing is warm wax.

**New York Medical Journal**

October, 1919, 119, No. 6  
 Importance of the... of Children with Special Reference to... C. P. Farr, Philadelphia—p. 6  
 The... of the... and the... Head... S. G. Straus, New York—p. 11  
 The... of... C. G. Connor, Geneva, Switzer—p. 117

**Significance of Arrhythmia.** Farr states that in children some arrhythmia has been noted in diphtheria, particularly in the first few days. The most important pathological change in the heart in children with diphtheria is acute toxic myocarditis, which is always accompanied by a pulse rate of 100 (90 or 40) and particularly if the fall in rate is a result of the pulse, however, with a pulse of 80 or over. On the other hand, a pulse below 60 in child-

hood may be simply a sinus bradycardia (influenced by respiration). Farr has found records of eight cases of heart block in diphtheria, i. e., in children, demonstrated by instrumental means and of several others identified by clinical observation. In addition, necropsy records showing involvement of the bundle of His, but without definite clinical data have been published.

**Lymphosarcoma of Thymus.**—Strauss reports a case of thymic neoplasm which invaded the heart muscle. He says that he has found only one other similar case recorded in the literature. The growth was a lymphosarcoma which penetrated the wall of the right ventricle and completely obliterated the superior vena cava. The collateral route for the circulation was from the subclavian veins into the cutaneous vessels, from there to the superior epigastrics and back through the iliacs and the inferior vena cava.

**Gastric Disorders as Sign of Tuberculosis.**—Katz insists on the importance of a careful and painstaking examination of the lungs in cases of gastro-enteric disease, using all means and methods at command to determine whether or not the case is one of pulmonary tuberculosis. Two illustrative cases are cited.

- Nov. 1, 1919, 110, No. 18  
 Significance of Foot Troubles and Deformities. J. M. Taylor, Philadelphia—p. 701.  
 Sodium Citrate in Treatment of Pneumonia. W. H. Weaver, New Orleans—p. 706.  
 Ambulant Treatment of Anorectal Diseases. J. F. Saphir, New York—p. 709.  
 The Narcotic Addict in Relation to Health Department. R. S. Copeland, New York—p. 712.  
 Antipityuric Serum. C. L. Laura, New York—p. 713.  
 Stammering is not Amnesia. E. Tompkins, Pasadena, Calif.—p. 717.

**Sodium Citrate in Treatment of Pneumonia.**—The property of sodium citrate in preventing coagulation and reducing viscosity of the blood, Weaver says, makes it doubly valuable in the treatment of pneumonia. He gives sodium citrate, with plenty of water, at the rate of from 15 to 20 grains each hour, or 40 grains every two hours, sometimes more, to a full sized adult, and continued night and day until the result is attained. Occasionally, this dose will act as a purge, and the salt passes off through the bowels. This should be checked by a few doses of an opiate. The medicine should be continued into the second or third day, after the crisis, to assure complete resolution. If the blood pressure is low from cardiac disease, old age or other causes, and the pulse rapid, digitalis and strychnin should be given. All patients with lobar pneumonia of influenza origin treated with sodium citrate recovered. Weaver is convinced that there is a scientific basis for the action of sodium citrate in pneumonia.

**Narcotic Addict in Relation to Health Department.**—Copeland urges registration of the drug addicts in order to check the use of narcotics and secure conformity with the Harrison law.

**South Carolina Medical Ass'n Journal, Greenville**

October, 1919, 15, No. 10  
 Use of Surgical Solution of Chlorinated Soda in Treatment of Compound Fractures. W. H. Powe, Greenville—p. 587.  
 Treatment of Fractures; Long Bones. L. C. Sanders, Anderson—p. 589.  
 Elysis. T. M. Davis, Greenville—p. 593.

**Virginia Medical Monthly, Richmond**

August, 1919, 46, No. 5  
 Diffuse Suppuration in Walls of Cecum and Ascending Colon without Perforation. J. W. Henson, Richmond—p. 105.  
 Cancer of Stomach with Associated Pellagra. R. C. Bryan, Richmond—p. 107.  
 Case of Hodgkin's Disease in a Girl of Two Years. L. Porter, San Francisco—p. 109.  
 Thyroid Glands: Its Relation to Female Sexual Sphere. J. Bear, Richmond—p. 113.  
 Quarantine and Disinfection in Scarlet Fever. J. C. Gittings, Philadelphia—p. 116.

**Diffuse Suppuration in Walls of Cecum and Ascending Colon Without Perforation.**—Cramp-like pains in the right lower quadrant of the abdomen, lasting for a few minutes or a few hours, and coming at intervals of a month or may be six months was the principal complaint made by Hen-

son's patient, a male, 26 years of age. He also had some pain in the abdomen after almost every meal but less severe than the pain in the attacks. Then he had an attack more severe than any he had experienced before. The pain was different (not cramplike in character) and not localized to the lower right quadrant entirely, but extended across the abdomen to some extent. He was sick in bed a week. A diagnosis of chronic appendicitis was made. At operation the appendix was free but thickened and indurated, and because of a tumor mass, which led Henson to suspect carcinoma, the last 3 or 4 inches of the ileum, the cecum, ascending colon and 2 or 3 inches of the transverse colon were removed. Incision into the wall at almost any point revealed pus. The epithelial surface of the mucous membrane seemed intact. Typical tubercles were found on microscopic examination thus clearing up the etiology.

**Cancer of Stomach with Associated Pellagra.**—Bryan's patient was 49 years of age. He gave a distinct history of ulcer of the stomach twenty years ago. Two years ago he commenced to lose weight and noticed a small knot in the stomach. His tongue was thickened, red and had deep furrows, and there appeared on the back of both hands a symmetrical eruption. He consulted a physician who pronounced it pellagra. The diagnosis of cancer of the stomach was confirmed at operation and microscopically.

**Case of Hodgkin's Disease in Girl Two Years Old.**—The unusual features in Porter's case were: (1) the early age of onset; (2) the female sex of the child (males are affected at a ratio of 6:1); (3) rapid onset which followed what was undoubtedly an infection involving the gastro-intestinal tract; (4) early and extreme involvement of the mesenteric and retroperitoneal glands; (5) late and slight involvement of the cervical glands which are usually affected early and profoundly; (6) remarkable, extensive and early involvement of the skin in morbid process; (7) extreme edema of the legs while the anemia was still far from profound; (8) intermittence of the fever and the toxic symptoms which on several occasions gave an unwarranted hope for improvement; (9) repeated but temporary improvement of the child after blood transfusions; (10) absence of any demonstrable infective agent, *Cornibacterium Hodgkini* or other organisms in the glands for diagnostic purposes; (11) extensive invasion of the lung septums by the endothelial cells characteristic of this disease; (ordinarily such invasion is limited to the peribronchial and superficial pleural areas of the lung); (12) unusual size of the spleen, which in this disease is not often but moderately enlarged. It extended as far forward as the umbilicus and down to within an inch or less of the iliac crest.

FOREIGN

Titles marked with an asterisk (\*) are discussed below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nos. 1, 1919, 2, No. 3021

- Surgical Lessons of War. R. Jones—p. 187.
- Medical Education. G. Makin—p. 509.
- Giant Muscicle of Appendix. W. G. Nash—p. 567.
- \*Polycythemia Vera (Rubra) Complicated with Hyperthyroidism. F. J. Tyrrell—p. 569.

**Giant Mucocele of Appendix.**—The tumor in Nash's case was 7 inches long, 7½ inches in circumference, and weighed 8½ ounces.

**Polycythemia Vera (Rubra) Complicated with Hyperthyroidism.** In Tyrrell's case the thyroid gland was enlarged and symptoms of hyperactivity were present. The patient gave a history of gradually increasing myxædema during the last eight years, some shortness of breath and increasing muscular weakness. The superficial femoral arteries were tortuous and thickened. The radial pulse felt hard and gave the impression of high tension. The artery was thickened. The systolic blood pressure, taken in three separate positions, was always about 120. The heart was not enlarged. A complete blood examination was made, with the following result: Red blood corpuscles, 9,000,000 per cubic millimeter;

white blood corpuscles, 25,000 per cubic millimeter; hemoglobin, 125 per cent; color index, 0.8 per cent. A differential blood count revealed: polymorphonuclear neutrophils, 80.8 per cent; small lymphocytes, 10.4 per cent; large lymphocytes, 5.6 per cent; eosinophils, 0.4 per cent; mast cells, 2.8 per cent; myelocytes, none. There was, therefore, both polycythemia and leukocytosis.

Journal of Tropical Medicine and Hygiene, London

Nov. 1, 1919, 22, No. 11

- Cure of Bilharziasis by Intravenous Injection of Arsanilic. J. B. Christy—p. 127.
- \*Infection of Their Young by Trypanosome Infected Mothers. P. W. Bassett-Smith—p. 198.

**Infection of Their Young by Trypanosome Infected Mothers.**—Smith's experiments on rats showed that *T. d. d. souai* can pass direct from the mother's blood to the fetus.

Medical Journal of Australia, Sydney

Oct. 11, 1919, 2, No. 1

- \*Compound Fractures of Femur in Upper Third. J. R. Lee—p. 307.
- Early Diagnosis of Cancer of Alimentary Canal. L. M. McKillop—p. 305.

**Compound Fracture of Femur in Upper Third.**—Lee discusses the essentials of correct treatment of fractures of the femur and describes his pelvic femur splint which consists of an adjustable grip with two pads which fit the pelvis, and modified Thomas' frames for both lower extremities are hinged on to the pelvic grip. These frames can be adjusted to any desired position. There are no bands encircling the limb, hence no interference with the circulation occurs. The author also describes an adjustable splint for the arm. The splint consists of two parts. One fits firmly onto the trunk and hip; the other carries the limb. The patient carries his upper extremity with the whole weight supported by his body, hence the limb is kept quite steady and at rest.

Oct. 18, 1919, 2, No. 16

- Vertigo. M. C. Lidwell—p. 323.
- Congenital Syphilis. E. M. K. Hughes—p. 329.
- Spastic Paraplegia of Spinal Origin. A. E. Mills—p. 330.
- Multiple Venereal Neuritis. Due to Tenuia of Prostate. A. F. Mills—p. 331.

Oct. 25, 1919, 2, No. 17

- Problem of Tuberculosis in South Australia. H. C. C. Renwick—p. 337.
- \*A Pulmonary Condition Found in Warfare. A. Stewart and G. N. Robertson—p. 348.
- Tonsillectomy in Adults. Advantage of Operation. J. L. A. White. B. Foster—p. 349.
- Secondary Infections in Influenza. P. S. Munnell—p. 351.
- \*Case of Supercute Pulmonary Edema. A. R. S. O'Connell—p. 353.

**Pulmonary Condition Found in Warfare.**—The symptoms in the condition reported on by Stewart and Robertson are cough, sticky sputum, hemoptysis or even slight hemorrhage and great breathlessness, amounting in some cases to paroxysmal dyspnea. There is dulness in the right inter-axillary region, bronchial breathing, inspiration being accompanied by numerous rales of varying coarseness, associated usually with less weight, lassitude and loss of appetite. In most of the patients present all the classical signs and symptoms of pulmonary embolism, with this exception, that there is always a certain amount of albumen, even with normal traces of albumen in the sputum. The patients are paroxysmal in their attacks, which is due to a well defined delirium in the second attack. These patients are generally fatal unless they are treated. They have lain for a long time, comatose in the bed. The best treatment of the pulmonary embolism is to give 50 grains of sodium iodide or potassium iodide. However, the main part of the treatment is the deep search massage of the feet in which carotid pressure is applied to the pulmonary trunk for a duration of from 2 to 2½ minutes of each foot, and of 10 minutes, and 10 minutes in small and increasing doses. As soon as the normal count is attained, there is an improvement of the pulmonary condition.

**Case of Supercute Pulmonary Edema.** A case of superacute pulmonary edema is reported by O'Connell. The condition arose from acute post-infective toxæmia, and proved fatal in a case of 48 hours' duration, accompanied by cyanosis, red cells and phosphastræmia. The patient was 34 years

of age. She died two and one half hours after the chest was aspirated. The necropsy showed that the right pleural cavity had been almost drained of fluid. Southwood is convinced that Riesman's "congestion by recoil" explanation applied here; compression of the lung gave rise to changes in its blood vessels, congestion after reexpansion led to transudation of serum. The death was asphyxial in type.

### Archives des Maladies du Cœur, etc., Paris

August, 1919, 12, No. 8

\*Variations in the Blood Pressure. 1. LERICHE—p. 137

**Variations in the Blood Pressure During Prolonged Examination.**—Tixeront examines the pressure in the humeral artery by auscultation for five minutes at a time. This protracted examination with Korotkoff's technic has revealed, he says, different types of conditions in the circulation: the normal, with a slight lowering during systole and steady diastole; and the abnormal, of which there may be two forms, those with no fluctuation in the tension, and those with extremely wide fluctuations. This latter group may have an emotional, irritable or diseased heart, or an overexcitable sympathetic vasomotor system, or a tendency to paralysis of the vessels. The absence of any fluctuation may be explained by predominance of the moderating element (vagotony), or by hidden lesions of the arteries or by inexcitability of the sympathetic system. A record of the blood pressure should include, besides the Mx and the Mn in mm. mercury, mention of the method employed (oscillometer, palpation, auscultation, etc.), the artery examined, the corresponding pulse figures, and whether the blood pressure was initial or terminal (at the end of five minutes). A detailed record of the findings is better yet. With these data from a five minute examination, we have complete oversight of the conditions in the blood pressure.

### Bulletin de l'Académie de Médecine, Paris

Nov. 4, 1919, 82, No. 34

\*Welfare Work for Infants. G. Bosc—p. 253.

\*Surgical Treatment for Laparotomy. F. Jayle—p. 255.

\*Surgical Treatment of Fractures. Dauriac—p. 276.

\*Fractures of the Joints and Pseudarthroses. Dauriac—p. 278.

**Prophylaxis of Child Abandonment.** Bosc relates that the mortality among the infants in the public hospital at Tours was always very high, reaching 50 per cent. in 1916 notwithstanding that the healthier children were boarded out in their country to be brought up on the bottle. In 1916 new regulations were put into effect so that every woman desiring in the Maternity was compelled to remain and nurse her child for three months. No applicant was received at the Maternity unless she consented to stay afterward for three months. During this period her board and lodging were free and she is paid besides 125 francs a day, about 25 francs. She is then to be paid returnfare for her own child, and may be kept as long as she will stay and nurse the child. Since this regulation went into effect, thirty-two abandoned women out of 244 abandoned have been detained in this way and the mortality among the infants has dropped from 50 to 27 per cent. Another advantage of this plan is that when the mother has nursed her child for a month and seen that she will be able to nurse her child about abandoning her child, she can then be attended, and makes the necessary arrangements to take her child with her when she leaves. Not only this, but has been abandoned by its mother during these months, she is able to keep the children with them, and receive 100 francs for nursing the infant, or 30 francs a month, or 100 francs for the child to go with friends, but they must be the mother of their little one, with maternal seal.

**Esthetic Incision for Ovariectomy.** Jayle had occasion recently to operate on a patient's model with disease in the right adnexa. The incision he used left absolutely no trace, and he mentioned the esthetic as well as other features. The transverse incision in the hairy region was about 6 or 7 cm. long. The rectus muscle was drawn with a retractor toward the median line, also the hypo-gastric muscles and the peritoneum was opened and the lips separated with a small retractor with narrow blade. The pelvis was in a

sloping position (45 degrees) and this exposed the right adnexa and they were removed. The patient was then turned on the right side; the cecum then presented and the appendix was removed. He calls this the transverse and lateral esthetic suprapubic incision, and commends it in high terms especially as it overcomes the difficulty of differentiating between appendix and adnexa lesions, as it allows access to both, while reducing the trauma of the intervention to the minimum. Even with a pregnancy of from one to three months, the uterus is left practically unmolested. He has applied this incision in about twenty cases, with increasing satisfaction.

**Treatment of Fractures with Bone Grafts.** Dauriac is enthusiastic over the fine results of immobilizing fractures with bone grafts cut to fit by Albee's technic with electricity. He has been treating fractures in this way since 1910, with constantly perfect outcome. The only metal for holding fractures in place that answers its purpose is Treves's aluminum alloy. The tissues seem to stand this metal without reaction, and he has found it useful in various ways. He is now having screws and a cable made of this alloy which he thinks promise well.

**Pathogenesis of Loose Joints.**—Dauriac states that there are 15,000 wounded soldiers on record who have been left with flail joints, *membres ballants*. He ascribes this mainly to the "condition of chronic and profound intoxication which was the result of the too exclusive use of meat in the army ration. This with abuse of alcohol and of vinegar prevented normal repair." It cannot be charged to suppuration because he had fourteen cases of simple fracture which never has consolidated, although the men are not syphilitic. An additional factor is the lack of reaction on the part of the nervous system from the strain of service on the firing line. He explains further how the bone softens and loses its minerals when the fracture breaks up the natural static conditions of pressure on the bone from both ends. This pressure must be restored, to keep the bone normal, and for this reason he always uses when possible a long implant of bone, reaching at each end into normal tissue where it can obtain a good blood supply, to restore the primitive dynamic conditions of axial pressure. From the fact of this pressure, the implant will become organized, become stronger, and adapt itself to acquire the shape, the size and the resistance of the bone in which it has been incorporated.

### Bulletin Médical, Paris

Oct. 25, 1919, 33, No. 47

\*Surgical Treatment of Cancer of the Tongue. P. Sebileau—p. 617.

Idem. M. Vallas—p. 627.

\*Early Diagnosis of Cancer of the Tongue. M. Ferrand—p. 629.

\*Buccal Leukoplakia. P. Fernet—p. 632.

**Cancer of the Tongue.** Sebileau emphasizes the necessity for prompt and complete removal of all the tissues possibly involved, and discusses the preferable technic. The statistics on record all show the favorable outlook when the cancer can be removed by the natural route, and the gravity of operations by surgical access otherwise, although some even of these patients have survived for ten to twenty years. But not over 15 per cent. are living by the close of the fifth year.

Vallas' own experience has been 44 per cent., surviving for three years at least when the cancer was on the movable part of the tongue; none surviving with cancer at the base of the tongue, and 55 per cent. surviving with cancer of the floor of the mouth, but in three cases the interval since has been over three years. Reviewed further in the Paris Letter, page 1712.

**Early Diagnosis of Cancer of the Tongue.** Ferrand says that in a recent series of 17 cases of cancer of the tongue 10 were operable and 6 were nearly so. Only one was in an early stage. These cancers may develop as a papillomatous growth or as a small tumor, with early erosion and ulceration, or as a minute fissure or ulcer with hard base. Microscopic examination of a scrap would reveal the malignant growth early, even before the growth has assumed the appearance of a neoplasm. With a suspicious lesion, no time should be wasted in watching its further progress, especially when

the malignant disease is installed in a syphilitic inflammatory lesion or leukoplakia.

**Leukoplakia.**—Fernet remarks that the transformation of a patch of leukoplakia into an epithelioma is of such frequent occurrence (from 15 to 50 per cent.) of some think that leukoplakia is a potential cancer. He warns against irritating the growth with caustics, and against wasting time on treatment of syphilis or waiting for glands to enlarge. He warns further against trying roentgen and radium treatment, as these do no good and may do actual harm. If the microscope does not reveal malignant disease, every effort must be made to prevent local irritation. When the leukokeratosis is thick and fissured, to ward off cancer it may be well to strip off all or part of the mucosa, cauterizing then to arrest hemorrhage.

**Paris Médical**

Nov. 1, 1919, 9, No. 44

- \*Recent Progress in Therapeutics. P. Carnot and F. RATHERY.—p. 333.
- Treatment of Gangrenous Infections. G. LARDENNIS.—p. 347.
- \*Pituitary Treatment of Diabetes Insipidus. P. LEBIBLLET.—p. 353.
- Hematopoietic Serotherapy of Malarial Anemia. SARAILHE.—p. 358.
- Mesothorium in Therapeutics. P. CARNOT and A. GUILLAUME.—p. 364.

**Recent Progress in Therapeutics.**—Carnot and RATHERY review what has been accomplished with proteosotherapy, vaccines, chemotherapy, etc., in the last twelve months. They conclude by calling attention to the researches on the physiology of nutrition, the indispensable amino-acids, the minimum of nitrogen and of vitamins. "The American and English schools have contributed the most to the study of these questions. They are destined to revolutionize the old principles of alimentary hygiene and dietetics, and have considerable interest for therapeutics."

**Pituitary Treatment of Diabetes Insipidus.**—Lereboullet concludes his discussion with the assertion that subcutaneous injections of the posterior lobe of the pituitary in diabetes insipidus have proved their certain symptomatic action. Both from the standpoint of diagnosis, therapeutics and pathogenesis, the results achieved form one of the most interesting chapters of modern organotherapy.

**Presse Médicale, Paris**

Nov. 1, 1919, 27, No. 64

- \*Primary Grave Jaundice. M. GARNIER and J. REILLY.—p. 641.
- \*Projectiles in Cerebral Ventricles. G. L. REGARD.—p. 645.

**Primary Grave Jaundice.**—Garnier and Reilly expatiate on the discovery of the icterohemorrhagic spirochete which has shown that what used to be all grouped as icterus gravis consists really of two widely separate diseases. The characteristic feature of the spirochete form is not insufficiency of the liver but just the reverse. The liver is whipped up to extra functioning, but the bile is poured into the blood instead of into the biliary passages although the latter are permeable. The kidney functioning is almost entirely suppressed. The uremia increases from day to day. The spirochete seems to act primarily on the proteic substances, especially the hemoglobin-producing elements; it whips up the liver and blocks the kidneys. This is the form of icterus gravis that has been described under the names of the renal form of grave jaundice, grave jaundice with intact liver grave jaundice with anuria, hepatonephritis, hepatorenal insufficiency and acute nephritis with jaundice.

The other form of icterus gravis is acute yellow atrophy of the liver. Fatty degeneration of the tissues is the anatomical characteristic of this type, the metabolism of fats bearing the brunt of the attack, just as the protein element bear it in the spirochete jaundice. Their experience with a whole army during three years has confirmed that practically every case of primary grave jaundice fell into one or the other of these groups.

**Projectiles in the Cerebral Ventricles.**— REGARD comments on the ease, simplicity and harmlessness, comparatively speaking, of the removal of a projectile from the lateral ventricle under roentgen control. When the projectile reaches the fourth ventricle, death follows before any diagnosis is possible. The operation can be done at two sittings, first cutting the large flap, and later extracting the projectile

without general anesthesia. The danger from the operation is hemianopsia, but this disappears rapidly even when it was total at first. The patient also seems a little dazed for a few days but then throws this off and if no other lesions interfere, recovery is complete.

Nov. 5, 1919, 27, No. 65

- \*Food for Growing Children. P. N. DECAUPE.—p. 673.
- \*Suture of Spurring Wounds. BERGERET and GALVEZ.—p. 675.
- \*Massive Saline Infusion at Amputations. N. C. LAPAGE.—p. 676.

**The Diet for Children.**—Nobécourt discusses the proper diet for children from 2 or 3 to 14 years old and over. He deplores the way in which the needs for growth are often overlooked, and says that the results of war restrictions have thrown much light on dietetic questions, especially so far as children are concerned. He gives tables showing the proper proportions at different ages.

**Secondary Suture of Suppurating Wounds.**—Bergeret and Galvez describe eight typical cases to demonstrate that thorough sterilization with neutral solution of chlorinated soda, by Carrel's technic, allows the wound to be sutured early, and this avoids long hospital care and unsightly, painful wounds and the complications liable with protracted suppuration.

**Injection of Saline During Amputation.**—Lapeyre's experience indicates that injection of a large amount of saline into the principal vein of a crushed limb that is being amputated attenuates materially the gravity of the operation, as these patients are always suffering from more or less shock.

**Progrès Médical, Paris**

Oct. 11, 1919, 24, N. 41

- Gangrene Complicating War Wounds. R. DUPRE.—p. 440.
- Action of Thorium Lanthane, etc., on Bacteria. A. SARTORY.—p. 406.
- Case of Thomson's Disease. A. BARBIER.—p. 408.
- \*Adhesive Pericarditis and Surgical Correction. BARBIER.—p. 409.

**Operative Treatment of Adhesive Pericarditis.**—Delorme's suggestion to correct conditions in adhesive pericarditis by breaking the adhesions is discussed by Barbier from various standpoints. Hallopeau and Delbet have tentatively and partially applied this cardiolysis, and noted improvement in the play of the heart after adhesions had been detached. The method is as yet wholly in the realm of theory and hypothesis, but this cardiolysis seems logical although it has not been demonstrated to date that isolated fusion of the parietal pericardium with the heart is enough in itself to induce the symptoms of adhesive pericarditis. These symptoms can be explained more plausibly by the fusion of the outer layer of the pericardium with the pleura and to the chest walls, compelling the pericardium and consequently the whole myocardium to yield to the tug of the chest walls in their excursions. The main objection against Delorme's cardiolysis is that recurrence of the adhesions is almost inevitable unless part of the pericardial wall is resected.

**Revue de Médecine, Paris**

May 1919, 30, No. 5

- \*General Physiology of the Temperature. J. BACHMANN.—p. 31.
- \*War Mental Disturbances. CHARRON and BROWNIE.—p. 39.
- \*Mental Pericarditis. H. PÉRISSON.—p. 54.
- Slow Motion Electrocardiogram. R. DUBOIS.—p. 55.

**The Temperature Sense.**—BACHMANN has called attention to pathological changes in the sense of temperature, but it has not been studied, and he contributes here a comprehensive study of it under physiological conditions.

**War Mental Disturbances.**—CHARRON and BROWNIE emphasize the importance of laboratory research on the blood and urine as a means of monitoring mental derangement. They say that the diagnosis of mental derangement is generally accepted as a signal to retreat from the combat, interference but their experience teaches to the contrary. Treatment may be actually curative, mental treatment being under the control of the laws of general pathology. In two cases of acute mental derangement, the area of contact in blood and urine proved to be abnormally high, and as this returned to normal under proper treatment the mind cleared up likewise.

The nervous and mental disturbances differed widely in the two cases, there being convulsions in one—but the benefit in both as the blood and urine returned to normal conditions their causal connection.

**Puerilism.** Pierson discusses mental puerilism as it affects soldiers suffering from the effects of shell explosions and emotions. The pueril seems to return to its state when a child. Eight typical cases are described in this instalment.

### Revue Neurologique, Paris

Sept. 15, 1919, 26, N. 9

- **Parasitic Erythema.** Brault, S. J. *Revue Neurologique*, p. 673.  
 • **Psychic Disturbances after Typhoid.** Turpin. *M. P. 1919*, 66, G.  
 • **Revue de l'ŒS.**  
 • **Central Diencephalic R. Brain and G. Cells.**—p. 701.  
 • **A. Maria Cured by Thyroidectomy.**—A. Straker, p. 711.

**Benign Form of Brown-Séquard Syndrome.** Goldan describes five cases of the Brown-Séquard syndrome in men over 20 and with nothing to indicate syphilis or tuberculosis, alcoholism or blood disease. All were Jews, and Oppenheim's cases were all in Russian Jews. Remissions are the rule in all phases of the disease, and the spinal hemiparesis was never accompanied with symptoms from cranial nerves. Goldan has encountered a number of cases of this benign form but the five described are all that have been under observation for at least four years up to written. The diagnosis is based on the insidious onset, the slow evolution, the preponderance of the paresthesias in the leg, the mildness of the pains, the often stationary course, and the long remissions. The prognosis is therefore favorable.

**Tardy Epilepsy and Endocrine Disturbance.** Ferrin and Ricciardi describe two cases in which pluriglandular endocrine disturbance ovarian insufficiency predominating, seemed to be responsible for the development of tardy epilepsy. The patients were an idiot of 38 and a woman of 24, and ovarian treatment displayed considerable efficacy. The results observed in these cases justify further trials of ovarian therapy in treatment of epilepsy. Different gland extracts might be tried, the effect should never be definitely decided in epilepsy until after persevering use for several months with adequate doses. In one of their cases they gave 10 cc. of thyroid extract and 40 cc. of ovarian extract for a month, continuing the bromid as usual. When three months passed without an attack the amounts were doubled, and there was only one seizure afterward. The attacks in the case of the idiot coincided with the menstrual periods.

**Traumatic Dementia.** Benin reviews the features which distinguish a true traumatic dementia from chronic asthenia and post-traumatic psychosis.

**Acute Mania Cured by Thyroidectomy.** The girl of 18 years appeared normal except for a goiter when she developed acute mania of a galloping, restless type, early in life. When she had lasted for five months, part of the thyroid was resected, and two agitated subsided at once and recurrences were late. The result, the pathologic findings in the thyroid, and the clinical symptoms indicating abnormal thyroid function, form a firm tripod to sustain the thyroid origin of the acute mania in this case. The mania was frank and unambivalent. The ovaries were evidently normal as menstruation was regular, and the patient was young. All these factors tend to make the outlook more promising.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 1, 1919, 19, p. 34

- **Central Diencephalic R. Brain and G. Cells.**—p. 701.  
 • **Parasitic Erythema.** Brault, S. J. *Revue Neurologique*, p. 673.  
 • **Parasitic Erythema.** Brault, S. J. *Revue Neurologique*, p. 673.

**Simple Gastric Achylia.** Fraeker goes photomicrographs from four cases of gastric achylia with anachlorhydria in two. In all, the histologic picture revealed atrophic gastritis as unambiguously the primary distal cause. This has been repeatedly confirmed by the clinical findings in other cases, and by the fact that treatment of achylia as a functional disturbance is only exceptionally successful, while after the subsidence of the acute phase of the gastritis, the subjective

symptoms subside although the chemical findings may persist unmodified. In two cases anachlorhydria, lactic acid and occult blood pointed to cancer but the seven and eight years the patients have been under observation exclude malignant disease. He regards the normal hemoglobin percentage as an important sign of the nonexistence of cancer. It was always normal in his simple achylia cases. Another sign is the regaining of weight under proper treatment. Fortunately achylia does not seem to afford a special predisposition to cancer.

**Carcinomatous Lymphangitis in Pleura and Lung.** Von Mevius reports two cases in women of 71 and 41 in which the metastasis of a gastric cancer had spread along the lymphatics of the stomach to involve the glands in the mediastinum and the hilum of the lung. In Girode and B. rd's three similar cases the patients were between 30 and 32, and the symptoms were only dyspnea and palpitations.

### Gazzetta degli Ospedali e delle Cliniche, Milan

Sept. 18, 1919, 40, No. 75

- **Fibro-Epithelioma of the Mamma Degenerating into Sarcoma.** C. Soliani, p. 793.  
 • **Splenectomy in Malaria.** Enrico Cartolari, p. 802.  
 • **Blood Cyst in the Spleen.** Niccolino Federici, p. 817.

**Splenectomy in Malaria.**—Cartolari insists that the enlarged spleen in malaria should be removed when it is causing disturbances by its excessive movability, ptosis, torsion of the pedicle or adhesions in an abnormal location. He has done this operation in five such cases and witnessed a sixth, in all but one of which the relief was immediate and permanent, with no untoward by-effects. The roentgenograms show that in one case the spleen lay altogether in the right side, low in the abdomen. In two it lay horizontal, in one behind the pubis. In eighteen other cases he succeeded with medical measures alone in reducing the size of the spleen more or less. When the enlarged spleen is causing disturbances it will generally be found abnormally movable, which facilitates its removal. In his one unfavorable case, the much enlarged spleen was in its normal seat but was adherent to adjacent organs and there was much hemorrhage, the patient succumbing to the acute anemia not long after.

**Blood Cyst in Spleen.**—Federici reports the fourth case of a blood cyst in the spleen that has been published in Italy. As puncture of an echinococcus cyst is regarded as dangerous, and as aspiration may be inexact with a plurilocular cyst, operative intervention seems preferable from the start, after failure of medical measures.

### Pediatria, Florence

October, 1919, 27, No. 10

- **Urine Test for Typhoid.** Olimpio Cozzolino, p. 625.  
 • **Angiokeratoma.** A. F. Canelli, p. 639.  
 • **Parvular Arthritis after Smallpox and Influenza.** R. Kharina Mar-nucci, p. 655.  
 • **Alleged Rachitism in Young of Thyroidectomized Rabbits.** C. Lambertini Rucsa, p. 661.

**Urine Test for Typhoid.**—Cozzolino has been applying to children the urochromogen test by De Silvestri's technic. It was constantly negative in the healthy children, but in those with typhoid it proved more reliable and instructive than the Weiss or Ehrlich tests and warned of an impending relapse. In the 9 children with typhoid or paratyphoid, the De Silvestri test was positive in every case when the child was first seen, but the disease in all had been under way for from four to twenty days. In the 89 children with various other diseases, the reaction was constantly negative except transiently at the height of the pneumonia in 11 of 13 cases, once in 2 cases of tuberculous meningitis, once in 2 cases of measles accompanied by bronchopneumonia, and in far advanced cases of pulmonary tuberculosis, but never with bone and gland tuberculosis. The test is made by adding 4 drops of pure sulphuric acid to 2 c.c. of deliquesced ferric chlorid and then adding 3 c.c. of the filtered urine, a drop at a time, allowing it to flow gently down the wall of

the tube. At the line of junction a brown ring forms, and this tint spreads upward, and sometimes a gray cloud forms on the surface of the urine above. In twenty-four hours all the fluid is an even brown. Albumin does not interfere with the reaction.

**Angiokeratoma.**—Canelli describes the clinical findings and the pathologic anatomy in five cases of angiokeratoma in young adults. One patient he had known from childhood. The fingers and toes were the seat of the lesions in all but one.

**Purulent Arthritis After Smallpox and Influenza.**—One babe of 4 months developed purulent polyarthritis after smallpox, and the 10 month babe purulent monoarthritis after influenza. Both children recovered promptly and completely under treatment with an autogenous vaccine.

**The Alleged Rachitism in the Young of Thyroidectomized Rabbits.**—Rusca reproduced the experiments in this line of Claude and Rouillard (1913) but with absolutely negative results.

**Policlinico, Rome**

Sept. 7, 1919, 26, No. 36

- \*Occupational Lesions in Nasal Septum. A. Ranelletti—p. 1057.
- \*Typhus. Vittoriojo Giacanelli—p. 1067.

**Ulceration of Nasal Septum from Chromium Fumes.**—Ranelletti remarks that ulceration and perforation of the nasal septum are the characteristic occupational injury from the production of sodium chlorate by electrolysis from potassium bichromate. In the last three years he found this ulceration in the nasal septum in twenty-five of thirty-eight workers examined, including four with perforation. The thirty-one other workers also presented similar lesions, so that 56.5 per cent. of the sixty-nine workers in the factory had the ulceration, and in 15.7 per cent. of those affected there was perforation. This proportion is less than was reported by Hermann in Germany in 1900, where 79 per cent. of 257 workers were affected. A loose plug of salicylated gauze introduced into each nostril seems the best individual preventive known to date; cotton interferes with breathing.

**Typhus.**—In 10 per cent. of Giacanelli's 220 typhus patients at a camp of war prisoners, defervescence occurred by lysis, and suppurative parotitis developed in 20 per cent.

**Riforma Medica, Naples**

Sept. 20, 1919, 35, No. 38

- \*Reaction of Peritoneum to Tuberculous Toxins. V. Aloi—p. 802.
- \*Paralysis from Injection of Quinin. G. Tanfani—p. 807.
- Abuse of Antiseptic Irrigation of Cavities. D. Tarditi—p. 809.
- Present Status of Exclusion of the Typhus. E. Azevoli—p. 811.
- Biology of the Aged. G. S. Sala—p. 812.
- Proposed Changes in Medical Curriculum. A. Ferrarano—p. 816.

**Reaction of Peritoneum to Tuberculous Toxins.**—Aloi's experimental research on thirty-two guinea-pigs is described in detail. The findings of the cellular response are tabulated for comparison as the guinea-pigs were normal or tuberculous.

**Paralysis After Injection of Quinin.**—In Tanfani's three cases the main sciatic nerve had been injured during intragluteal injection of quinin. In one case the sciatic paralysis was as complete as if the nerve had been severed by a bullet. Such experiences warn of the necessity for keeping the needle always above the level of the greater trochanters, and slanting it upward.

Oct. 4, 1919, 35, No. 40

- \*Metabolism in Mercuric Chlorid Poisoning. A. Biondi—p. 814.
- \*Lethargic Encephalitis. G. Rossi—p. 816.
- \*Laboratory Typhus. E. Pepesi—p. 816.
- Syphilis in Air Passages and Ears. A. Azzi—p. 817.

**The Metabolism with Chlorid Poisoning.**—Biondi analyzes the findings of the intermediate metabolism in nine cases of acute mercuric chlorid poisoning. The curve of a otemia rises and falls inversely to the diuresis.

**Lethargic Encephalitis.**—He reviews his experiences with thirteen cases of lethargic encephalitis in a recent five months. He is convinced that it is a nervous complication or manifestation of influenza.

**Laboratory Infection with Typhus.**—Pavesi relates that Professor Müller, sixteen days after having spilled an emulsion of typhus-infected lice on his hands, developed an attenuated form of typhus. No other possibility for contagion was known at the time.

**Archivos Latino-Amer. de Pediatría, Buenos Aires**

May June, 1919, 13, No. 1

- \*The Child Welfare Congress—p. 130.
- \*Tuberculous Glands in the Neck. C. Robertson Lavelli—p. 130.
- \*Classification of Gastro-Intestinal Disturbances in Infants. E. Gagne—p. 285. Idem. L. Velasco Blanco—p. 134.
- \*Roentgen Treatment of Surgical Tuberculosis in Children. R. Espinola—p. 313.

**The Child Welfare Congress.**—The *Archivos* is the official organ of both the Argentine and the Uruguay Sociedad de Pediatría, and this issue is devoted to the recent second Congreso Americano del Niño. The conclusions are given of all the principal addresses, with the discussions and the resolutions adopted by the meeting. Most of the leading addresses have been recently reviewed in these columns when published elsewhere, especially those on poliomyelitis, hysteria in children, early diagnosis of brain tumors in children, motor plastic amputations in children, etc.

**Tuberculous Glands in the Neck.**—Various speakers reiterated that the tonsils are usually the primary source of tuberculous glands in the neck, and that treatment should include the mouth and nose in general. Robertson asserted, "La radiotherapia es el tratamiento de eleccion en las adenitis tuberculosas" of the neck. Surgical measures are preferable when several glands are involved, as modifying injections have little prospect of success except when there are only a few and well isolated glands affected. He insists that particles of food, even with the healthiest teeth and in well kept mouths, putrefy and induce a septic condition which entails a defensive reaction in the tonsils and mucosa of the nasopharynx. This in time renders the mucosa more permeable for micro-organisms, and the glands in the neck may soon feel the effects.

**Classification of Gastro-Intestinal Disturbances in Infants.**—Gaigne is chief of the Institut de Puericulture No. 1 at Buenos Aires, and he declares that there is no need for revision of the present classification, especially that based on Finkelstein's premises.

Velasco Blanco prefers to classify them according to the food, infection or a constitutional predisposition is primarily responsible, emphasizing that the toxemia is distinguished by the paradoxical reaction to the food.

**Roentgen Treatment of Bone and Joint Tuberculosis in Children.**—Espinola asserts that roentgen therapy, as distinct to a leading place among the methods of treating surgical tuberculosis. The technique has to be correct and the dose individualized; some processes heal under small doses, others require intense exposures. His experience as chief of the roentgen service in a large hospital is summarized more and more, he says, the value of this treatment in surgical conditions of bacterial origin. In a patient operated for surgical tuberculosis in the children, the procedure is as follows: The glandular masses break down into fragments, in proportion to the amount of the type involved. Cold abscesses and hepatic pus in suppuration should be evacuated by puncture from the side, and the cavity exposed to intense x-rays. The dose should be kept in proportion to the virulence of the infection. He has found it possible to ray large tuberculous glands daily, reaching a total fifteen times greater than the cytobion dose, without inducing radiodermatitis, nothing more than a superficial erythema that drops off in ten or fifteen days, leaving normal skin below the mortised sheet, on condition that three or four shock waves are used, and making allowance for the greater susceptibility of women than men and of children to radiability. The reaction should be expected for some time, and the child has to be healed to a great extent.

**Brazil-Medico, Rio de Janeiro**

Oct. 1, 1919, 33, No. 2

- \*Angioma of Tongue. J. A. Vaz—p. 130.

**Ascasis in Fallopian Tube.** Adeolato operated on the diagnosis of bilateral cystic salpingo oophoritis with chronic peritonitis. The cystic tubes ruptured during the tedious operation and a dead ascaris, about 10 cm. long, dropped out of one of the tubes. No opening into the intestine could be detected at any point.

### Medicina Ibera, Madrid

Oct. 17, 1919, B, No. 191

**Orchitis.** Paraferrera with Contreras. *M. de las Revistas*.—p. 17. (Cont.)

\***Hemorrhages of the Retina in Influenza.** J. González. p. 19.  
\***The Prognosis with Valvular Heart Disease.** G. Hergueta. p. 22.  
\***Clinical Course of Endocrine Orbits.** F. Hernando. p. 23. (Cont.)

**Hemorrhages of the Retina in Influenza.** González has considered five cases of hemorrhages in the retina during convalescence from influenza. He gives illustrations of the different types of hemorrhages observed. He obtained marked improvement or even clinical cures with sweats and local application of heat. Instillation of a drug to dilate the vessels has little prospect of success in the posterior segment of the eye. He never witnessed any benefit from such with hemorrhage of the retina. The outlook seems to be more favorable than with hemorrhage of the retina from other cause, but all hemorrhages in the retina are grave.

**The Prognosis with Valvular Disease.** Hergueta remarks that the prognosis depends as much if not more on the liver and kidneys as on the heart itself. Mitral valvular disease is more apt to damage the liver than a pulmonary valvular defect and this is particularly liable to occur with lithiasis, alcoholism, malaria and syphilis. Hence the extreme importance of the liver antecedents with any form of heart disease, although complete tests of liver and kidney functioning are seldom included, as they should be, in the routine examination of a patient with heart disease.

**Gastric Disease of Endocrine Origin.** Hernando here continues his study of this subject, read at the inaugural meeting of the Spanish Association for the Advancement of Science. He remarks that the glands with an internal secretion influence the digestive apparatus not only by their secretions but through the interrelation of the vegetative nervous system. Universal ashenia or splanchnoptosis is probably a consequence of congenital changes of this origin. Gastric secretion may be modified by the functioning of the endocrine glands, but this is usually in the line of hyposecretion although occasionally cases of hyperchlorhydria have been reported in persons with excessive thyroid functioning. The extract of the normal thyroid has a stimulating action on gastric secretion and in persons with suprarenal insufficiency a suprarenal extract has an inhibiting action on gastric secretion. His own and others' research has demonstrated that increased motility seems to provide conditions favorable for the development of gastric ulcer, pointing to the vagus sympathetics, the modified functioning of the vegetative nervous system, the persistence of or reflux to the body lumen acid in the stomach, and the hyperactive power to intonate in general. He has observed gastric ulcer only in cases with symptoms of excessive suprarenal insufficiency, but probably comparatively more cases could be recognized if other factors in the pathogenesis of gastric ulcer in certain cases. The injurious effect of caffeine and nicotine on persons with hyperchlorhydria and gastric ulcer may be explained by the exhaustion of the suprarenals which they induce. This explains the beneficial effect of the suprarenals recombine after the action of suprarenal extract is given. He gives in Spanish an 184 addresses of reference with the full titles, *Principios de Medicina Interna*, (Friedmann and Kendall).

### Progresos de la Clínica, Madrid

November 7, 1919

\***Operative Treatment of Pulmonary Tuberculosis.** Morales declares that when an artificial pneumothorax cannot be realized a thoracoplasty operation may answer the same

purpose, and that the induced pneumothorax is indicated whenever one lung is gravely diseased while the other lung is sound or nearly sound. It is indicated also when there is profuse or frequently recurring hemoptysis, all from the one lung. Even if the other lung is "touched," it is still relatively indicated, weighing well all the circumstances. A thoracoplasty operation must not be regarded as particularly grave; it is generally applied only in cases in which all other means have failed and the disease is progressing. The mortality is below 5 per cent, he says, while its results are good enough on the whole to repay. He noted femoral thrombophlebitis in one case as a disagreeable complication of thoracoplastics, and knows of another case of the kind. The tendency to hemoptysis was promptly and permanently arrested by the collapse of the lung. He resects the ribs close to the spine, the incision starting at the second rib and curving away from the spine in the lower third, ending at the eleventh rib, resecting 8 or 10 cm. of each rib. The patient's tolerance is tested first by making only the lower half of the incision and resecting only the seventh to the eleventh ribs. If this is borne well, the operation is concluded at the one sitting. Operations directly on the lungs are very rarely indicated. The mortality is enormous and the benefit transient, as a rule. In three cases in which a cavity was opened and drained, all the patients died. But it might be considered as supplementary to thoracoplastics, always bearing in mind the chronic fistula which it usually entails. Surgical measures in pulmonary tuberculosis should aim merely to favor the natural healing processes.

**Chemical Analysis of the Blood.** Poyales expatiates on the importance for the general practitioner of determining the content of the blood in sugar, creatinin, urea, uric acid and cholesterol, and he describes the simplest tests for the purpose with the colorimeter and centrifuge. He also gives a colored plate showing the color findings with these five substances in the blood.

**Roentgenography in Renal Tuberculosis.** Serés reproduces some instructive roentgenograms, and remarks that the shadows of calculi are generally within the outline of the calices or pelvis, while tubercles are in the kidney substance itself. Even when calcified, the tubercles do not cast such a solid and uniform shadow as a stone, while the outline is not regular like that of a stone.

### Repertorio de Medicina y Cirugía, Bogotá

October, 1919, 11, No. 1

**The Bassi Metabolism:** Modification in Fever. E. Gómez A. p. 4  
**Centers for Optic and Auditory Perception.** V. Ribón. p. 10.  
**Criminal Responsibility of the Insane.** A. Gaitán U. p. 17. (Cont.)  
**Importance of Some Knowledge of Legal Medicine by Legal and Penal Authorities.** R. Fajardo Vega. p. 34.

**The Cortical Center for Vision and Hearing.** Ribón discusses the topography and the physiology of the brain center or centers which allow perception of the impressions transmitted by the optic and auditory nerves. He expatiates on the close connection between these nerves in this respect, and on the way in which music often takes advantage of this fact to give an impression of actual color. The range of the wood wind instruments represents one color, other instruments, other scenes and colors. The flutes and horns in the introduction to Haydn's "Creation," for example, reproduce the fresh coloring of the morning.

### Revista de la Asoc. Médica Argentina, Buenos Aires

June July, 1919, 30, Nos. 175-176

**Exophthalmos with Fractured Skull.** Raúl Argüañara and Delfor del Deus with Tuberculous Peritonitis. Pedro Belo. p. 400.  
**Cerebellopontine Angle Tumor.** R. Chiappori and G. Bosch Arana. (p. 415.)  
**Vaccine Treatment of Influenza.** J. J. Mon. p. 430.  
**Treatment of Hydatid Cyst in Lung.** Domingo Prat. p. 433.  
**Hot Wet Pack to Entire Body in Operative Syncope.** G. Zorraquín. p. 447.

**Exophthalmos from Fracture of Base of Skull.** The lateral pulsating exophthalmos was evidently caused by an arteriovenous aneurysm in the young man. The aneurysm was the result of a railroad accident fracturing the base of the skull and the temple region, nine months before. He

complained of an intense intracranial murmur which sounded to him like the scraping of a saw. Compression of the carotid arrested this murmur. The communication between the two lateral sinuses explains how the arteriovenous aneurysm from a rupture on one side may induce exophthalmos of both eyes. In all such cases rupture of the carotid on only one side was found, with a single exception. In a second case, a compressing bandage and injections of gelatin were followed by retrogression of the exophthalmos and murmur which had developed after an automobile accident. There is evidently a tendency to a spontaneous cure in a large proportion of such cases when the concomitant lesions are not irreparable. In the first case described, the internal carotid was ligated and the murmur and pulsation disappeared at once on one side and nearly so on the other, and the exophthalmos retrogressed somewhat. The symptoms returned later on the other side, and the carotid on this side was ligated also. After months of visual sensory blindness, vocal motor aphasia, and agraphia with some paralysis, as is described in detail, he gradually learned to speak anew and is able to go about alone.

**Ileus in Tuberculous Peritonitis.**—Bolo reports six cases in children and adults, and emphasizes that operative treatment is directly contraindicated under these conditions.

**Revista de la Universidad de Buenos Aires**

July-September, 1919. 41, No. 142

- \*The Evolution of Pan-Americanism. Ernesto Quesada. p. 289.
- \*The Image on the Retina Is Not Inverted. R. Senet. p. 398.
- \*Pubiotomy versus Symphysiotomy. D. Iraeta. p. 417. Concl'n.

**Evolution of Pan Americanism.**—Reviewed elsewhere.

**Image on Retina Not Inverted.**—Senet gives diagrams to sustain his arguments that the image on the retina is not inverted.

**Symphysiotomy Versus Pubiotomy.**—In this conclusion of his long article on the comparative merits and drawbacks of these operations, Iraeta declares that all the conclusions are in favor of symphysiotomy. He tabulates his own extensive experience with both, and the results in other clinics, American and foreign.

**Semana Médica, Buenos Aires**

Aug. 7, 1919. 26, No. 32

- \*Emetin Cures Nonsuppurative Pulmonary Process. J. Destéfano and R. Sammartino. p. 139.
- \*Treatment of Congenital Stenosis of Uterine Cervix and of Antelexion. E. A. Boero. p. 143.
- Advantages of Lemon Juice in the Arthritic Diathesis. D. T. R. Davison. p. 146.
- \*Examination of Genito Urinary Patients. Castaño. p. 148.
- \*Normal Copper in Toxicology. L. P. J. Palet. p. 151.
- \*Proposals for Organized Welfare Work for Infants. G. Sisto, D. Aguilar and J. C. Navarro. p. 154.

**Pulmonary Amebic Lesions.**—Destéfano and Sammartino report a case of what they call right corticoepileptitis. The insidious onset, the acute exacerbations and the protracted course and symptoms gave no clue as to whether the tubercle bacillus or the pneumococcus was responsible for the clinical picture. There was a focal reaction, with fever, to the tuberculin test, and by the third month the aspect was that of tuberculosis in the "hectic" stage, with intense anemia and profuse night sweats. For three weeks the man had been having a constant cough, with profuse blood-stained expectoration but no signs of suppuration. After ergot, calcium chlorid, horse serum, epinephrin, etc., had failed to arrest the hemorrhagic tendency, and the condition was daily growing worse, emetin was given, 0.04 gm being injected subcutaneously every day. The result from the very first injections was most surprising. The cough, hemoptysis, fever, and sweats had permanently disappeared by the fifth or sixth injection, and by the tenth, the final injection, nothing was left of the whole process, but a slight restriction of the excursions and vocal vibrations in the right base, with slight dullness and slight reduction of the vesicular murmur. In less than six weeks the man of 34 had regained over 46 pounds.

They know of only three similar cases on record of a nonsuppurative amebic focus in the lung. In one case the

patient had chronic amebic dysentery but no amebas were found in the sputum. In the others the findings were positive. Rousseau was impelled to examine the sputum for amebas in his case solely by the resemblance he noted between the sputum and amebic dysentery stools. This total group of four cases shows that *Entamoeba dysenteriae* is capable of inducing congestion in the lungs and hemorrhage, without suppuration, and even without clinically appreciable lesions in bowel or liver. Even when no amebas can be found in the sputum, in puzzling cases of pleuro-pulmonary processes, a rapid and energetic course of emetin treatment might not only clear up the diagnosis but promptly cure the patient.

**Surgical Orthopedic Correction of Congenital Stenosis of Uterine Cervix and of Congenital Antelexion.**—Boero has modified Iribane's appliance for this purpose and gives an illustrated description of his own device. It is made of stout wire, shaped something like a palm-leaf fan. The handle is introduced through the internal os and the broad blades are sutured to the lips of the cervix (the cervix first slit on both sides). The blades are then spread, and the whole is left in place for twenty, thirty or more days. He calls this device the histeroetion, and says that it enables the general practitioner to correct these congenital anomalies responsible for dysmenorrhea or sterility or both.

**Examination in Urogenital Cases.**—This is one of Castaño's regular lectures in the course on genito urinary disease.

**Normal Copper in the Liver.**—Palet's research on fifty-four cadavers failed to confirm the presence of copper in the normal human liver. Incineration with magnesium oxid he found a simple and reliable means of investigating the copper content of tissues.

**Welfare Work for Infants.** The Sociedad de Pediatría of Buenos Aires appointed a committee to propose ways and means for child welfare work for protection of the infants of wetnurses and of unmarried mothers, federation of all agencies working in this line, and means for publicity and propaganda. This is the report of the committee.

**Siglo Médico, Madrid**

Oct. 11, 1919. 66, No. 433

- \*Bacteriologic Data for Prognosis in Typhoid. Juan Páez. p. 87.
- Microbiologic against Tuberculosis. A. Pallás. p. 89.
- Treatment of Venereal Tuberculosis. De Tol. p. 203.
- Conservative Turbinectomy. Ernesto Bada. p. 866.
- \*Excessive Worship of Facts. A. Sánchez Herrojo. p. 867.

**Bacteriologic Prognosis in Typhoid.** Páez relates that among his more than 1,000 cases of typhoid in the last eight years were eleven in which both agglutination tests and hemocultures were negative although the clinical manifestations of the disease were beyond question by the second week. All in this group died. He urges others to note whether such negative findings imply always a fatal outcome.

**Conservative Turbinectomy.** Botella presents a wedge the entire length of the bony portion of the inferior turbinate. The outer flap left is drawn forward and adapted with the other raw surface. Then through a nose speculum, gauze is packed around to hold the flaps in position without the necessity for suture. In three days the raw surface have become united, leaving merely a hair line scar. This method he declares has all the advantages of the Frost, Watson and Yankauer technic without their doubtful results.

**The Idolatry of the Fact.** Sánchez Herrojo declares that too many are inclined to regard facts as the whole of science, when in reality it is only half.

**Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam**

Sept. 1919. 2, 51-17

- \*The Etiology of Typhoid. C. B. Huisman. p. 51.
- \*Can Mutation of Bacteria be Detected? H. J. M. van der Vliet. p. 54.
- \*Movement of Erythrocytes and the Osmotic Pressure. H. J. Koster. p. 81.
- \*Legal Requirements in Autopsy. H. H. van Eijk. p. 83.
- \*Hypno-Zoster and Coenocytosis. F. A. Burgmans. p. 86.

**The Superficial Leishmaniasis of Surinam.** Bonne relates that warts of tropical leishmaniasis is common in Surinam, and a disease of the skin acquired in the interior is called "bush warts." But his research has demonstrated that the latter is a leishmaniasis. He gives an illustrated description of it, saying that it seems to be the only form of leishmaniasis known in the Netherlands West Indies. The fact that it is contracted only in forest regions suggests some reservoir for the virus in some forest insect or plant.

**Can Mutation of Bacteria Be Induced?** Schade was able to cultivate to a high point already existing properties in the color bacilli in his extensive research, but there was nothing to suggest mutation.

**Movements of Fetal Thorax Like those of Respiration.** Kowner comments on Mink's article (of which a summary was given in THE JOURNAL, Nov. 8, 1919, p. 1482). He insists that long before birth the fetal thorax is making movements like those of respiration. Abfeld called attention to them years ago, and Kowner has repeatedly demonstrated them to students. The movements jolt the whole trunk, and these regular movements can occasionally be felt with the hand laid on the abdomen. They differ completely from all other movements of the fetus and when they occur it is usually in a rapid tempo, about 60 to the minute. The advantages from this preliminary exercising of the respiratory muscle are obvious. He ascribes them to irritation of the respiratory center by accumulation of carbon dioxide. This may become exaggerated during the birth process. If there is too much carbon dioxide the respiratory center becomes paralyzed. In such a case the measures to resuscitate the child born in asphyxia are successful only in so far as they mechanically induce an artificial respiration. He describes how this is accomplished by swamping, by placing the child in a hot bath, and by pulling the tongue forward in clearing the throat of secretions. Under these circumstances, respiration cannot be induced by reflex action. It cannot be induced by any means if the air passages are filled too deep with amniotic fluid, mucus and mucus drawn in during intra-uterine life by some pathologic exaggeration of the regular physiologic movements of the fetal thorax resembling those of respiration. Swamping the child is first and foremost a means for artificial respiration; any reflex action with it is only secondary. But when artificial respiration has improved conditions, freeing the respiratory center from the excess of carbon dioxide, then the means to induce reflex action are used to complete the work as the reflex excitability is regained. Irritating the nose with a feather and blowing air into one nostril, to clear the other, as Mink advocates, have the drawback that the nose is liable to be filled with fluid and mucus, and these procedures might do harm.

**Herpes Zoster and Chickenpox.** Bruining cites von Geisay's thirteen cases in which herpes zoster had been followed within two weeks by chickenpox. Gara has reported a case in which two children in one family had chickenpox and the third developed herpes zoster, all within two days. Hvidtvede recently had a case of herpes zoster in a woman whose nursing child developed chickenpox ten days after her first symptoms. Two weeks later an older child, and again another two weeks, the third child, all developed chickenpox. Bruining reports the case of a man who had herpes zoster on the face, but this diagnosis was apparently corrected to herpes zoster. The next day typical chickenpox appeared, and the two ran their usual course together.

### Acta Medica Scandinavica, Stockholm

NOVEMBER 1919, 52, N. 4

\*The Scandinavian Societies. G. Bruns, 167. E. Germain.

The "Acta Medica." The *Nordiskt Medicinskt Arkiv*, medical journal, appears under its new name in a brilliant new volume. The editorial staff includes two leading internists from Sweden and Norway and one from Denmark and from Finland, with a long list of collaborators in each country. The Latin title page aids in the international character which the editors are seeking to impart on it.

**Residual Nitrogen.** Brun's article fills this entire issue of 280 pages, relating his findings in research on the nonprotein nitrogen in the blood serum and cerebrospinal fluid in persons with chronic kidney disease. He compares with these findings those from ten other persons with healthy kidneys. The kidney cases are classified according to the pathologic conditions, and the findings are tabulated for comparison and especially the relative proportion in the serum and spinal and also the relative proportions of the various elements of the residual nitrogen.

### Norsk Magazin for Lægevidenskaben, Christiania

NOVEMBER 1919, 80, No. 11

Thoracoplasties in Treatment of Pulmonary Tuberculosis. P. Bull, p. 1105.

The Nose in Connection with Disease of Lacrimal Apparatus. B. Malling, p. 1130.

Influenza in the Tuberculous; Typical and Atypical Fever. N. Lund, p. 1153.

Forceps with Transverse Presentation. C. Kielland, p. 1197.

**Thoracoplastic Operative Treatment of Pulmonary Tuberculosis.** Bull has done a thoracoplastic operation in 37 cases of pulmonary tuberculosis and he tabulates the details and outcome in all. The mortality was 30 per cent. in his earliest 11 cases but since then only 4 per cent. and he ascribes this improvement to his practice of doing the operation at two sittings, with an interval of three or four weeks between them. Of the 33 who survived the operation, 7 died later from the progress of the tuberculosis, one surviving for four years; one succumbed to influenza, but 25 are still living, and 11 of these can be regarded as cured, with full earning capacity; 7 still show symptoms, and in 7 the interval since the operation is too short for determination of the outcome, but most of them regard themselves as cured. A very favorable outcome was thus realized in over 33 per cent. of 30 patients, including a number with an interval since of almost five years. When there is a cavity, he aids in the "collapse therapy" by implanting a piece of adipose tissue, cut to fit, from the abdominal wall. In the cases which showed little if any improvement, the operation was incomplete or the general health so poor that the thoracoplasties should not have been attempted. One died from intercurrent disease and in 7 the other lung became affected. Influenza also cooperated in rendering the outlook less favorable than might otherwise have been the case. The danger of the other lung's becoming diseased is the Damocles sword to fear. It is possible that adhesions in the lungs may be responsible for the failures in certain cases; this is a question requiring further study. The thoracoplasties does not interfere with the use of the arm, nor disfigure, especially when fat implants were used.

**The Nose as a Factor in Disease of Lacrimal Passages.** Malling reviews literature on this subject from 1880 to date, and describes his own examination of 192 patients with abnormal overflow of tears without macroscopic evidence of disease in the lacrimal passages. In 155 of them the nose or its annexes showed more or less pathologic changes, and this had evidently been a factor in 96 per cent. of the total epiphora cases without macroscopic lesions in the lacrimal passages. Pathologic conditions in the nose or sinuses were found in 58 per cent. of the dacryocystitis cases. The nose and its sinuses should be thoroughly overhauled in all cases of disease of the lacrimal passages. If this is detected in its incipency, it may be possible to cure it in time to ward off stricture. He tested the permeability of the passages by instilling into the conjunctiva a drop of a solution of 0.2 gm. fluorescein and 0.35 gm. potassium carbonate in 10 c.c. water. After waiting two minutes, through a nose speculum he wipes with cotton the mucosa just below the inferior turbinate. The interval before the cotton shows traces of the stain is an index of the permeability of the lacrimal passages, etc. If no stain appears in fifteen minutes, he rinses out the passages in the usual way and treats any catarrhal conditions found.

**Forceps with Transverse Presentation.** Kielland gives three illustrations of his special forceps and mode of applying them.

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## DO CALORIES MEASURE THE VALUE OF FOOD?\*

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As the attention of physicians is being called more and more to problems of nutrition and their solution, it may not be out of place to reexamine some of the foundations of our teachings and see if they are altogether sound.

### CALORIES AND FOOD VALUES

Much is written and said about calories, as, the food value of a certain substance is so many calories; and there is a suggestion that a calory is a sort of food ingredient, the real value of food depending on the number of calories present.

A calory is a measure of heat, just as grams, ounces or pounds are measures of weight. If a table of food values was prepared which stated that a definite quantity of milk yielded 6 pounds, meat 8 pounds, bread 4 pounds, and soup 1 pound, the natural question would be, "Pounds of what?" Scant attention would be paid to any one dwelling on the value of particular foods, because the pounds were there. Is it any more rational always to dwell on the value of a definite quantity of food simply because it contains so many calories? The most diverse kinds of food may have the same caloric value but a very different nutritive value.

The calory method of feeding is based on the assumption that nutrition processes depend solely on the oxidation of food, and that the heat given off as the result of the oxidation is the sole measure of the value of the food. In practice, the tendency is to keep a table of calory values from which a diet is made out by an arithmetical process, and the physician is likely to feel that if the calory count is correct, the food problem is properly solved.

In experimental nutrition, however, it is soon found that nutrition is not a simple oxidation process. Many feeding experiments have been conducted with animals to see if food materials from different sources, having supposedly the same chemical composition and yielding the same number of calories as the result of oxidation, have the same practical food value. One of the most notable of these experiments was made by Hart, McCollum, Steenbock and Humphrey<sup>1</sup> at the Wisconsin Agricultural Experiment Station with a large number of animals over a period of four years, and some of

their remarks and conclusions make interesting reading. They say, in part:

There is evidence from the data that there is a distinct and important physiologic value to a ration not measurable by present chemical methods or dependent on the mere supply of available energy. While the latter are important and give valuable data for a starting point, they are, nevertheless, inadequate as final criteria of the nutritive value of a feed. . . . Probably none have felt the limitation of mathematically constructed feeding standards more than those who have taken a prominent part in their development, and even the practical and successful feeder uses these standards only as a help, varying the kind, as well as the proportion of total nutrients in the ration to meet the requirements of the individual. The kind of nutrients, however, receives his attention only when their effects are extremely pronounced and immediately apparent. . . . But in addition to the limitation of mathematical standards, which consider only digestible nutrients, or the total net available energy of a ration, there are still other important factors that must be considered. We refer to what may be called the *physiologic value* of the ration. . . . There are many different proteins, in addition to nitrogen-bearing bodies of nonprotein character; fats of different compositions and degree of saturation; carbohydrates of many types; and almost a host of undetermined and undefined bodies in the daily ration of a domestic animal. . . . Unquestionably the *physiologic value* of a ration is largely dependent on its chemical constituents, but the usual determinations made on feeding materials do not reveal the character or manner of combination of many of the constituents. Consequently, the *physiologic value* can be determined in the present state of our knowledge only by long continued observations of the reaction of the feed on the animal.

Since the foregoing experiments were conducted, animal feeding experiments have been widely carried on, and it seems to be the universal finding that the number of calories a food yields on oxidation is not at all an indication of its feeding value. Bayliss<sup>2</sup> says:

Heats of combustion do not necessarily give the actual energy value of foodstuffs as available in the organism. . . . In the animal body, energy is derived from chemical combination. This form of energy is readily converted into various other forms without the necessity of passing through the form of heat.

### ANAEROBIC AND AEROBIC REACTIONS

At this point it may be well to call attention to a fact not generally known, namely, that large quantities of the common foods are used by animals by anaerobic metabolism, since air is not essential to animal life in all cases. Mammals and birds quickly die from lack of oxygen. Frogs may remain alive for days in an atmosphere containing no oxygen. Fish and reptiles

\* Read before the American Pediatric Society, Atlantic City, N. J., June, 1919.  
1. Research Bull. 17, University of Wisconsin Agricultural Experiment Station.

2. Bayliss, W. M.: Principles of General Physiology. New York, Longmans, Green & Co., 1915.

may live without air for some time, while insects will live and be active in a vacuum for several days. Leeches can live ten days without oxygen. Bunge<sup>3</sup> says:

I have made many experiments with the roundworm of the gut, and have satisfied myself that these animals can live in media entirely free from oxygen for from four to five days and be extremely active during the whole time. Whoever has seen these movements must be convinced that oxidation is not the source of muscular energy in these animals.

It is evident that animals which eat the common food-stuffs and obtain energy from them for days at a time in the absence of oxygen do not carry on their vital processes and obtain energy as the result of oxidation, and that for them the amount of heat that can be produced by oxidation of the food they utilize is of no interest.

In the bodies of higher animals it appears that the processes of nutrition are a combination of anaerobic and aerobic reactions. From reading Bayliss it would seem to be fairly well settled that the primary processes in the bodies of higher animals are anaerobic, and that the aerobic processes are secondary. The contraction of the muscles is an anaerobic process:

There is neither consumption of oxygen nor evolution of carbon dioxide. It is not an oxidation process. . . . To restore the potential energy which the system has lost in contracting, energy is supplied by another reaction of a chemical nature, which succeeds the contractile stage. . . . The energy required for the second process is afforded by a reaction in which some substance, carbohydrate or fat, is oxidized. Much oxygen is used and carbon dioxide given off. . . . Consideration of life without oxygen leads to the view that the actual source of the free energy required by a living organism is a secondary matter. If it cannot be obtained by oxidation, other chemical reactions, although of a less efficient kind, are made use of.

If this is the case, it is easy to understand how the large number of animals that can live without oxygen obtain their energy—they simply use more food and discard it at the point at which oxidation begins in the aerobic animals.

#### VALUE OF THESE FACTS TO THE PHYSICIAN

These facts are of much importance to the practicing physician. He is required to solve numerous problems which call for the selection of food of the right *physiologic value* for a given individual. What may be the right physiologic value for one may not be suitable for another. It is possible that the difficulty lies in a percentage of anaerobic metabolism in one case and aerobic metabolism in another. It has been conclusively shown that in practice the caloric value of a food is no strict indication of its nutritive value, but it has not been shown why this is so. With the recognition of the fact that an animal body is not merely a furnace in which food is burned, but that a long series of chemical changes in the food takes place, it is not difficult to see why practical results often cannot be obtained with foods valued only by their oxidation properties. To quote Bayliss again:

The general conclusion seems to be justified that the cell mechanisms are such as to be able to use chemical energy whether it comes from oxidation or otherwise, and that they are independent of the particular chemical reaction which furnishes it.

The animal body is highly complex, with a metabolism that is in part anaerobic and in part aerobic, as some tissues live by the former process and others by the latter.

#### SUMMARY

Heat or energy may be produced by chemical cleavage as well as by oxidation. Heat may be a degradation of energy, and in the human organism it is an excretion. Heat measurement alone is not a safe guide for the calculation of food values. This is especially true at the beginning of life when growth is the all-important factor. The foods that *build* rather than those that readily undergo oxidation must be properly gaged if we are to have healthy development.

A false theory does harm in that it points in the wrong direction, and it is a question whether it is not time to weigh carefully the caloric theory of feeding and restrict or partially abandon its use. To take its place, a system of teaching must be constructed based on a knowledge of the physiologic properties of the various food elements and the fact that there are mixed types of metabolism. Some form of biologic testing of foods must be elaborated if an always reliable gage of nutrition is to be established.

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## ANAPHYLACTIC DEATH IN ASTHMATICS\*

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The increasing frequency with which antitoxic serums are being administered, both for curative and for prophylactic purposes, and the increasing number of diseases for which antitoxins can be prepared, make the subject of anaphylactic death of particular interest to the clinician. That many cases of bronchial asthma are the result of sensitization to the emanations from horses presents an added complication, for the existence of this sensitization makes these persons unusually susceptible to horse serum, and thus it is occasionally dangerous to administer prophylactic or curative serum in amounts sufficient to be effective. There are many cases recorded in the literature in which serious collapse has followed the administration of antitoxic serum, and a few instances in which death has occurred.

It is, of course, needless to remark that the total number of such cases is an almost negligible percentage of the total number of cases in which injection was made. At first, these cases were frankly not understood, or they were ascribed by some to status lymphaticus.<sup>1</sup> Now, however, we recognize that most of these cases of sudden death are due to anaphylaxis—a condition brought on by the sensitization of the patient to horse serum. This sensitization may have been induced during the treatment by the necessity of giving two or more doses of antitoxin over a period of six or more days; or it may have been caused by an injection of antitoxin given for some previous illness (this factor seems to have caused few, if any, deaths); or it may have been due to some unknown cause, and have existed for a long time. A large pro-

\* From the Department of Pathology of the University of Illinois College of Medicine.

<sup>1</sup> Park Harvey Lecture, Jan. 20, 1906.

portion of these sudden deaths are found to occur in asthmatics. Thus Gillette<sup>2</sup> reports a case of his own, and has collected from the literature and by personal correspondence twenty-nine more instances in which collapse or death followed soon after the administration of antitoxic serum. Of these thirty patients, sixteen died and fourteen recovered. Of the sixteen patients that died, ten were in good health at the time of the injection, three were suffering from mild attacks of diphtheria, and in two the degree of illness is not stated. In all the onset and course of the attack were so typical that there can be no doubt that these were genuine anaphylactic deaths. In one (Case 8) there is room for some doubt, as the child was quite sick and lived for ten hours after the injection. In nine of the sixteen fatal cases there was a definite history of asthma. In two of the nine instances, it is stated that proximity to horses brought on the attacks; in the other seven, the exciting cause is not stated. Of the fourteen patients that lived, nine were asthmatic; in two cases, the attacks were brought on by proximity to horses; in the other seven, the exciting factor is not mentioned. In two of the nine instances, the asthma is reported to have been cured (one was a typical horse asthma; in the other the excitant is not stated); in one case, the asthma was definitely not cured; and in the rest, the later course of the asthma is not recorded. Walker<sup>3</sup> has recorded a case of asthma in which the disease was brought on by an injection of horse serum (antitoxin), though it had never been present before the injection. There is at least one other such case in the literature. Sewall<sup>4</sup> records the case of a man who developed rabbit asthma after an injection of rabbit serum.

In all the recorded cases of serum anaphylaxis, the history of the attack is strikingly constant. Almost invariably it begins within two or three minutes after the injection, but in one recorded nonfatal case (Gillette's Case 6) the attack did not begin for twenty-four hours, but then it was perfectly typical. In fatal cases, death usually occurs within five minutes after the injection, though occasionally it is postponed for from thirty to forty-five minutes. The most prominent symptom is dyspnea. This may be accompanied by pain, either at the site of injection, or in the chest or head. Headache is very common. A marked cyanosis usually comes on at once, and frequently urticaria or edema is present. A sense of impending death occasionally occurs. The heart usually remains strong, and continues beating long after respiration has ceased.

In three of the cases reported by Gillette, postmortems are recorded. In the Langerhans case no anatomic lesions were found beyond an enlarged thymus. In Gillette's own case the postmortem report states that the lungs were larger than normal and passively congested. There was an adhesion of the pericardium to the heart (there was a history of rheumatism for several years). The kidneys were softer than normal, and more moist. The spleen was engorged with venous blood, dark and granular. Otherwise all organs were negative. In one other case, the postmortem report states that "the lungs and cavities of the heart were

in such condition as could only be brought about by sudden and extreme spasm, such as might be accounted for by an acute attack of asthma." I have collected records of several other cases of anaphylactic death which will be reported elsewhere in detail, but in none of these cases is a history of asthma recorded.

There are in the literature the reports of nine cases of bronchial asthma with postmortem records: Ellis<sup>5</sup> has collected records of seven and has reported one, and Brown<sup>6</sup> has added another. In Brown's case, the patient died from pneumonia. He had been suffering from myocardial insufficiency and cirrhosis of the liver; he had had no asthma for the last two or three months of his life. In the other cases, death occurred during an asthmatic attack, but the postmortem report covers only the condition of the lungs. In none of these cases is the exciting cause of the asthmatic attacks mentioned. It is impossible to show any direct relationship between these cases and anaphylaxis.

#### REPORT OF CASE

*History.*—A man, aged 29, who, for the last ten or twelve years, had been subject to attacks of bronchial asthma when in proximity to horses, and who had read a good deal, and was informed on the relationship of anaphylaxis to asthma, was anxious to have a desensitizing dose of horse serum, although he was familiar with the danger. He was taken to a hospital, and 1 minim of normal horse serum was administered intravenously.

Within two minutes a typical attack of asthma supervened. He was given 10 minims of epinephrin (adrenalin) intravenously, with definite relief for about ten minutes. In all, 50 minims of epinephrin were given in five doses, intravenously. Each gave relief for several minutes; but eventually the patient died, forty-five minutes after the injection of serum. The postmortem was performed within an hour and a half after death.

*Postmortem Findings.*—The body was very slender; the waist was narrow; the ribs were "dished in" at the level of the lower end of the sternum. The face was cyanotic; the lips were swollen, but herpes was not present. The body was still warm; postmortem rigidity was not present. There was very little subcutaneous fat.

The abdominal cavity showed intense injection of the vessels everywhere, being especially marked in the veins of the stomach, mesentery, gallbladder and appendix. The entire small intestine was bright red, and the dilated submucous vessels showed distinctly through the intestinal wall. The parietal peritoneum was markedly injected. No exudate was visible in the peritoneal cavity.

Both lungs were enormously distended and emphysematous. The left lung showed a small area of hemorrhage on the lateral portion of the lower lobe, about 4 cm. in diameter, with a gelatinous organizing exudate at this point. On section, the lungs were found to be dry. The right pleural cavity was largely obliterated by firm, fibrous adhesions. No fluid was present in either cavity. The thymus was not enlarged.

The pericardial cavity was negative. The heart was firm and of normal size and appearance, except for a few minute subpericardial petechial hemorrhages on the posterior surface.

The liver, which was paler than normal, extended to a point one inch below the umbilicus. No gross structural change was noted. The gall bladder was markedly injected.

The stomach showed the "hour-glass" conformation (post mortem?). The veins on the greater curvature were enormously distended. There were no subserous hemorrhages. The mucosa was negative.

The spleen was negative except for the presence of a number of small, reddish brown foci, about 1 mm. or less in diameter, located in a group of from twenty to thirty along the anterior border.

<sup>2</sup> Gillette, H. F.: Unfoward Results from Diphtheria Antitoxin with Special Reference to its Relation to Asthma. New York State J. M., 9: 373, 1909; Therap. Gaz., 33: 189, 1909.

<sup>3</sup> Walker, I. C.: The Treatment of Patients with Bronchial Asthma by Subcutaneous Injections of the Proteins to Which They are Sensitive. J. M. Research, 20: 423 (July) 1917.

<sup>4</sup> Sewall, Henry: Some Relations of the Brain and of the Olfactory Apparatus to the Processes of Immunity. Arch. Int. Med., 13: 856 (June) 1914.

<sup>5</sup> Ellis, A. G.: The Pathology of Asthma. J. P. M., 1: 113, 1911.

<sup>6</sup> Brown, O. H.: Asthma. S. Trans., C. V. M. F., 1: 113, 1911.

The kidney were about normal in size; the capsule was smooth; there were no dilated veins on the surface. On sectioning, there was a marked hyperemia, but no other change. The suprarenal was negative.

There was a Meckel diverticulum about 12 cm. long with a slight constriction at the tip.

*Microscopic Examination.*—Lungs. There was moderate passive hyperemia, but no edema. There were a few small interstitial hemorrhages. A little mucus, and a few desquamated epithelial cells were seen in some of the bronchioles. The peribroncholar muscle was well developed. A few arteries showed greatly thickened walls, and many showed moderate thickening of the walls.

Heart. There were several small hemorrhages in the myocardium. There was one small area of old scar tissue. A few small vessels showed thickened walls, and a few showed obliteration of vascular endothelium.

Kidney. Here the most marked changes were seen. The epithelium of the convoluted tubules was distinctly edematous, and there was considerable degeneration and some necrosis. There was intense passive hyperemia. Interstitial hemorrhages were numerous, but not extensive. There were no chronic changes.

Suprarenal. There was marked passive hyperemia, and there were a few minute hemorrhages.

Spleen. There was moderate passive hyperemia, and there were a few small hemorrhages. Most of the smallest arteries and many of the larger arteries showed a marked edema of the wall. Eosinophils were very numerous. In one large vessel, 500 leukocytes were counted with 6 per cent. of eosinophils. In one high-power field, sixty-five eosinophils were counted, which were estimated to be 5 per cent. of the total number of cells present.

Liver. There was very marked edema involving practically all of the parenchymatous cells. There was no passive hyperemia, and there were no hemorrhages. Very few small areas of round cell infiltration were present. Many small arteries showed marked thickening of the walls. No areas of necrosis or scar tissue were seen.

#### COMMENT

This case is of special interest for several reasons:

First, because of its relation to the recently popularized desensitization method of treating those cases of asthma (and of certain other clinical conditions) which show sensitization to specific proteins. Undoubtedly, this patient should have been treated with high dilutions of serum as advocated by I. Chandler Walker instead of the undiluted serum.

Second, because of the very small amount of serum which produced death. Of the other recorded cases, probably the Langerhans case (in which 1.2 c.c. of serum were used) involved the smallest amount of serum. In one recorded instance, an infant received 100 units of diphtheria antitoxin; one adult received 300 units, and one 1,000 units, in three instances, one adult and two children, "an immunizing dose" was given. In the nonasthmatic cases that I have collected, the fatal dose has usually been larger than in this case.

Third, because of the striking similarity in appearance of the organs in this case to those in experimental anaphylaxis in animals. The enormous distention of the lungs, the intense passive hyperemia of the abdominal organs, and the occasional subserous hemorrhages are highly characteristic of experimental anaphylaxis.

Furthermore, this is the only case of death from acute anaphylaxis, uncomplicated by other morbid conditions, that I have been able to find in which microscopic studies have been made. Koch<sup>7</sup> has reported

necropsy findings in a case of anaphylactic death in a child with scarlet fever and suppurative tonsillitis; but the microscopic findings are all referable to the infection present.

Further, we are able to observe here a case in which repeated anaphylactic shocks have been experienced, and thus to study the cumulative effect of this intoxication. Undoubtedly, the repeated asthmatic attacks to which this patient was subject have not meant as severe intoxication as is usually experienced by laboratory animals in experimental work, yet it is interesting to note that the edema, degeneration and necrosis of the epithelial cells of the liver and kidneys and the thickening of the arterial walls in spleen, liver, lung and heart correspond closely to the changes that I have previously described<sup>8</sup> in experimental chronic anaphylaxis.

It has been well known for a number of years that one must exercise extreme care in giving curative serums to asthmatics. No satisfactory method of desensitization has yet been discovered to make safe the administration of serum to asthmatics with acute infections, such as diphtheria, in which time is such an essential factor in treatment. Besredka's method of "doses subintrantes"<sup>9</sup> has not justified the claims originally advanced for it; and Weil<sup>10</sup> has pointed out grave objections to its use as a routine. At best, the methods of desensitization are uncertain. In experimental work, animals sensitized with a small dose of serum can be desensitized with a small dose. Animals sensitized with a large amount of serum require a relatively large amount to effect desensitization—an amount, indeed, that would be fatal to an animal sensitized by a small dose.<sup>10</sup> Since we cannot know whether man should be desensitized by a large or a small dose, this method is unsatisfactory for practical use. The giving of a series of doses of gradually increasing size may, in some cases, produce desensitization, but in others it will bring on a fatal attack of anaphylaxis instead.<sup>11</sup> Of course, the intravenous method of administration in these cases is more dangerous than the subcutaneous. And yet in only a small number of cases is the danger great. Walker,<sup>12</sup> in an analysis of 150 cases of asthma, found that only 20 per cent. were due to horse proteins, and of these but 20 per cent. (or only 4 per cent. of the entire series) were sensitive to horse serum; the rest were sensitive only to horsehair protein. When it is desired to give a curative serum to an asthmatic, it would be well to make first the cutaneous test with diluted serum to see if he is sensitive to horse serum. If not, the therapeutic dose would probably not produce serious symptoms. For the benefit of those asthmatics who are sensitive to horse serum, it might be worth while to prepare curative serums from other animals than the horse.

#### SUMMARY

A certain proportion of asthmatics (4 per cent. in Walker's series) are sensitive to horse serum. In

8. Boughton, T. H.: Studies in Protein Intoxication, I, II, III, *J. Immunol.* 1: 105 (Feb.) 1916; 2: 501 (Aug.) 1917; 4: 213 (July) 1919.

9. Besredka: Le procédé des petites doses et les injections subintrantes, *Ann. de l'Inst. Pasteur* 24: 979, 1910.

10. Weil, R. W.: Desensitization: Its Theoretical and Practical Significance, *J. M. Res.* 20: 233, 1913.

11. *Notiz. Bull. de la Soc. d. Hop. de Paris* 32: 401, 1912. Gryszek and Dupiché: *Bild.* 33: 374, 1912. Doerr, in Kollé and Wassermann: *Handbuch der pathologischen Microorganismen*, 1913, p. 1482.

12. Walker, J. A. C.: Studies on the Causes and Treatment of Bronchial Asthma, *J. A. M. A.* 69: 363 (Aug. 4) 1917.

7. Koch, W.: Beitrag zur Kenntnis der Serum-anaphylaxie beim Menschen und deren Verhütung, *Berl. klin. Wechschr.* 62: 635, 1915.

these the injection of horse serum (antitoxin) may produce serious symptoms or death. As compared to nine previously recorded cases of anaphylactic death in asthmatics, an added case, in which death resulted from the intravenous injection of 1 minim of horse serum, presents an instance of the smallest amount of serum that has produced death in any recorded case. Both the gross and microscopic appearance of the organs at necropsy show a striking similarity to lesions previously described in experimental anaphylaxis. There is uncertainty in existing methods of desensitization. Asthmatics who require curative or prophylactic serums should be tested by the cutaneous method to determine their sensitiveness to horse serum. If they are not sensitive to horse serum, therapeutic doses of antitoxin are probably safe. It might be well to prepare antitoxins from other animals than the horse for use in patients sensitive to horse serum.

## ACUTE DILATATION OF POST PARTUM UTERUS AS A CAUSE OF POST PARTUM HEMORRHAGE

ITS ANALOGY TO ACUTE DILATATION OF THE STOMACH, WITH A SUGGESTION ON THE ACTION OF INVOLUNTARY MUSCLES:  
PRELIMINARY REPORT

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Acute dilatation of the post partum uterus may occur: (1) during the third stage of labor in which the placenta and membranes are still in utero, and (2) in the early puerperium, uncomplicated by the placenta and membranes which have been discharged.

1. In the third stage of labor, the uterus has a function to perform: the separation and discharge of the placenta and membranes. As the child is being born the fundus follows the child until it is stopped by the bulk of the placenta which it snugly surrounds. The liquor amnii, usually clear, though it may be highly tinged with blood, is discharged, with some bright blood following. The uterus slightly relaxed, globular in shape, and situated below the umbilicus, gives good evidence of muscular tone. After a half dozen pains the placenta and membranes have become separated and are pushed down into the lower uterine segment and vagina. The fundus rises, having become pear-shaped, and is found in the median line below the umbilicus; being well contracted, its outline is well marked. The flow of blood is not great, and normally no clots are present. The average loss of blood during a normal labor is less than 500 c.c.<sup>1</sup> In contrast to this picture, acute dilatation in the third stage of labor presents a uterus which has increased in size until it may fill the abdomen. Its limits are ill defined; its walls, instead of being resilient, are soft and doughy. The placenta and membranes are still retained in the uterus, and the uterine cavity fills with blood. By vis a tergo the hemorrhage, unless blocked by the membranes in the lower uterine segment, appears at the vulva, where it is recognized as a post partum hemorrhage. The time of onset of the acute dilatation is not fixed, but it

comes on while the uterus is apparently functioning normally.

2. Acute dilatation in the early puerperium occurs usually within half an hour, though it may happen within the hour, rarely later. The normal puerperal uterus at this time is in the median line; its fundus is felt midway between the umbilicus and the pubis. The size of the individual uterus varies. Its outline is well marked, it is well contracted, and the membranes and placenta are entirely discharged. There is present only a slight lochial hemorrhage. By the end of an hour the uterus, being larger but not losing its muscular tone, has risen to or near the umbilicus. In acute dilatation, however, the uterus may extend above the umbilicus, or it may be but little larger than many post partum uteri functioning normally. Its walls are softer and they have lost their muscular tone, allowing the blood to escape from the open sinuses of the placental site. It is obvious that the bleeding is not so rapid as in the third stage, yet this post partum hemorrhage is free enough to cause death within an hour or two. Cragin,<sup>2</sup> in speaking of this condition, calls it "ballooning of the uterus with its accompanying hemorrhage." Hemorrhage from other portions of the post partum uterine endometrium must of necessity be slight in comparison to that from the placental site.

Under normal conditions after the birth of the child, the uterus contracts and retracts closing the sinuses and, following a few pains, the placenta and membranes are discharged. No unusual hemorrhage occurs. The placenta, however, in some cases is retained, and yet there is no hemorrhage. That retention of the placenta in itself is not deleterious is shown by the fact that articles appear from time to time issuing a word of warning against any mechanical interference with the uterus, as with the Credé method, before the placenta has had time to separate. The most common danger of retained placenta and membranes or portions of them is that they may become splendid culture mediums, causing puerperal infection.<sup>3</sup>

When an excessive quantity of blood appears at the vulva after childbirth, the place from which the hemorrhage is coming must be determined. If hemorrhage from the cervix, circular sinus,<sup>4</sup> or lower birth canal can be excluded, it is a post partum hemorrhage from the placental site. Hemorrhage from the placental site is due to the lack of pressure which should control the flow of blood from the uterine sinuses. Serious bleeding may occur even after the expulsion of the placenta. Williams<sup>5</sup> and other writers state that "the danger of hemorrhage does not end with the expulsion of the placenta, as the uterus sometimes relaxes during the hour immediately following" labor.

Acute uterine dilatation must not be confused with uterine inertia.<sup>6</sup> If there is retention or delayed sep-

<sup>1</sup> Cragin: *Gynecology*, Philadelphia, Lea and Febiger, 1916.  
<sup>2</sup> Gibson, H. K.: *Surg., Gynec. & Obst.* **24**:62 (May) 1917.  
<sup>3</sup> Peak: *Am. J. Obst.* **72**:150, 1915.  
<sup>4</sup> Lea, A. W. W.: *Puerperal Infection*, London, Oxford University Press, 1910.  
<sup>5</sup> Bidan, P.: *Leçons en couches et névralgies*, Paris, O. Dery, 1807, p. 123.  
<sup>6</sup> Williams: *Gynecology*, Ed. 4, New York, D. Appleton & Co., 1917.  
<sup>7</sup> For a complete atlas of uterine inertia, the following authors may be consulted:  
Edgar: *Tr. Am. Gynec. Soc.* **38**: 8, 1911.  
Crosby: *Tr. Am. Gynec. Soc.* **36**: 39, 1913.  
Freeland: *Am. J. Obst.* **60**: 30, 1914.  
Rice, F. W.: *Am. J. Obst.* **74**: 1 (Aug.) 1916.  
Gardiner: *New York M. J.* **100**: 106, 1914.  
Tweed, R. H., and Wrench, G. T.: *Practical Obstetrics*, Ed. 1, London, Oxford University Press, 1915.  
Titus, Paul: *Uterine Inertia*, J. A. M. A. **71**: 600 (Sept. 14) 1913.  
Wagner: *Wien klin. Wchnschr.* **28**: 774, 1915.  
Bischhoff: *Zentralbl. f. Gynäk.* **38**: 549, 1914.

aration of the placenta without hemorrhage, uterine inertia is present. If there is retention of the placenta with hemorrhage, exclusive of birth injuries and other pathologic uterine conditions, acute uterine dilatation is present.

The three cases outlined herewith illustrate the different types of acute post partum uterine dilatation:

#### REPORT OF CASES

**Case 1.**—Mrs. B., sextipara, had spontaneous labor, the second stage of which was short. The child weighed 10½ pounds. The placenta and membranes were discharged intact fifteen minutes after the birth. The uterus was well contracted, and there were no injuries to the birth canal. The lochial hemorrhage was normal. Fifty minutes after the birth, the uterus extended above the umbilicus; its walls were soft and doughy. There was a profuse hemorrhage, and the patient was nearly exsanguinated. Under active bimanual stimulation the uterus contracted to midway between the umbilicus and pubes. Recovery was uneventful.

**Case 2.**—Mrs. McN., secundipara, after normal labor gave birth to a child weighing 10 pounds. The uterus contracted down on the placenta after the birth. Within ten minutes the uterus had increased in size until the fundus was midway between the ensiform cartilage and the umbilicus, filling the abdomen. The uterine wall had lost its muscular tone. The woman showed signs of hemorrhage, though none appeared at the vulva. By bimanual compression and the Credé method the uterus contracted, expelling intact the placenta and membranes and many clots, until the fundus was 10 c.c. above the pubes. The cervix and lower birth canal were not the seats of any hemorrhage, only a small perineal laceration being present. The patient made a good recovery.

**Case 3.**—Mrs. S., secundipara, after labor, the first stage of which was prolonged, owing to a unyielding cervix and the second stage was very short, owing to a relaxed perineum, was in apparently good condition thirty minutes after the birth, when I saw her: the skin was of good color, the pulse was 100, and the fundus was midway between the pubes and the umbilicus. The membranes and placenta were discharged entire about ten minutes after the birth. Forty-five minutes after the birth the patient showed signs of hemorrhage the skin was pale, the lips were blanched, and air hunger was present. There was some vulvar hemorrhage present, but it hardly seemed enough to account for the severe symptoms, and as there were no injuries to the birth canal, and as the uterus appeared contracted, other signs of the hemorrhage were quickly looked for with no result. Further examination revealed that there had been considerable oozing of blood through the vulva. Then the uterus was grasped and under the Credé method it contracted down behind the pubes to the size of a two months pregnant uterus. Further recovery was not interfered with.

#### COMMENT

The uterine muscle is an involuntary muscle and possesses the characteristic of involuntary muscles—rhythmic contraction. Of the physiologic action of involuntary muscles little is known.<sup>9</sup> What is known has been gained chiefly from the experiments on the uterus, ureter, bladder and retractor penis. It is revealed that dilatation of a voluntary muscle causes a system of contraction to travel to each end of the fiber, but no farther. As a rule, a stimulus applied to any part of a sheet of involuntary fibers may travel all over the sheet, just as if it were a simple fiber, as in the heart, stomach, and in the contractions of the uterine muscle. The most important form of mechanical stimulation is that produced by tension. The effect

of increasing tension on involuntary muscle may be twofold: First, if produced slowly, as in the gradual filling of the urinary bladder, relaxation is the result; second, sudden excitation produces increased contractions. The Lewises<sup>9</sup> reported that the power of rhythmic contraction exists in involuntary muscles in the culture growths of the chick amnion, as an inherent property of the protoplasm of the involuntary muscle, and may be exhibited either by a bundle of cells, by an individual cell, or by a part of a single cell. This is a great advance in pointing out that the movements of involuntary muscles are not dependent entirely on their closely associated network of nerve fibers. Furthermore, they found that when this phenomenon, rhythmic contraction, ceased, it could again be instituted either by touching the cell or by the addition of calcium to the culture medium. The point which the Lewises bring forward is very timely, as many authors speak of a paralysis of the placental site as a cause of post partum hemorrhage. By their experiment, it is seen that the movements of involuntary muscles are not dependent entirely on their closely associated network of nerve fibers. In view of this fact, it appears that involuntary muscle fiber cells and even parts of cells possess the inherent property of rhythmic contraction without any demonstrable nerve control, just as in the amoeba. Here, then, one may question the assumption that a true paralysis of the placental site occurs, and affirm rather that it is an acute dilatation or, more properly, a relaxation of the uterine muscle which allows the hemorrhage from the placental site.

All hollow viscera have involuntary muscle walls and seem to possess a property which may cause them to go into acute dilatation after a period of undue stress. It is frequently noticed that an old person in his usual health, after a more than ordinary exertion during the day, may die during the following night. Here, the heart muscle has continued apparently as normal after the period of stress; then later it enters into permanent diastole. The same thing occurs in younger people, after a period of extraordinary strain, such as a sharp run or severe physical exercise, when not in training for it. The heart continues apparently normal for a time, and then goes into permanent diastole. It again occurs as a complication in operations. The stress on the heart muscle may be great enough, even before anesthesia is complete, to cause the heart to enter into permanent diastole. Diastolic rest may also occur in postoperative cases. In severe infections, such as diphtheria, it is sometimes seen.

The involuntary muscular coats of the blood vessels also possess this common action of dilatation, as the dilatation of the abdominal vessels in fainting. This acute dilatation is seen in the vessels about local injuries and infections irrespective of their location in the body. It is possible that this acute dilatation of the blood vessels is one of the chief features in the production of that condition which is generally known as shock.

As there is an acute dilatation of the heart and blood vessels, so there is an acute dilatation of the stomach.<sup>10</sup> Two theories have been brought forward to explain

<sup>9</sup> Lewis, M. R., and Lewis, W. H.: *Am. J. Physiol.*, **44**: 67 (Aug.) 1917.

<sup>10</sup> For a consideration of stomach acute dilatation the following authors may be consulted:

Esqez: *Guy's Hospital Reports*, 1872, p. 73.  
Noble: *Centralbl. f. d. Grenzgeb. d. Med. u. Chir.* **8**: (Aug.) 1905.  
Laffor: *Ann. Surg.* **17**: 390 (March) 1908.  
Lee, B. J.: *Ann. Surg.* **62**: 418 (April) 1916.

A. H. Wood, W. H. Tebbok of Physiology, Philadelphia, W. B. Saunders Company; Stewart: *Manual of Physiology*, Ed. 4, Philadelphia, W. B. Saunders Company, 1900; Starling: *Human Physiology*, Philadelphia, Lea and Febiger, 1911.

the cause of acute dilatation of the stomach: first, that there is a primary paralysis of the stomach; second, that there is a mechanical obstruction by the mesentery and mesenteric vessels. All cases of acute gastric dilatation give a history of preceding stress, as is shown in postoperative dilatation of the stomach. No matter what part of the body is operated on, dilatation may follow.<sup>11</sup> Gastric dilatation follows delivery—post partum dilatation of the stomach.<sup>12</sup> It is often a complication of acute infections, as in pneumonia. Thompson, who has studied the subject extensively, states that while in no way denying that some cases may be obstructive in origin, he is inclined to believe that a primary paralysis of the organ must be regarded as the underlying cause in the majority of cases. It is suggested that instead of a primary paralysis it is an acute relaxation of the involuntary muscles of the stomach walls which occurs.

The intestine is likewise affected: the condition is known as ileus.<sup>13</sup>

The urinary bladder is another organ which is frequently affected by acute or fatal dilatation, when the body has undergone a period of stress, as is frequently seen following operations, labor, and as a complication in infectious diseases.

From physiologic experiments we learn that involuntary muscles possess the power of rhythmic contraction, and that the walls of the heart, stomach, bladder, uterus and other hollow organs are made up of involuntary muscles and possess the function of rhythmic contraction. The involuntary muscle walls of the uterus reveal an added function during and after labor, that of retraction. Therefore, involuntary muscles under some circumstances have two functions, rhythmic contraction and retraction. Furthermore, the heart, stomach and bladder, after a period of stress, may assume a state of acute dilatation due to the acute relaxation of the involuntary muscle. This same condition I have found in the uterus, and it appears with such dignity and purpose that I have been impressed with the possibility that it may be due to an inherent quality in involuntary muscles. One may object to the dilatation of the uterus theory on the basis of a simple distention caused by the blood, coming from the placental site, accumulating in the uterine cavity and producing distention. The point in the differential diagnosis is that in a distended organ the walls possess a characteristic resiliency or muscular tone, while in acute post partum dilatation the walls of the uterus are soft and flabby, having lost their muscular tone. Williams<sup>6</sup> speaks of a relaxation of the uterine walls post partum; Cragin<sup>2</sup> of a ballooning of the uterus post partum; DeLee<sup>14</sup> mentions that dilatation of the uterus may occur during a curettage. There is, then, an acute dilatation of the uterus, and it is a function inherent in the uterine musculature which may prove rapidly fatal.

Acute dilatation may prove rapidly fatal not only in the post partum uterus but also in acute dilatation of the heart, stomach and bladder. These organs when in a state of acute or fatal dilatation show within a limited time a uniform tendency to respond to stimuli, and may recover to perform their normal function.

Several patients with acute dilatation or diastolic rest of the heart are reported as recovering by the employment of cardiac massage. Cardiac massage<sup>15</sup> is employed subdiaphragmatically, through the abdominal wound: the hand grasps the heart and compresses it a few times a minute, and indirectly massage is applied by tapping with the fingers over the right auricle. A unique report is that of Argaud.<sup>16</sup> In a decapitated man, aged 20, Argaud saw spontaneous contractions forty-five minutes after decapitation; from this time to sixty-two minutes, mechanical stimulations, particularly of the right auricle, evoked cardiac contractions. Then he opened the heart, and by electrical stimulation produced a response to the eighty-third minute. He found the most excitable region of all corresponded to the tenia of His, the Keith-Flack node, and the valve of Thebesius, the regions richest in nerve ganglions. He recommended in diastolic rest light taps by the finger tips over the right auricle at intervals of from ten to thirty seconds, watching for myocardial response. Two patients with asphyxia neonatorum<sup>17</sup> recovered by cardiac massage, artificial respiration being simultaneously practiced: one child, after an hour, the other, after three hours.

In acute dilatation of the blood vessels, there is response to stimulation. In fainting, stimulation is produced on the acutely dilated blood vessels by assuming the horizontal position; or, if the cerebral anemia is great, it is produced by the convulsion following. That pressure applied in local infections has a good effect, because of its support of the acutely dilated vessels, is well known. This is exemplified by the fact that many a one advocates the continuous administration of ergot to keep the post partum uterus (its sinuses) well contracted (regarded also as a preventive of puerperal infection). In shock, the blood vessels are acutely dilated; and the advantage of the stimulation produced by massage, bandaging the extremities and abdomen, the Trendelenburg position, and drugs (such as suprarenal extract) is also well known.

It is known that the stomach, when directly irritated, contracts; but in acute dilatation it is impossible for the stomach to relieve itself because of the two sphincters which control the outlets and probably respond to the same stimuli as the muscular walls of the stomach. In this case the only relief is the introduction of the stomach tube.

The bladder responds likewise to stimuli, but here a sphincter also prevents relief, which is obtained only by the use of the catheter.

The acutely dilated post partum uteri in the cases reported responded to stimulation and functionated normally.

This reaction from acute dilatation precludes an inherent property in the involuntary muscle walls.

#### CONCLUSION

This preliminary report points to the fact that all involuntary muscles possess, besides rhythmic contraction and retraction, the property to functionate normally for a time, after a period of stress, then to assume a state of acute relaxation, and further, within

<sup>11</sup> For a consideration of cardiac massage, the following authors may be consulted:

Mataz, Keen's Surgery, Philadelphia, W. B. Saunders Company, 1916.  
Kidd, W. A. Brit. M. J. 1: 316, 1917.  
Weitz, Deutsch. und Weim. Ztr. 41: 110, 1911.  
Molyneux, E. S. Brit. M. J. 1: 4. (Ma ch. 1) 1911.  
16. Argaud, quoted by Kidd, Brit. M. J. 1: 479, 1911.  
17. Brit. M. J. Tr. Internat. Cong. Med., London, 1914, V. Thomsen, Pt. 3, p. 264.

11. Cohn, T.: Ann. Surg. 63: 263 (March) 1916.

12. Thompson, Lancet 2: 877, 1902.

13. Cannon, W. B., and Murphy, F. T.: Physiologic Observation on Experimentally Produced Ileus, J. A. M. A. 49: 840 (Sept. 7) 1907.

14. DeLee: Principles and Practice of Obstetrics, Philadelphia, W. B. Saunders Company, 1913.

limited time, to react on stimulation and return to their normal functioning.

The uterus, being made up of involuntary muscle fibers, is subject to the laws governing involuntary muscles.

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## SUPPURATION AND GANGRENE OF THE LUNG

### A STUDY OF ONE HUNDRED CASES

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Although abscess, gangrene and bronchiectasis belong to the rarer lung diseases, their study is acquiring a greater interest and importance, because we are becoming more familiar with their causation and also because of the increasing possibility of curing them by operative procedures.

In the textbook description of these diseases, they are usually accorded individual notice as though these three were distinct and separate conditions. In the attempt to carry out this classification in the individual case, however, the clinician at once encounters difficulties. In a large percentage of these cases—which may comprehensively be described as cases of "lung suppuration"—abscess formation, bronchiectasis and gangrene coexist, and it is not at all an easy matter to assign the predominating rôle to any one of them.

In order to make clear some of the more salient points in the pathology and etiology of these affections, it may be of value to analyze a series of 100 cases which came under my observation up to 1918.

In respect of their etiology, these cases may be classified as in Table I.

TABLE I.—CLASSIFICATION OF ONE HUNDRED CASES OF LUNG SUPPURATION ACCORDING TO THEIR ETIOLOGY

Etiology	No. of Cases
Pneumonia	1
Aspiration	5
Pneumonia (grip)	17
Trauma (stab, grip)	21
Trauma (fall)	3
Aspiration	2
Aspiration (stab and gunshot)	2
Trauma (fall)	3
Trauma (stab)	1
Trauma (grip)	1
Aspiration	1

If we analyze the various factors that were presumably responsible for the suppurative lung condition, they may be divided roughly into two groups: (1) those due to the aspiration of septic material into the bronchi, either during the course of operations, usually on the mouth, or in states of unconsciousness, however induced, and (2) the various primary lung inflammations, including both the frank pneumonias and the cases of so-called grip which undoubtedly represent true organized pneumonias.

These two groups will account for 94 per cent. of the cases. The rest are due to rare and miscellaneous

causes. I have included no cases of metastatic lung abscess such as may occur in the course of sepsis, as they are uncommon and do not usually appear prominently in the clinical picture.

These two groups not only are distinct as to their causation, but they also show a divergence in their symptomatology and pathology. This, however, is evident only in their early stages; and in order to recognize these differences, it is necessary to observe them from their inception.

### PATHOLOGY OF ASPIRATION ABSCESS

The frequency of suppuration of the lung after tonsillectomy, and its rarity after operations on other parts of the body, cannot fail to arrest attention. It is plausible to assume that it stands in some relation to the infected condition of the tonsils. It is probable that the infectious plugs which are expressed from the tonsils during the operation are forcibly aspirated into the bronchi, where they lodge. If a small amount of blood is aspirated with them, its coagulation will seal the bronchus and produce conditions favorable for the growth of anaerobic organisms. The abolition of the pharyngeal reflex appears to be necessary, as disease developed only in those cases in which a general anesthetic was administered. A similar mechanism will probably explain the few cases which followed profound unconsciousness due either to drugs or to alcohol.

The immediate result of the lodgment of such a mass of infectious material in a bronchus is to set up a localized bronchitis. Owing to the nature of the organisms, the process is destructive and gangrenous so that there soon results a weakening and dilatation of the bronchial wall. The initial process is therefore, strictly speaking, a localized bronchiectasis which soon invades the contiguous lung tissue. The examination of such lungs excised at operation will always reveal one or numerous such irregular cavities, which may be small and still show evidence in their walls of bronchial structure; or, on the other hand, the cavity may be large and all vestige of bronchus may be destroyed. Coincidentally with the bronchial changes, the adjacent lung experiences the effects of the infectious material. A small or a large area of the lung about the necrotic focus, sometimes a whole lobe, becomes the seat of an acute or subacute pneumonitis, with consolidation. It is significant for the later course of these cases that the pneumonic process in many cases has from the beginning a tendency to organization, so that ultimately the lung undergoes induration. The latter, owing to the development of fibrous tissue about the smaller bronchi, compresses them and thus there are produced numerous small secondary bronchiectases. These secondary bronchiectases as a rule do not achieve a great size; most of them appear as bronchial dilatations only on microscopic section. On the other hand, they may be infected by the secretions of the primary bronchiectasis and breaking down, in their turn, they may terminate as larger cavities. This, in short, is the evolution of an abscess or bronchiectasis following aspiration.

It will be noted that this is primarily a bronchial disease, and in this sense may be described as a bronchiectasis. On the other hand, in all cases an abscess cavity sooner or later develops. But it must not be forgotten that a very important and essential element in the disease is a pneumonitis, which always accom-

panies it, and which, because of its tendency to induration, constitutes one of the main obstacles to its cure.

From the clinical standpoint, aspiration abscess of the lung is always an acute disease, although later it may assume a chronic form. A study of the chronology of the symptoms will show that the acuteness of the process stands in intimate relation to the development of a gangrenous type of inflammation. It is a striking fact that signs of gangrene, consisting of the expectoration of fetid sputum or of a foul odor to the breath, are invariably noted thirteen or fourteen days after operation. The same thing is true of nonoperative cases of aspiration abscess. It will therefore be seen that such cases have a definite incubation period which must stand in close relation to the biology of the infecting anaerobic bacteria. In fact, all the facts at our disposal point strongly to the presumption that postoperative and aspiration abscess or bronchiectasis is an acute anaerobic infection of the lung, which has a definite pathology and incubation period, the subsequent course of which is to a great extent dominated by the fluctuations in the intensity of the gangrenous process.

PATHOLOGY OF POSTPNEUMONIC ABSCESS

The pathology of so-called postpneumonic abscess is not at all as easily studied as the previous form. This is due, first, to its frequent insidious onset, and secondly, to the fact that under the term "postpneumonic abscess" a variety of diverse types of lung suppuration is included. If we analyze the fifty-eight cases of presumably postpneumonic suppuration which are the subject of this study, they may be divided roughly into two groups. In the first group there will be found sixteen cases in which the symptoms and other evidences of the disease, later to be discussed, differed in no wise from those in the aspiration cases. In these patients, the evidences of gangrene were always noted from thirteen to fourteen days after the onset. For reasons to be discussed later, the question will arise whether these are really cases of acute pneumonia on which a gangrenous process has been engrafted, or whether they are not primarily cases of lung gangrene and bronchiectasis. The remaining forty-two cases apparently have a different pathology. They commonly result from an attack of bronchopneumonia, which is frequently of the grip type. Instead of resolving in the normal way, the infiltration persists and acquires a fibrotic character with a resulting induration of the lung. As a result of pressure of the fibrous tissue on the smaller bronchioles, numerous cylindrical bronchiectases develop. This is evidenced by persistent fever, cough, increasing expectoration and occasional hemoptysis. The entire process is slow and subacute, and it is months before the outspoken symptoms of lung abscess develop. The relation of gangrene to these cases is variable. In many cases it appears only late and may be only a transient manifestation. In a large percentage of the cases at some time during the course of the disease, the patient expectorates fetid sputum for a few days. But at any time, it may become a major factor, and by causing a rapid breaking down of the lung tissue it may convert a relatively benign case into one that is rapidly fatal.

LOCATION OF THE DISEASE

The distinction between these two groups of lung abscess or bronchiectasis may be further noted in the

distribution of the inflammatory process in the lungs. Postoperative and aspiration abscesses are found twice as often in the upper lobes as in the lower lobes. Exactly the reverse condition obtains in the case of postpneumonic abscess of the chronic type. This is well brought out in the tabulation of ninety-nine cases presented in Table 2.

TABLE 2.—DISTRIBUTION OF INFLAMMATORY PROCESS IN LUNGS

Kind of Abscess	Location		
	Upper Lobe	Lower Lobe	Middle Lobe
Aspiration abscess	18	9	1
Nonaspiration abscess	24	44	3

A separate consideration of the cases of acute postpneumonic abscess with early gangrene shows that in these cases also the upper lobes are involved more frequently than in the chronic postpneumonic cases. It is of interest to note that in the children in this series, postoperative abscess invariably was situated in the upper lobes.

SYMPTOMS AND PHYSICAL SIGNS

In the case of aspiration abscess, the characteristic symptom is the onset after two weeks of foul expectoration. It is evident in these cases that the development of this symptom after an operation will leave no doubt as to the diagnosis. This is true also of the acute postpneumonic abscesses. On the other hand, a cough persisting for some time after a pneumonia, especially if there is only a moderate purulent expectoration, does not warrant the diagnosis of bronchiectasis. In these cases the diagnosis must usually remain in doubt for some months, until the more characteristic symptoms develop. These patients commonly have a persistent fever, and usually slight hemoptysis, which will raise a strong suspicion of an indurative pneumonia. Only the later development of multiple bronchial dilatations, with profuse expectoration, will lend certainty to the previous suspicion. The distinction from tuberculosis should offer no difficulty because of the absence of tubercle bacilli, but especially because of the usual localization of the condition in the lower lobe. The presence of club fingers, which occurred in twelve cases, may be of help in the diagnosis. They develop relatively early in the course of bronchiectasis, at times as early as six weeks, although usually in a few months. On the other hand, clubbing develops only in long standing cases of pulmonary tuberculosis.

It is a fortunate circumstance that the diagnosis of suppuration of the lung may be so readily made from the symptoms, as the physical signs are notoriously uncertain. The physical diagnosis must depend on the demonstration of an area of induration in the lung, and also, in some cases, on the disclosure of a cavity. It is surprising how few signs even a large pneumonic area may produce. Usually only a slight dullness and diminished breathing are found. At times, there may be absolutely no physical signs. In this series of 100 cases, a cavity was diagnosed only twelve times by physical examination, although roentgenographic examination showed them to be present in forty five cases. For an exact localization of the process, to determine the extent of the disease, and to a certain extent the presence of cavities, we are to a great extent dependent on the roentgenogram.

It should be emphasized that in the diagnosis of suppuration of the lung, the demonstration of one or multiple cavities is not at all essential, nor is it possible in more than a fair percentage of the cases. When cavities are buried in infiltrated lung, when they are full of secretion, and when they are small, they will elude any kind of examination. Only the larger cavities are usually discovered. These are much more frequent in the postoperative cases and in the acute postpneumonic cases. In other words, in those cases in which the gangrenous process plays a major rôle, large cavities are early formed. Their frequency is indicated in Table 3.

TABLE 3. FREQUENCY OF LARGE CAVITIES IN POST-OPERATIVE AND POSTPNEUMONIC CASES

Case	Cavity	No Cavity
Aspiration abscess	21	3
Acute postpneumonic abscess	16	0
Chronic postpneumonic abscess	13	30

#### COURSE AND PROGNOSIS

The etiology of lung abscess has a decisive influence on its course and prognosis. The prognosis is best in the postoperative cases. Of these, nine patients recovered spontaneously, eight of them being posttonsillectomy cases. In the process of cure, it is remarkable that even large cavities may disappear in a very short time. The necrotic wall of the cavity sloughs out and is expectorated, and as the surrounding pneumonia undergoes resolution, the lung once more expands and obliterates the cavity. The cure of postoperative abscess was accomplished in every case within two months of the onset. Cases which persisted beyond this time invariably went on to a chronic stage, with a resulting lung induration, and later developed the usual sequelae and complications.

The disappearance of all symptoms and physical signs in a case of lung abscess should not without more be regarded as decisive evidence of its cure. This disease is characterized by deceptive remissions during its early stages which necessitates great caution in the prognosis. A large percentage of the acute postoperative cases, after a few weeks, become quiescent or "sleepy." In these cases a roentgenographic examination will usually reveal a small area of infiltration which is below the threshold of physical examination. Sooner or later, this remnant of the disease will be stirred to activity, and the symptoms of a gangrenous abscess will be reproduced. The disease will then take its course for months or years until it is terminated by one or more of a number of complications which continually menace these patients. Among these, pulmonary hemorrhage should be first mentioned. Hemoptysis in lung abscess occurs more commonly than it does in pulmonary tuberculosis, and not infrequently it is fatal. In a few cases a superficial abscess has ruptured into the pleura with a resulting pyopneumothorax. More commonly a simple empyema develops. In three cases, septic embolism of the brain caused the death of the patient. In addition there are periodic exacerbations in the severity of the symptoms which are probably due to an extension of the inflammatory process. This may occur slowly or may develop rapidly, owing to the spilling over of the contents of a cavity into previously uninvolved portions of the lung.

The prognosis of the postpneumonic cases appears to be almost absolutely bad; but two patients recovered in this series, although the case of one of these is doubtful, at least, as he died subsequently of brain abscess. The perforation of a superficial abscess in postinfluenzal cases in their early stage appears to be a favorable occurrence. Three patients, observed last year, in which this complication occurred, recovered promptly after drainage of the pleural cavity. It appears probable that the rupture of the cavity into the pleura served the purpose of pulmonary drainage, which apparently may be an effectual method of cure before the lung has become indurated.

Most of the postpneumonic cases continue until there is a progressive induration of the lung with the formation of multiple bronchiectases. Unless the condition is fatally terminated by one of several complications, the patients may live for years. Their lot, however, is sad and hopeless. Usually, the course of the disease is punctuated by periods of aggravation of the symptoms, in which the patients are harassed by a constant cough, profuse expectoration, which is often so fetid as to require their isolation, and attacks of high fever. On the other hand, there are cases in which the patients enjoy a considerable degree of comfort for many years, their only symptom being a copious purulent expectoration which is evacuated every morning on arising. They may have no fever, and there is usually no gangrene. These cases usually date from childhood, and may result from an attack of bronchopneumonia. In these cases the disease may be purely a bronchial one, the lung parenchyma being not at all involved. The roentgenogram reveals multiple globular dilations of the bronchi, usually of a lower lobe, so that the lung has a spongy or honeycomb appearance. It is evident that the prognosis for the life of the patient in this type of case is fairly good, although a cure cannot be expected.

#### TREATMENT

The medical treatment of suppurative lung disease offers little that is encouraging. It can be only symptomatic. The disease responds favorably for a time to climatic treatment; but there is sooner or later a recurrence of the symptoms. Symptomatically, the relief of the cough is an important object to accomplish. Constant violent coughing, by projecting the infectious material farther down into the smaller bronchi, undoubtedly disseminates the disease, and also promotes the formation of bronchiectases by weakening the bronchial walls. Periodic upsetting of the patients will facilitate drainage. Irrigation of the bronchi through the bronchoscope accomplishes the same purpose and may also keep the anaerobic process in check so that the expectoration is less offensive. This procedure cannot, however, cure these patients, as it has no effect on the pulmonary infiltration.

#### OPERATIVE TREATMENT

Acute lung abscess or gangrene is usually not an operative condition. A study of the cases here recorded has shown that at least one third of the patients with aspiration abscesses recover spontaneously usually within a period of two months. For this reason any operative procedure for the cure or relief of lung suppuration may profitably be postponed for several months. Two types of operation may be applied to these cases: thoracotomy with drainage, and lobectomy of one or more lobes of the lung.

Thoracotomy can at best be but a palliative procedure. By supplying drainage of the cavities, it diverts their secretion from the upper respiratory tract, thus, to some extent, shielding uninvolved portions of the lung from infection. It may produce a distinct improvement in the condition of the patient. A knowledge of the pathology of lung suppuration teaches us, however, that the only hope of complete cure rests in a complete removal of the infiltrated lung. This, no drainage operation can accomplish. Unfortunately, lung resection is an operation fraught with the greatest difficulties; it demands the highest surgical skill, and the operative indications in the individual case are extremely narrow. They may thus be formulated: The patients must be young; the operation in those who have reached the age of 40 has a prohibitive mortality. The case must be uncomplicated, that is, the pleural cavity must be free of dense adhesions so that the lobectomy may be expeditiously performed. Operations which last much over an hour result in a high mortality. The disease must be unilateral. When the operation has been successfully performed, the patient is completely cured; and surgery records no more brilliant or dramatic achievement than the restoration to health of a person afflicted with this most dreadful and hopeless disease. Of the patients in this series, five were cured by lobectomy by Dr. Lilienthal, all of whom remain well to this day.

Of the other surgical procedures, mention should be made of artificial pneumothorax. It is difficult to see how the injection of air into the pleural cavity may be expected to cure these patients. The conditions present bear no similarity to those which obtain in tuberculosis. It is not desirable to stimulate fibrosis, as there is already a tendency to fibrosis. The collapse of a cavity, if this is possible, which is doubtful, will not bring about the removal of a gangrenous focus. Not only is this procedure of no value, but it also may be distinctly harmful. The collapse of the lung may lead to a dissemination of septic material into distant portions of the lung with a rapid extension of the disease. In two of the cases in this series in which artificial pneumothorax was performed, not only was there a marked extension of the disease, to be observed on the roentgenogram, but also both patients died suddenly, shortly after the last insufflation.

It is important to emphasize the value of bronchoscopic examination preliminary to any operative procedure. In children, especially, it is not unusual to find a foreign body in the bronchus as the unsuspected cause of a lung abscess, and unless the disease is of long standing, removal of the foreign body may result in a cure.

CONCLUSION

It may be worth while to emphasize a few points in the pathogenesis of suppuration of the lung. There seems to be little doubt, from a study of the cases of postoperative abscess, that the disease is bronchogenic. It is equally probable that the infection is primarily gangrenous and owes its origin to definite forms of anaerobic micro-organisms. The pathogenesis of post-pneumonic abscess is, however, not so clear. In the chronic types there is, undoubtedly, primarily a pneumonic process which is due to the usual bacteria, such as the streptococcus and pneumococcus, which have the power to incite a chronic type of inflammation. There is, however, a group of so-called acute

postpneumonic abscesses or gangrene in which, without any evidence of operation or aspiration, there is, nevertheless, a primary gangrenous inflammation. In these cases, of which there were sixteen, the onset of fetid expectoration occurred on the thirteenth or fourteenth day just as in the cases of aspiration. They resembled the latter also in the frequent involvement of the upper lobes and in the early development of large cavities. The question, therefore, arises whether these are truly cases of pneumonia with subsequent development of gangrene, or whether they are not also due to the aspiration of septic material from the teeth or the tonsils, perhaps in the act of snoring during sleep. That this is not improbable will be evident from a consideration of several of the cases in which aspiration gangrene developed during unconscious states. This occurred in one case after an overdose of morphin, and in another after alcoholic coma. In both these cases, the chronology of the symptoms and the clinical course were identical with those of postoperative cases. It is to be hoped that a clearer insight into the pathogenesis of lung suppuration will be obtained when we succeed in reproducing the disease in animals, and when systematic studies of its anaerobic bacteriology have been made.

30 West Seventieth Street.

CONTAMINATION OF THE HANDS AND OTHER OBJECTS IN THE SPREAD OF DIPHTHERIA

OBSERVATIONS ON SECONDARY INFECTIONS IN HOSPITALS FOR CONTAGIOUS DISEASES\*

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AND  
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Crossed infections in hospitals for contagious diseases are always a matter of concern, and the technic followed in modern hospitals for these diseases has been elaborated with the special purpose of preventing such infections. Since the transfer of the infectious material is probably in most cases by direct carriage, it is most important to know just what the carrier is and to take measures to avoid its activity. It is readily imagined that the hands of nurses and others which are often in contact with patients and which frequently become contaminated by discharges from the throat, nose, ears, etc., may readily act as carriers. Our observations were made to learn if the routine followed in the hospital was sufficient to preclude such carriage by hands. Cultures were made to determine whether the hands of nurses and interns were free from the organisms which they had acquired in handling patients after the washing with soap and running warm water which we have depended on for cleaning the hands. The observations were made on a floor of the hospital principally devoted to diphtheria patients. Two forms of bacteria were sought by cultures, namely, the diphtheria bacillus and hemolyzing streptococcus. Neither of these is apt to occur except as it comes from disease secretions. Davitt and other have

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J. Davitt, D. J. III. M. J. 24: 134 (1911)

pointed out that hemolyzing streptococci do not occur on normal clean skin. Since they commonly are present in the secretions in cases of diphtheria, their presence on the hands of those caring for persons with this disease can safely be inferred to be due to contamination with patients' secretions. Similar conditions apply to diphtheria bacilli. Cultures were also made from door knobs leading to the vestibule of patients' rooms, since if they become contaminated they may soil hands that have been properly cleaned. The cultures from hands were taken after routine washing, the person not knowing when they were to be taken. Cultures from door knobs were made after they had been unwashed for several hours.

The material for cultures was secured by drawing sterile cotton swabs, moistened with sterile water, beneath the nail of the right index finger, over the palmar surface of the same finger, and over the surface of a door knob. The swabs were rubbed over slants of Loeffler's solidified blood serum, and then washed off in sterile broth from which 5 to 10 drops were used in preparing blood agar plates. When organisms resembling diphtheria bacilli were seen in preparations from the culture on Loeffler's serum, pure cultures were isolated. Only those were finally recognized as diphtheria bacilli which produced typical lesions in guinea-pigs and were protected against by diphtheria antitoxin. In the blood agar plates, minute hemolyzing colonies were transferred to broth, and those strains which grew in chains and which produced a wide zone of hemolysis on a blood agar streak were listed as hemolyzing streptococci. The observations were carried out over a period of five months. The results may be thus summarized:

#### RESULTS OF EXAMINATIONS

A total of 268 examinations were made on forty-five pupil nurses, from one to fifteen examinations being made on the same individual. Of the 268 cultures from beneath the nail and from the palmar surface of the right index finger, twenty-five, or 9.3 per cent., contained hemolyzing streptococci and eight, or 3.0 per cent., diphtheria bacilli. Of the forty-five nurses, sixteen, or 35.6 per cent., yielded hemolyzing streptococci, twelve from beneath the nail, two from the palmar surface of the finger, and two from both locations. Of the same nurses, six, or 13.3 per cent., yielded diphtheria bacilli, three from beneath the nail, two from the palmar surface of the finger, and one from both locations. No individual who had ten or more cultures failed to show hemolyzing streptococci.

Similar examinations were made of four graduate nurses who had been specially trained in the care of contagious diseases, from five to twenty cultures being made on single individuals. In fifty-one cultures, hemolyzing streptococci were found but once, that is, in about 2 per cent. Diphtheria bacilli were never found. These nurses work with the sick-st patients, and their hands are especially liable to contamination. The contrast between the results in highly trained and pupil nurses is striking.

From the hands of three interns, forty-five cultures were made, seven of which, or 15.6 per cent., yielded hemolyzing streptococci, and three, or 6.7 per cent., diphtheria bacilli. Each of the three interns yielded diphtheria bacilli from beneath the nail on one occasion. In two of these the cultures were taken immediately after scrubbing the hands following the making of a necropsy in a case of diphtheria during which no

rubber gloves were worn. All of their hemolyzing streptococci were from beneath the nail.

Cultures were taken from the hands of four diet maids. Out of sixty-four cultures, hemolyzing streptococci were found beneath the nail twice, or in 3.1 per cent. No diphtheria bacilli were found.

An orderly who handled the laundry bags and waste materials yielded hemolyzing streptococci from beneath the nail four times out of eighteen cultures, but never diphtheria bacilli. Cultures from persons in the hospital office and laundry were uniformly negative.

Cultures were made from door knobs 137 times, eight, or 5.8 per cent., yielding hemolyzing streptococci, and six, or 4.4 per cent., diphtheria bacilli.

#### METHODS OF AVOIDING CROSS INFECTIONS

The significance of these findings is evident. While the streptococci may not always have come direct from patients, this can hardly be the case with diphtheria bacilli. It is evident that washing with soap and warm running water as carried out by most individuals does not entirely rid the hands of pathogenic bacteria. That it can be done, however, is indicated by the result of cultures from the hands of the specially trained nurse. The soiling of door knobs, etc., by unclean hands furnishes a means for contamination of clean hands, and so one careless person may annul the efforts of others. It would seem necessary to give special detailed instruction in the care and cleansing of the hands, especially of the nails, to all pupil nurses and interns when they begin work in a hospital for contagious diseases. They should be taught to avoid needless soiling of the hands as well as proper cleansing. They should be impressed by the great danger of the hands acting as carriers of infection to patients and to themselves.

In caring for patients when gross contamination of the hands cannot be avoided, and when performing necropsies, the difficulty of complete cleansing would suggest the use of some mechanical protection, such as rubber gloves. The routine making of cultures such as we have indicated, and which we propose to continue, might well be of value as a check on the technic of persons working about contagious diseases. Doors so constructed that knobs are eliminated would remove one means of hand contamination.

Even with the most perfect mechanical conditions, instances of cross infection can be eliminated only by intelligent, conscientious care by every person who has to do with the patients. Those who are careless should not be tolerated about hospitals for contagious diseases.

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**Fight Against Hookworm.**—The annual report of the International Health Record of the Rockefeller Foundation states that Brazil, Central America, the West Indies, and Far East, and twelve states in the United States are enlisted in cooperative work in the campaign against hookworm. Requests for aid in combating the disease were received from Colombia, the Barbados, Curaçao, and Santo Domingo, West Indies, the Madras Presidency, India, Kelantan, and the Federated Malay States, and Mauritius. In the United States, Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia were added to the states actively engaged against the disease. In the West Indies, Gambia, St. Lucia, St. Vincent and Trinidad; in Central America, Costa Rica, Guatemala, Nicaragua, Panama and Salvador; in the Far East, Ceylon, China, Fiji, Seychelles, Siam and Queensland, Australia and in Brazil, the federal district of São Paulo, and Rio de Janeiro.

## ASYNCHRONISM OF THE RESPIRATORY MOVEMENTS IN LOBAR PNEUMONIA \*

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The type of breathing to be described first attracted my attention some twenty-five years ago. Subsequently, it was observed with such constancy that I simply assumed it to be well known. A recent review of the literature, however, which included the more recent textbooks, various systematic discussions of lobar pneumonia, and all of the suggestive titles in the second edition of the Surgeon General's Catalogue yielded only two references to the subject. Grocco<sup>1</sup> gave a brief description of the phenomenon in 1904. Frugoni,<sup>2</sup> his pupil, included it in an extended study of pathologic changes in the respiratory rhythm in 1910.

In 1904, Hughlings Jackson<sup>3</sup> reported an isolated case of "latent pneumonia" in which there were no contractions of the intercostal muscles with ordinary breathing. The rate of the respiration was 44 per minute. The intercostals acted, however, when the patient was told sharply, "Breathe!" "There was loss of automatic movement of the intercostals with persistence of the voluntary movement of the same muscles." The diaphragm appeared not to act in the "voluntary" breathing since the epigastrium sank in. This case only remotely resembles the type of breathing under discussion. Jackson himself thought that the phenomenon was due to a circumscribed myelitis of the lateral horns, if not more, of the cord.

Asynchronism of the respiratory movements is characterized by a separation of the moment of contraction of the diaphragm and intercostal (and other thoracic) muscles by a definite, though variable, time interval. As far as my observations go, the diaphragm always contracts first; the abdominal wall is forced outward, and then, after varying intervals, the contractions of the intercostal muscles follow. Careful attention may be necessary to detect the lag in the movement of the thorax; the lowermost intercostals may contract first and the movement of the thorax spread from below upward, or the delay in the contraction of the intercostals may result in complete asynchronism. In the fully developed type of asynchronism, the diaphragm reaches the expiratory phase before the contractions of the intercostals set in, and the abdomen and chest rise and fall alternately—"see-saw" best describes the impression conveyed. The time relations of the contractions of the diaphragm and intercostal muscles with those of the auxiliary and associated respiratory muscles (for example, dilatation of the alae nasi) have not yet been determined in detail, but dilatation of the alae nasi has been observed to precede the bulging of the abdomen, which in turn preceded the movement of the thorax.

### INCIDENCE

Grocco states that he has observed asynchronism of the respiratory movements in meningitis (especially

the basilar form), typhus fever, pneumonia, heart disease, uremia, and cerebral abscess, hemorrhage, or tumors. In my experience, a slight delay in the contractions of the intercostal muscles has occurred in uremic stupor, pulmonary abscess following pneumonia, and in cases of indefinite febrile disease; but complete asynchronism has occurred only in lobar pneumonia.

### PROBABLE CAUSE AND PROGNOSTIC SIGNIFICANCE

Asynchronous breathing possesses especial interest from two standpoints: (1) its probable cause, and (2) its prognostic significance.

1. *The Cause of Asynchronous Breathing.*—The search for the cause of asynchronous breathing has suggested that the phenomenon may help to clear up problems in the physiology of respiration which have not yet been solved. For example, the time relations of the contractions of the various respiratory muscles and groups of muscles have not yet been determined with certainty, nor have the identity and respective functions of the different parts of the central nervous system concerned in the regulation of the respiratory movements.

In 1849, Hutchinson<sup>4</sup> described the normal respiratory movements:

In ordinary male breathing in man the abdomen first bulges outward; the ribs and sternum nearest the abdomen gently follow this movement until the motion, like a wave is lost over the thoracic region. In costal breathing, the upper ribs move first, and the abdomen, second. This is the ordinary breathing in women.

Without a definite statement to that effect, Keith<sup>5</sup> conveys the impression that he believes the inspiratory muscles act in unison. He found that if tracings are taken over the epigastrium and over the apex of the lung, the descent of the diaphragm precedes that of the apex; but he explains this on the ground that for anatomic reasons the apex cannot expand unless the lung descends, and that the downward piston like thrust of the diaphragm causes the lowermost part of the lung to expand first.

In Dally's<sup>6</sup> discussion of Keith's paper, he states definitely that reciprocal exciting and inhibitory impulses control the action of at least some of the muscles of respiration:

As Sherrington has shown in case of the limbs that contraction of the flexor muscle group can only take place by temporary corresponding inhibition of the extensor group, and vice versa; so during respiration I believe the diaphragm in its active downward contraction to be synergic with the powerful muscle group which produces extension of the vertebral column, while in expiration it is antagonistic to the muscles of the abdomen.

Howell<sup>7</sup> states that "the inspiration in man (in quiet breathing) is made by the diaphragm alone or by the diaphragm together with some action of the levatores costorum and the external intercostals."

Luciani<sup>8</sup> states that in sleep respiration is essentially costal, the diaphragm is virtually inactive; and that the thoracic respiration precedes the diaphragmatic.

\* A preliminary report was made in the Proceedings of the Society of Experimental Biology and Medicine, 15: 92, 1918.

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1. Grocco, Riv. crit. di clin. med. 5: 331, 1904.

2. Frugoni, Policlinico, sez. med. 17: 312, 1910.

3. Jackson, J. H. Lancet 2: 1472, 1894.

4. Hutchinson, Trans. T. H. Soc. Lond. 1: 40, 1849.

5. Keith, Brit. M. J. 2: 697, 1908.

6. Dally, Brit. M. J. 2: 697, 1908.

7. Howell, W. H. A. Text-Book of Physiology, 1: 7, 1910.

8. Luciani, Longi Human Physiology, New York, 1910.

8. Luciani, Longi Human Physiology, New York, 1910, page 191.

and that in the death agony only the diaphragm is active, while the intercostal muscles are paralyzed.

Also, according to Luciani, the immediate centers for the respiratory nerves are in the gray matter of the cord; they depend on the controlling center in the bulbiformis reticularis, which is probably under cerebral control. Mossa<sup>12</sup> believes there are at least a facial, a thoracic and a diaphragmatic center for inspiration.

In discussing the question of the existence of more than one respiratory center, Luciani asks, "Do the various modes of functional association and succession of the several muscles or groups of respiratory muscles depend exclusively on the bulbar center; or do the respective spinal centers cooperate actively; or is the varying degree of excitability of these centers at the given moment when they receive impulses from the bulbar center, of account?" He does not give the answers; but the questions themselves evidently express his belief that under certain conditions the coordination of the different muscles may be disrupted.

If Hutchinson's views and the similar views of Luciani and Howell are correct, the delay in the contractions of the intercostal muscles in lobar pneumonia is merely an exaggeration of the normal dissociation. On the other hand, if the contractions of the respiratory muscles are controlled, as Dally suggests, by reciprocal exciting and inhibitory impulses, asynchronism indicates a more or less profound disturbance of the nervous control of respiration.

In this connection it will be of interest to inquire to what extent respiration in pneumonia can be brought into relation with the control of the respiratory mechanism in health.

Haldane<sup>13</sup> and his associates have shown that the discharge of impulses from the respiratory center is regulated (among other factors) by the carbon dioxide pressure in the blood and alveolar air. The reaction of the center is so delicately adjusted that fractional alterations of the carbon dioxide pressure in the alveolar air and blood call forth marked responses (an increase of 0.2 per cent carbon dioxide in the alveolar air doubles the breathing, a fall of 0.2 per cent. causes the breathing to cease). In order, however, that the carbon dioxide may be effective, the oxygen pressure must be maintained at a definite (but relatively low) level.

Pradey<sup>14</sup> found that the carbon dioxide content of venous blood in pneumonia is constantly diminished and that the anoxemia of the urine runs parallel with it. While the carbon dioxide content bears little relation to the severity of the disease, it tends to be lower in the more severe cases. In two unusual cases, the carbon dioxide content was normal or above normal. In one of the higher rate of metabolism in pneumonia with increased production of carbon dioxide, the diminution of the carbon dioxide content of the blood can only be explained by diminished carrying power of the blood or by its more rapid elimination through the lungs. Pradey also found that the oxygen content of venous blood in pneumonia was within normal limits, except in the terminal stages of fatal cases, when a progressive decrease occurs.

An interesting suggestion may be drawn from Peabody's observations, namely, that one of the modes of

death in pneumonia may be in reality the result of excessive reduction of the carbon dioxide in the blood (acapnia) with so great a fall of venous blood pressure (venodepressor effect of Yandell Henderson<sup>15</sup>) that sufficient blood is removed from active circulation (as in hemorrhage) to precipitate the fatal issue.

Peabody's results make it clear that the cause of the rapid breathing of pneumonia must be sought in other factors than the carbon dioxide and oxygen pressures of the blood.<sup>14</sup>

Porter<sup>15</sup> and his associates have studied the functional state of the respiratory center in experimental pneumonia (produced by Friedländer's bacillus) in dogs by measuring its reaction to increasing percentages of carbon dioxide in the inspired air. They found that the center was progressively depressed as the disease advanced. In view of the fact that the center was not depressed in bacteremias produced by the same organism, they concluded that the depression was not due to the action of the toxin of the bacillus on the nerve cells of the center. Similarly, by allowing the animals to breathe pure oxygen they eliminated lack of oxygen as the cause. Since section of the vagus nerves prevents depression of the respiratory center, they concluded that the depression was due to exhaustion of the center by afferent impulses from the inflamed lung. These results are suggestive, but they should be applied to pneumonia in man, caused by a different group of organisms, with caution.

It is generally believed by clinicians that the respiratory center is depressed in pneumonia; and this opinion is supported by the action of morphin in the disease. In 1890, Loewy<sup>16</sup> found that morphin raises the carbon dioxide threshold of the respiratory center in man. These experiments have been repeated and confirmed a number of times for both man and lower animals. Henderson and Scarbrough<sup>17</sup> confirmed experimentally what has long been known clinically, namely, that the carbon dioxide threshold of the respiratory center is raised by morphin to a greater extent than the afferent threshold; in other words, respiration in opium poisoning may be maintained therapeutically by afferent impulses (vigorous flagellation, etc.).

The available evidence appears to justify the belief that the respiratory center is depressed in pneumonia; but whether the depression is caused by direct action of the pneumococcus toxin on the nerve cells, or by afferent impulses from the inflamed lung, or both, must remain open questions for the present.

The complete dissociation of the contractions of the diaphragm and intercostal muscles (the one being in the inspiratory phase, while the other is in the expira-

13. Henderson, Yandell, and Harvey, S. C.: *Am. J. Physiol.* **46**: 533 (Aug.) 1918.

14. Since this article was written, Stadie's work on the oxygen content of arterial and venous blood in pneumonia has appeared (Stadie, W. C.: *J. Exper. Med.* **20**: 215 [Sept.] 1919) in which it was found that a decided reduction in the oxygen content of both arterial and venous blood occurred, especially in fatal cases of pneumonia. The average "unsaturation" (oxygen content as contrasted with oxygen capacity) of arterial blood of four patients with lobar pneumonia who recovered was 36 per cent., of venous blood 44.2 per cent.; in three fatal cases, the averages were 27.6 per cent. for arterial and 59.5 per cent. for venous blood. (The normal figures are 5 per cent. and 26.8 per cent., respectively.) In the light of Stadie's results and those of Haldane, Meakins and Priestley (*The Respiratory Response to Anoxemia*, *J. Physiol.* **52**: 420, 1919; *The Effects of Shallow Breathing*, *ibid.*, p. 433), the conclusion appears warranted that the increased rate of respiration in pneumonia is due chiefly, if not entirely, to deficiency of oxygen.

15. Porter, W. T., and Newburgh, L. H.: *Am. J. Physiol.* **42**: 175 (Dec.) 1916. Other references will be found here. Newburgh, L. H.; Means, J. H., and Porter, W. T.: *Boston M. & S. J.* **7**: 464 (March 30) 1919.

16. Loewy: *Arch. f. d. ges. Physiol.* **47**: 601, 1890.

17. Henderson, Yandell, and Scarbrough, M. M.: *Am. J. Physiol.* **26**: 260, 1910.

18. Haldane, J. S. (*Quoted in title*).

19. *Principles of Breathing*, N. & Haven, Yale University Press, 1917.

20. Peabody, F. W.: *The Carbon Dioxide Content of the Blood in Pneumonia*, *J. Exper. Med.* **16**: 501, 1912.

21. Peabody, F. W.: *The Oxygen Content of the Blood in Lobar Pneumonia*, *J. Exper. Med.* **18**: 7, 1913.

tory) makes it apparent that the central nervous mechanism is unequally affected. But whether the depression is confined to the bulbar center (formatio reticularis), or affects the other centers as well cannot at present be determined. When it is recalled that the facial, abdominal and costal movements may all occur asynchronously, strength is added to Mosso's belief that a facial, a diaphragmatic and a thoracic center for inspiration exist.

2. *Prognostic Significance.*—Asynchronous breathing was first observed in patients with lobar pneumonia who were dangerously ill and who required constant attention throughout the night. As opportunity for wider observation came, it was found to occur only in the severest cases. Without having kept statistical records, I can recall only a few patients exhibiting the phenomenon, at least in a well developed form, who recovered. It usually develops late in the disease, but it may appear within the first few days, and give the first intimation of the gravity of the case. After long observation I have come to regard asynchronism as a sign of the gravest import. While patients who develop it generally die, it does not occur in all fatal cases. In the influenzal pneumonias of the recent epidemic, asynchronous breathing was comparatively uncommon in my experience.

SUMMARY

Asynchronous contractions of the respiratory muscles occur in many cases of lobar pneumonia. In the fully developed type of asynchronous breathing, the diaphragm and thoracic respiratory muscles contract alternately, with the result that the abdomen and the chest "see-saw" up and down.

The cause of the phenomenon probably lies in unequal depression of different parts of the central nervous respiratory mechanism.

The development of asynchronous breathing usually augurs a fatal termination.

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EOSINOPHILOUS MYOCARDITIS IN  
DIPHTHERIA

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The presence of eosinophils in the myocardium was first noted by Straubli<sup>1</sup> in a guinea-pig with trichosis. Rindfleisch<sup>2</sup> also recorded the condition in an acute interstitial myocarditis. Freund<sup>3</sup> found eosinophil cells throughout the myocardium in high-grade blood eosinophilia following teniasis. And Wulffius,<sup>4</sup> Tanaka,<sup>5</sup> and Liebman<sup>6</sup> have described eosinophils in the myocardium after death from diphtheria.

So far as I know, recorded examples of eosinophil myocarditis are not described in American literature. The opportunity to obtain material from the Durand Hospital of the John McCormick Institute for Infectious Diseases prompted me to search for these cells in the myocardium after death from acute infection.

In sections from various parts of the auricles, ventricles and the papillary muscles, stained with various

blood dyes, eosinophils were found in seven of twenty-nine hearts of children that had died of diphtheria. I did not find eosinophil cells in the myocardium of patients that had died of various other diseases, including scarlet fever, meningitis, poliomyelitis, measles, etc.

The cells were polymorphonuclear in type with many sharply stained granules. They were so prominent in sections stained with Wright's stain as to be detected easily on glancing over the field with low power. They usually occurred in groups of from four to twelve. In one instance, sixteen were noted in one field. The cells were grouped about among the individual muscle fibers and the connective tissue stroma. They were not more frequent in the hearts showing the most pronounced degenerative changes. So far as I could determine, the myocardial eosinophilia had no relation to the severity of the clinical symptoms or to the degrees of myocarditis or the amount of serum used in treatment. The average dose of serum in our patients was 22,000 units, or about 25 c.c., with a maximum of 110,000 and the minimum 4,000. The cells were never found in the structures which make up the specific conducting system of the heart, that is, the sinus node, Tawara's node, the His bundle, and the Purkinje fibers.

In my instances of eosinophilous myocarditis, the myocardial changes characteristic of diphtheria were present, but in no wise were they different from such cases in which eosinophils were not found. In all of the hearts studied, the myocardial changes were most pronounced about the blood vessels. Vacuolization of the muscle fibers, cloudy swelling, hyperemia of the small vessels, and blood extravasation between the muscle fibers and about the capillaries were regularly present. Fragmentation was not noted. Such changes have been described many times, more recently by Aviragnet and others.<sup>7</sup>

I have studied serial sections of the sinus node, Tawara's node, the His bundle, and the Purkinje fibers to determine whether changes of the special impulse conducting system of the heart might be made responsible for the various disturbances of rhythm so frequently noted clinically. In one heart, marked extravasation of the blood was found in the His bundle. In the others there were varying degrees of cloudy swelling of the individual fibers of the His bundle. Statements sometimes made to the effect that the fibers of the His bundle are enlarged as a result of cloudy swelling, etc., are rather indefinite, and depend in a large degree on the interpreter. After study of several dozen His bundles and the related structures which go to make up the special impulse conducting system of the heart, the changes found in this group of diphtheria hearts are not considered striking. But, since the His bundle is surrounded by a firm and dense connective tissue sheath, in some species, especially the sheep, this sheath often being cartilaginous, it is possible that even slight swelling of the individual fibers of the bundle might result in an increase of pressure within the bundle of sufficient degree to inhibit the passage of impulses. This compression, with possible changes within the fibers themselves, may be responsible for arrhythmias. This affords a satisfactory explanation for the instances of heart block that occur in diphtheria. Extrasystoles are noted less frequently. Atrial fibrillation following heart block in diphtheria has been recorded only once, so far as I know.

1. Straubli: Trichinose, p. 206.

2. Rindfleisch: Dissertation, 1898.

3. Freund: Berl. klin. Wechnscr. 49: 50, 1898.

4. Wulffius, J.: Frankfurter Ztschr. f. Path. 10: 58.

5. Tanaka: Virchows Arch. f. path. Anat. 210: 119, 1911.

6. Liebman: Deutsch. Arch. f. klin. Med. 17: 438, 1917.

7. Aviragnet, E. C.; Lutembacher, R., and L. Sauer: Arch. f. Mal. du coeur 11: 241 (June) 1918.

8. Parkinson, J.: Heart 6: 13, 1917.

It is held that diphtheria toxin is responsible for the myocardial changes in diphtheria. Hume and Clegg<sup>9</sup> are said to have demonstrated that the toxin has a direct action on the bundle of His, causing both interstitial and parenchymatous changes. It is reasonable to suppose that the changes I have observed in the His bundle are due to the toxin.

Electrocardiograms were not made in the cases from which my material was obtained. However, the clinical charts of the patients show marked variations in the pulse rate from time to time, and frequently marked irregularity. The hospital cared for 805 diphtheria patients during the time that I obtained my material, and of this number ninety three, or 11.6 per cent., died. However, in 6 per cent. of the fatal cases, the patients were moribund on admission and died within twenty-four hours. The hearts I studied were about equally divided between the group of patients that died soon after admission and the group that died after several days of observation. In each instance, the anatomic diagnosis began with the item tonsillitis, acute diphtheric pharyngitis or laryngitis, etc. Frequently, acute nephritis, myocarditis, and bronchopneumonia were noted also in the record.

The degree of myocarditis varied materially in the different specimens. It was most marked in the very toxic cases in which little antitoxin had been used. It is interesting to note that in one case in which 110,000 units (about 250 c.c. of serum) were given, the myocarditis was moderate and no eosinophils were present.

There are at least three possible explanations of the disturbance of the pulse rate in diphtheria: The degenerative changes in the myocardium due to the diphtheria toxin may cause it; similar changes in the nerve plexuses, the nerve fibers and endings in the heart may be responsible; or changes in the terminal fibers of this system, as the Purkinje fibers at the point where they fuse with the individual muscle cells of the myocardium, may cause it. When heart block occurs, involvement of the His bundle is certainly present. In other instances, myocardial, nerve and bundle lesions may be associated, and each may be partially responsible.

Several explanations of eosinophilous myocarditis in diphtheria have been offered. Schlecht and Schwenker<sup>10</sup> suggest that anaphylactic reactions play a rôle and that serum therapy increases its occurrence. Kull<sup>11</sup> records an instance of severe myocarditis following the injection of 40,000 units of antitoxin. However, eosinophilous myocarditis does not seem to have been produced experimentally with serum poisoning, although it has been caused by epinephrin (adrenalin) poisoning.<sup>12</sup> Tanaka, who found this condition in four of fifteen diphtheria hearts, regards it as a symptom of subacute infection, and holds that the eosinophils have no special significance. Bubano<sup>13</sup> explains it as a local phagocytic process. Straubli,<sup>14</sup> Gruber,<sup>15</sup> and more recently Sternberg,<sup>16</sup> have regarded the eosinophils in the myocardium as having been drawn from the capillaries by a positive chemotaxis. We have no definite knowledge of the function of the eosinophils, and this renders more difficult a satis-

factory explanation of eosinophilous myocarditis. We know that these cells take a prominent part in the reaction of the body to alien protein.<sup>15</sup> In helminthiasis, an eosinophilia arises owing to a substance introduced by the parasite into the host.<sup>10</sup> This substance actually attracts the eosinophil to the precise region in the intestinal wall that is injured by the worm.<sup>17</sup> In subacute appendicitis, the lymphatic structures of the appendix may be packed with eosinophils. Likewise, in gonorrhéal salpingitis, the gonococcus causes a chemotaxis of sufficient intensity to attract large numbers of eosinophils to the tubal tissues.<sup>10</sup> In constitutional or familial eosinophilia, including hay-fever, gout, urticaria, mucous colitis, and asthma, a blood eosinophilia is often present, especially during convalescence.<sup>15</sup> Here, also, introduction of foreign protein into the body may be held responsible for the eosinophilia. Whether the eosinophils invade the tissue in these conditions is not known. In Hodgkin's disease, eosinophilic myelocytes and polymorphonuclear eosinophils are found in the lymph glands and in the blood as part of a terminal leukocytosis. These cells are morphologically slightly different from those found in eosinophilous myocarditis; but in Hodgkin's disease, the stimulus that leads to the production of eosinophilia may be so strong that disturbance of the bone marrow results with production of immature eosinophils.

In view of these conditions in which an eosinophilia occurs, and also the production of eosinophilia by the infection of alien protein, the most acceptable explanation of eosinophilous myocarditis seems to be that it results from a positive chemotaxis, some substance being present in the myocardium in response to which eosinophils migrate from the capillaries.

#### SUMMARY AND CONCLUSIONS

An eosinophilous myocarditis was found in seven of twenty-nine cases of diphtheria, but it was not present in many cases of death from various other acute infectious diseases.

The myocardial eosinophilia had no relation to the severity of the clinical symptoms or to the degree of myocarditis.

A moderate degree of cloudy swelling was found in the bundle of His and in the special impulse conducting system of the heart.

There is a possibility that the various types of arrhythmia in diphtheria are due to a compression of the fibers in the bundle of His as a result of moderate cloudy swelling or to the degenerative changes in this system.

The changes in the specific conducting system are not proportionate to the degenerative changes present in the myocardium.

In all probability, eosinophilic myocarditis is the result of a positive chemotaxis.

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16. Symmers, Douglas: A New Interpretation of the Pathologic Histology of Hodgkin's Disease, *Arch. Int. Med.* **19**: 990 (June) 1917.

17. Todd, quoted by Symmers, Douglas (Footnote 16).

18. Klinkert, D.: *Nederlandsch Tijdschr. v. Geneesk.* **11**: 23, 1917.

**Public Health Nurse.**—The public health nurse is to be considered one of the most simple, direct, and easily demonstrated means of health protection; and while the demand for public health nurses far exceeds the supply at the present time, it is hoped that the reaction will be such as will result in supplying the demand of public health workers.—*Am. J. Pub. Health* **9**: 350, 1919.

Hume and Clegg. Cited by Aviragnet and others, *Schweiz. Z. f. klin. u. allg. Path.* **12**: 191.

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12. Gruber, G. H.: *München. med. Wchenschr.* **61**: 647, 1914.

13. Sternberg: *Beitr. z. path. Anat. u. z. allg. Path.* **57**, No. 2, 1912.

METHEMOGLOBINEMIA DUE TO BROMOSELTZER POISONING\*

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REPORT OF CASE

*History.*—A white man, aged 36, was recently presented for diagnosis exhibiting marked cyanosis, associated with pallor, which gave him a peculiar leaden aspect. Respiration was not augmented to the degree ordinarily seen with a similar degree of cyanosis when due to deficient aeration of blood. At the age of 21, the patient had experienced "stomach trouble," manifested by pain after eating, which began at the left anterior costal margin, associated with abdominal distention and belching. The condition lasted for from one to two hours. At times vomiting occurred, which gave immediate relief. The symptoms were always accompanied by severe frontal and occipital headaches. The condition grew worse, and numerous kinds of medication were tried. The patient began taking bromoseltzer in 1911, about 5 ounces every three or four days. The headaches ceased, but the other symptoms persisted.

In 1912, the bromoseltzer was discontinued, but he began taking about one bottle of sal hepatica daily.

In 1913, he resumed the bromoseltzer, taking 5 ounces every three or four days. This he continued, gradually increasing the amount, until June, 1918, when three or four 5-ounce bottles were consumed daily. In October, 1918, he became weak, nervous, dizzy and restless.

From November, 1918, to April 20, 1919, the patient took from four to five 5-ounce bottles of bromoseltzer daily. April 23, 1919, he was admitted to the hospital. The chief complaints were nervousness, severe frontal headache, dizziness, and shortness of breath on exertion.

He was put to bed and given elimination treatment, sodium bromid and iron. The mucous membranes were very cyanotic; the skin was pale and dry, and there was considerable emaciation. The reflexes were exaggerated, but none that were pathologic were detected.

From April 27 to May 26, the patient was delirious, and physical restraint was necessary. From May 26, his mind began to clear gradually until June 10, when his mentality was normal, and he was up and around. At this time he stated that he felt better than he ever had in his life. There were still present slight cyanosis of the mucous membranes, skin pallor and general emaciation. The headache and dizziness had disappeared, though slight shortness of breath on exertion persisted.

He was discharged from the hospital, June 25, in good physical and mental condition and with no evidence of cyanosis.

*Physical Examination.*—This was negative except for a pale blue color of the skin, especially of the mucous membranes, lips and nail-beds. The pulse was regular but weak. While lying in bed, the patient experienced no respiratory distress.

*Laboratory Findings.*—The urine contained a faint trace of albumin, but there was no blood pigment. The blood count, April 24, was: red blood corpuscles, 4,400,000; white blood corpuscles, 8,100. The differential count was: polymorphonuclears, 70 per cent.; small lymphocytes, 15 per cent.; large lymphocytes, 15 per cent.; transitional, 0; eosinophils, 0.

Three samples of blood were obtained from the arm vein on the first, fifth and tenth days of May. The first sample of blood was of a dark hue with a brownish tinge, and on exposure to air, did not assume the bright scarlet hue characteristic of normal arterial blood. A portion was centrifuged, and clear serum was obtained. Spectroscopic examination of the serum failed to detect the spectrum of methemoglobin even to a thick layer. A portion of the whole blood, laked by adding water, showed, in addition to the oxyhemoglobin bands, a very pronounced absorption band in the red. On the addition of ammonium sulphid, the band in the red disappeared and the

spectrum of reduced hemoglobin appeared. The position of the absorption band in the spectrum, and the reaction to ammonium sulphid, was that of methemoglobin.

The second sample, obtained five days later, was to all appearances the same as the first. The same dark hue was noted which on aeration did not readily become arterial in hue. A portion was centrifuged. The serum was blood tinged, owing to slight laking which had probably taken place after the blood was drawn from the vein. Spectroscopic examination of the serum and of the whole blood laked by adding water demonstrated the bands of oxyhemoglobin and a band in the red, which disappeared on the addition of ammonium sulphid, as in the first sample.

The third sample of blood, taken ten days after the first, still showed the dark color which, however, was less pronounced. On aeration, this sample was found to be noticeably brighter than the two previous samples, but it was still unlike normal arterial blood. The serum in this case was clear and no band of methemoglobin could be detected. Laked whole blood, however, still gave the spectrum of methemoglobin which, on the addition of ammonium sulphid, gave the characteristic reaction.

A fourth sample, obtained June 5, was to all appearances normal, rapidly becoming of arterial hue on aeration. Spectroscopically, only oxyhemoglobin could be detected.

As it is well known that many benzene derivatives, including phenacetin and acetanilid, when introduced into the body in sufficient amounts will convert hemoglobin into methemoglobin,<sup>1</sup> the presence of methemoglobin in this case is attributed to the acetanilid contained in the bromoseltzer.

The oxygen capacity was determined by the method of Van Slyke,<sup>2</sup> and the hemoglobin by the method of Palmer.<sup>3</sup> From the third sample the oxygen content<sup>4</sup> was also determined. The accompanying table shows the results together with the hemoglobin calculated from the oxygen capacity.

RESULTS OF TESTS FOR THE OXYGEN AND HEMOGLOBIN CAPACITY OF THE BLOOD

No.	Date	Oxygen Capacity, Volume per Cent.	Hemoglobin Calculated from Oxygen Capacity, per Cent.	Hemoglobin, Palmer's Method, per Cent.	Oxygen Content of Venous Blood, per Cent.	Spectroscopic Examination for Methemoglobin
1	5/1/19	14.47	88.47	112.1	7.2	+++
2	5/5/19	16.06	96.81	116.5	7.2	+++
3	5/10/19	17.06	102.06	115.6	7.2	++
4	6/5/19	19.00	109.55	101.0	...	Negative

In aerating the blood for the oxygen capacity determination, the persistence of the dark color on exposure to air was conspicuous, the blood remaining dark after from fifteen to twenty minutes of such aeration.

COMMENT

The difference between the hemoglobin as determined by the method of Palmer and as calculated from the oxygen capacity apparently was due to the methemoglobin, which does not give up oxygen to the vacuum but adds to the colorimetric determination. In the presence of methemoglobin, therefore, the hemoglobin as determined colorimetrically does not give the true picture of the oxygen carrying capacity of the blood.

It might be thought that the difference between the hemoglobin as determined colorimetrically and as calculated from the oxygen capacity would give the amount of methemoglobin present, but such is not the case. The amount of methemoglobin is more than indicated by the difference, as the methemoglobin is not converted quantitatively to carbon monoxid hemoglobin.

1. H. H. Fisher, W. Arch. Clin. Exp. Path., *Proceedings*, 7:2 (1911) 113.  
 2. Van Slyke, D. D., *J. Biol. Chem.*, 33:1 (1919) 114.  
 3. Palmer, W. W., *J. Biol. Chem.*, 33:1 (1919) 114.  
 4. Leitch, G. C., *J. Biol. Chem.*, 33:1 (1919) 114.

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globin, and its brownish tint does not match well with the standard.

#### SUMMARY AND CONCLUSIONS

1. A man developed the bromoseltzer habit, which led eventually to the ingestion of extremely large quantities of the drug.

2. The outstanding features of the toxic effects were a persistent methemoglobinemia, associated with cyanosis and mental derangement.

3. The methemoglobinemia can probably be attributed to the acetamidil contained in the bromoseltzer.

4. The cyanosis can be explained on the basis of the change in the blood pigment. The altered pigment was shown by spectroscopic examination to be methemoglobin.

5. The oxygen capacity and oxygen content of venous blood would seem to indicate why the cyanosis was not associated with symptoms of air hunger except on exertion.

6. If the presence of methemoglobin, the determination of the hemoglobin colorimetrically does not give the true picture of the oxygen carrying power of blood, which, however, can be estimated by determining the oxygen capacity.

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## ACTINOMYCOSIS TREATED WITH RADIUM

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In January, 1914, I demonstrated before the Medical Society of Christiania the first case of actinomycosis treated with radium.

#### REPORT OF CASES

**Case 1.**—A O., a laboring man, aged 32, was removed Feb. 10, 1913, to the radium division from the surgical section where he had been under treatment since Nov. 30, 1912, for actinomycosis with swellings in the right cheek. December 1 the tumor in the outer side of the cheek had been incised and scooped out, a small quantity of pus (together with a soft granulation tissue) being removed. A similar incision had been made on the inner side of the cheek in which a gauze of iodoform gauze had been placed. The patient, since November 7, had gone through an internal treatment with potassium iodide. He then felt better until the beginning of February, 1913, when the swelling in the cheek grew so much that the eye slit finally disappeared. Feb. 10, 1913, he was sent to the radium division of the Rikshospitalet.

At entrance the right cheek was very swollen, especially above and outside the right eye; it was strongly injected, tender, infiltrated and sensitive to touch. Close under the right eye was a flat, at the more prominent area the central part of which was yellowish. The swelling reached farther, from the upper lip to the hair and on the outer side to the ear, to the inner side to the nasal furrow. The mucous membrane of the cheek also was strongly infiltrated and thickened. The nostril was well shut up. In front of the sternocleidomastoid muscle an estimation swelling was present.

February 11 the whole of the swollen cheek was subjected to radium treatment and the patient had for three days twenty-four hours in each place 4 cg. of radium (tube preparation).

February 14, it was noted that the swelling had abated somewhat after his arrival.

April 3, the patient returned for renewed radium treatment. The swelling on the right cheek was now distinctly better, and the right eye was about half as wide as the left one; it is true that even now the cheek was red and infiltrated, but only over an area of about 4 square centimeters on the outside of and below the eye; a small abscess was seen in the center of the infiltration.

The patient was then subjected to another three days' treatment with about half as strong doses as the first time.

May 20, the patient came for further treatment; but as the cheek showed no more traces of the disease, he was released on the same day and has been well since.

**Case 2.**—A man, aged 17, came from the surgical polyclinic into the radium section, Feb. 25, 1914, on account of actinomycosis faciei and colli.

In the beginning of December, swallowing had become painful, and at the same time the left cheek and the neck under the left ear began to swell. The swelling increased slowly, and an abscess formed, from which there ran thin pus containing small granules (under the microscope found to contain actinomycetes). Later on, several abscesses formed.

When he entered the radium section, a diffuse, firm infiltration reached across the left cheek up to the zygomatic arch, and to the ear. The infiltration covered part of the neck, the skin was very much injected, and in the infiltrated area several fistulous openings were to be seen.

In the mouth, in the mucous membrane above the left canine tooth, there was a projecting swelling the size of a bean, with a center of pus. Here could be felt glands, up to the size of a bean, hard and insensitive, on the neck alongside the front edge of the sternocleidomastoid muscle and in the supraclavicular fossa.

The radium treatment began, Feb. 25, 1914. On the outside tumor 21 cg. of radium (tube preparation) with lead filter, 1 mm., were placed for twenty-four hours, and a surface preparation of 2 by 1 cm. (0.5 mm. lead filter) in the mouth for five hours.

April 19, the radium treatment was repeated with half doses to meet a possible relapse. The patient was cured at the time, and no relapse had taken place at the last inspection, one year after radium treatment.

**Case 3.**—A laboring man, aged 44, suffering from actinomycosis colli, was transferred from the surgical section to the radium division, May 4, 1915.

The illness began with a small "lump" under the skin over the right lower jaw four months before his entrance to our section. This grew little by little and developed into an infiltration, as hard as wood, of the soft part of the neck. The swelling on the right side reached the mastoid process, downward to within a few centimeters above the sternoclavicular joint and across the middle of the throat to the angle of the left maxilla. The swelling was sensitive, the skin covering it was red, and there were indications of deep fluctuation, and actinomycetes were demonstrated in the pus of the abscess.

The radium treatment commenced, May 4. In all, 20 cg. of radium (tube preparation) were used, with a strong lead filter of 1 mm., for twenty-four hours.

A repeated treatment took place, June 9, with about a half dose as compared with the first treatment, and, July 30, the last radium treatment followed (4 cg. for twenty-four hours).

**Case 4.**—A man, aged 79, a mason by trade, was moved to the radium section, Jan. 15, 1914, from the surgical section, where he had been treated for actinomycosis.

According to the history, the illness had existed for five weeks. In the surgical section, an incision had been made on the outside of the neck whereby some pus had been evacuated; actinomycosis granules were found in the pus.

On his entrance to the radium section, the soft parts of the neck on the left side were infiltrated by a flat swelling, hard as wood, in front, measuring 10 by 10 cm., which reached to within a few centimeters across the middle line of the throat and behind to the back edge of the sternocleidomastoid

<sup>1</sup> W. Heyerdahl, *Actinomycosis faciei et colli* for the determination of the oxygen capacity and a colorimetric method for the determination of the oxygen capacity of which we have previously published.

muscle, and from the collar bone to the lower jaw. The swelling was immovable on its base, the skin nodulated, infiltrated and bluish red. Pus trickled out through a fairly large incision.

It was a case of a serious, deep actinomycosis in the neck.

The patient was subjected to his first radium treatment, Jan. 15, 1915, and 10 cg. of radium (tube preparation) with lead filter of 1 mm. were used for twenty-four hours, also surface preparations.

As early as a few days after the radium treatment, a perceptible decrease of the disease was noted.

A repeated radium treatment was undertaken, March 2, with about the same doses. The swelling was by this time evidently on the decrease, stretching in front to the middle line of the throat, above to within two finger breaths below the lower jaw, below to two finger breaths above the collar bone, and behind to the front edge of the sternocleidomastoid muscle. The infiltration had become considerably flatter.

One more after-treatment with surface radium preparations was arranged. The patient was now cured and has been well since.

CASE 5.—A man, aged 18, was brought into the radium section, Dec. 8, 1915, from the surgical section, where he had been under treatment for actinomycosis of the neck and face since the last of November.

The whole of the lower right side of the face was covered by a firm infiltration, hard as wood, stretching from the zygomatic arch across the whole of the right cheek and behind to the back edge of the sternocleidomastoid muscle and downward to within two cm. above the collar bone. The skin over the infiltrated part was slightly injected, and one part round the angle of the jaw was red and inflamed. Here, an area about as big as a florin, where a fluctuation might be traced, formed a lump. There was considerable trismus. The patient was able to open his mouth to a distance of 1 cm. between the upper and lower teeth. By puncture, a few cubic centimeters of pus were obtained, in which were found typical actinomycosis granules.

On the same day, an incision of the abscess was made and about a soup-spoonful of pus was taken out. The radium treatment commenced, Dec. 9, 1915. In all 20 cg. of radium (tube preparation) were applied for twenty-four hours.

Jan 22, 1916, a renewed radium treatment was applied with 20 cg. of radium, lasting twenty-four hours.

January 23, it was recorded that infiltration of the right cheek had considerably decreased; it now covered an area of 4 square centimeters below the ear and round the angle of the jaw. Over the angle a small fistular opening was seen. The redness had decreased.

The radium treatment was repeated, March 1, 1916, with 14 cc of radium for twenty-four hours.

CASE 6.—E. R., a farmer, aged 27, entered the surgical section, Feb. 2, 1916, because of actinomycosis colli. An extract from the history runs:

A month before pain in the throat also started difficulty in swallowing; he was hoarse and felt weak.

About a fortnight before, the neck began to swell on the right side just below the lower jaw. The swelling spread little by little over the right half of the face upward and downward to the jugulum. During the last days, the difficulty in swallowing had increased, and breathing had become difficult.

Feb. 2, 1916, the patient had difficulty in speaking. The temperature was 38.1 C. (100.6 F.). The tongue was strongly coated, and there was fetor ex ore. The right side of the neck was considerably swollen, the swelling covering the right half of the face upward to the lower edge of the orbit and to the right nasolabial furrow. Downward it reached 23 cm., over the sternum and a little beyond the middle neck line, backward to the upper back edge of the sternocleidomastoid muscle.

On the right side of the neck upward, the tissue felt firmly infiltrated. The skin was tight and bluish red. Farther down, below the lower jaw, fluctuation could be felt, and at the end of the middle line under the throat a lump the size of a large walnut was seen, which fluctuated strongly. The

mouth and the fauces could not be examined, as the infiltration prevented the opening of the mouth.

Immediately after the patient's entrance into the surgical section, three incisions were undertaken, and pus was removed from a large abscess. In the offensive pus were found actinomycetes. Radium treatment was started, Feb. 12, 1916. In all, 20 cg. of radium (tube preparation) with a lead filter of 2 mm. thickness were applied outside on the neck for twenty-four hours, and in the mouth 2 cg. of radium with a lead filter of 1 mm. thickness were applied for twenty-five hours.

The repeated treatment took place, March 28, with application of the same doses as the first time.

A slight thickening was still to be seen round the incision scars. The patient was permanently cured.

## THE DIAGNOSIS OF CHRONIC CHOLECYSTITIS COMPLICATING CARDIAC LESIONS

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Although I do not wish to reflect invidiously on the judgment of other practitioners, still I think I am not making an extreme statement when I say that there is a tendency among some physicians to attribute to a discovered cardiac lesion most, if not all, of the symptoms of which the patient complains. This is illustrated by precordial pain. If opinion is sought by the patient because of pain in the region of the heart, and if the physician recognizes the existence of a valvular defect, for instance, the symptom is likely to be attributed to the heart and treatment instituted accordingly. If the pain is evoked or intensified by exercise, this is considered proof positive of the correctness of the conclusion, and the patient may be ordered to bed or at least told to keep quiet. Soreness of the pectoral muscles or tenderness of the intercostal nerves may not be recognized or may be ignored, and no careful attempt may be made to differentiate between myositis or simple neuralgia and angina pectoris, or to search for some focus of infection in the throat, mouth or digestive tract that may be responsible for the pain, irrespective of the cardiac lesion. That in some cases an indirect connection may exist between the pain and the state of the heart is admitted; but it is an error of judgment in most instances to conclude that the latter is the cause, and the former the effect.

What has been said of pain about the heart applies with equal, if not greater, force to certain symptoms pertaining to the digestive system. Acute attacks of indigestion, or especially what is termed "chronic stomach trouble," when complained of by a cardiac path, is very likely to be ascribed to the heart disease whether valvular or myocardial.

That persons with pronounced circulatory embarrassment are prone to disturbance of digestion is granted, in consequence probably of sluggish circulation, and therefore more or less pronounced venous stasis and altered gastric and intestinal secretion. Such digestive disorders generally show themselves as accumulations of gas causing eructation with or without fermentative acidity, and as annoying flatulence. But not infrequently, cardiac patients complain of attacks of pain, generally in the epigastric, which they ascribe to their stomach. Others may speak of "spells of biliousness" with soreness, especially of pressure either in the median line below the cardiac

cartilage or at either side, more frequently the right. If on examination the physician detects enlargement and tenderness of the liver, he is very likely to conclude that the symptoms are due to passive hepatic congestion, and the latter to defective circulation in consequence of the heart disease.

#### CHOLECYSTITIS AND CARDIAC DISEASE

In 1909, I<sup>1</sup> pointed out the injurious influence of gallbladder disease on the heart, and cases were cited of serious cardiac incompetence even to the production of dangerous edema, a condition corrected wholly or in part by drainage of the gallbladder. Since that time I have never failed to pay special attention to the possibility of cholecystitis in every person with heart disease of whatever nature who complains of indigestion or subdiaphragmatic pain, and frequently I have detected evidence of gallbladder disease.

The history is rarely diagnostic, but is often very suggestive. From an etiologic standpoint, typhoid fever either in life may furnish a clue; but even when that is wanting, the history of inflammatory rheumatism or of some other streptococcal infection may be significant, since Rosenow's investigations have proved the presence of streptococci in the mucous membrane of the infected gallbladder more often than of the typhoid bacillus. Then, if the patient lays stress on symptoms referable to the digestive tract rather than to respiratory difficulty, or if attacks of palpitation occur at night or without such provocation as exercise or excitement, and especially if such attacks are accompanied by epigastric distress, attention should be directed to the abdominal organs, that is, the gallbladder and appendix. And here it may be stated that the appendix is not seldom the offending structure, a fact to be considered in some future paper. Duodenal and gastric ulcers also must be borne in mind, but their symptomatology is so unlike that of cholecystitis that the physician need rarely be confused. Their differentiation need not be discussed here.

Gallstone colic when severe is not apt to be overlooked and is likely to be mentioned by the patient in relating his history. It is chronic cholecystitis with or without the formation of calculi sufficient to excite violent pain, but is the real subject of this discussion. Therefore, in studying the anamnesis and symptomatology, the physician should not disregard data, no matter how insignificant they may seem to be.

It should be kept in mind, however, that pain of a severe nature from intense hepatic colic is a frequent occurrence, and that its character may be different. The pain may be referred to, is rather more a feeling of soreness or distress than an agonizing colic, and may be due to distention of the inflated viscera instead of its being caused by calculi, or to the passage of a stone along the cystic or the common duct. When due to distention of the gallbladder or to congestion of the liver, the distress is likely to be more continuous and not so markedly agonizing as that caused by calculi. The location of the pain may be various and referred to the epigastrium or to the umbilical region, or it may radiate upward over the anterior or posterior aspect of the chest to the ribs.

According to my observation, nausea and vomiting need not be pronounced features any more than jaundice. When these do occur they are very apt to

be attributed by the sufferer to acute indigestion especially if succeeded by cessation or decided diminution of pain. These are the symptoms so commonly regarded and mentioned as "attacks of biliousness."

That the differential diagnosis of chronic cholecystitis is often a matter of great difficulty is readily admitted. It requires not only a discriminating study of the history, possible etiology and symptomatology, but also a careful examination of the abdominal contents. By the last is meant a painstaking and precise palpation of the liver. In most instances of cholecystitis, this organ is plainly palpable, the degree of its enlargement depending chiefly on the acuteness of the gallbladder infection and the frequency, as well as the intensity of the symptoms produced.

The liver is not ordinarily palpable, or at most only its thin, smooth, regular lower edge can be felt during forced inspiration; therefore distinct enlargement of this organ is significant of some unusual influence brought to bear on it. In cases of cardiac disease, enlargement of the liver is the result of passive congestion and is so frequently observed that, when due to chronic cholecystitis in a cardiopath, one may very naturally attribute its increase in size and tenderness to stasis in consequence of impeded circulation. It is this very circumstance that renders the diagnosis of gallbladder infection difficult as a complication of cardiac lesions.

The following points are of great aid in arriving at the diagnosis: in passive hepatic congestion from heart disease, the organ preserves its natural and characteristic outline unless this is prevented by adhesions or by changes produced by cirrhosis, the chronic indurative cirrhosis of long-standing portal stasis. When not cirrhotic, but merely swollen by congestion, the left lobe is palpable and tender as well as the right, and one can detect the notch separating the two lobes. This is a point of great importance in cases of cardiac, particularly valvular disease. Furthermore, when secondary passive congestion of the liver exists one is very likely to find evidences of venous stasis in other organs and tissues. Consequently, the physician should search for these before concluding that the liver changes are the result of passive congestion merely. These being absent and the symptoms being referable to the abdomen rather than to respiratory embarrassment, suspicion should be attached at once to the liver, not to the heart.

#### RIEDEL'S LOBE

When cholecystitis is responsible for enlargement of the liver, it causes a characteristic alteration in the form of the right lobe first described by Riedel<sup>2</sup> in 1892, and hence known as Riedel's lobe. As a rule, the more acute the gallbladder infection, the more pronounced is this change in the outline of the liver; and yet this may occasionally be very pronounced in cases of chronic cholecystitis. This alteration consists in a convex enlargement of the right hepatic lobe downward, so that the edge of the organ curves downward toward the right for a variable distance and then upward to or shortly below the margin of the ribs. In some cases, this convex bulging may be small and obscured by the right rectus muscle, while in others, Riedel's lobe may reach from the median line nearly or quite to the extreme limit of the liver at the right. It may be noted also by careful palpation that the portion

<sup>1</sup> Journal, A. M. A., October 2, 1909, p. 4. A. C. S. J. M. A. 1910, p. 10. J. A. M. A. 52 (1919), June 12, 1919.

<sup>2</sup> Riedel, R. M. C. L.: Erfahrungen über die Gallensteinkrankheit. *Centralblatt für Chirurgie*, Ed. 8, Berlin, W. Graun, 1892, p. 11.

of the viscus lying to the left of the median line is not at all, or only indistinctly, palpable.

In pronounced instances, there may be an appreciable bulging of the part of the liver overlying the gallbladder, so that in well-marked cases it gives the impression of a round mass like an orange beneath the liver. If the liver or the gallbladder is sensitive to pressure, the right rectus muscle is apt to stiffen in distinct contrast to the corresponding muscle on the left side. If Riedel's lobe is small, it may be obscured by the rigid muscle, and yet by careful palpation the liver may usually be detected at either side of the rectus, and with the characteristic convex shape described.

In many cases on deep inspiration, the hand can detect the softer and exquisitely tender gallbladder itself extending slightly below the lower edge of Riedel's lobe, while in others the hand must be thrust sharply upward underneath the edge of the liver in order to come in contact with the gallbladder and elicit evidence of pain. This procedure causes the patient to cry out and shrink from the hand, and is followed by unmistakable rigidity of the right rectus muscle.

Palpation of the liver in these cases is a fine art. Not only should the knees be elevated so as to relax the abdominal walls, but the flank should be raised either by the examiner's left hand or by a firm cushion; and the physician should avoid too firm and rough palpation since by so doing he is likely to frustrate his own object. I have frequently been able to feel the lower edge and the shape of Riedel's lobe by merely resting my flat hand lightly on the abdomen and allowing the patient to breathe regularly and with moderate force. By so doing, pain is avoided, the abdominal walls remain relaxed, and the lower hepatic border can be perceived to glide back and forth beneath the hand. If this procedure is performed at each side of the median line alternately, the state of the two rectus muscles, as well as the outline of the two hepatic lobes may be compared.

Another sign of gallbladder disease of corroborative value in some cases is the so-called Ewald's area of cutaneous hyperesthesia on the right lower back. When this is present, simultaneous stroking of the two sides behind, from above downward, just internal to the posterior edge of the scapula, will elicit more or less sensitiveness of the skin at the right, over the course of the tenth and eleventh intercostal nerves. This sign has seldom been absent in cases of well marked cholecystitis as shown by the evidence obtained by palpation of the liver.

The degree of systemic disturbance, as shown by the temperature and leukocytosis, depends on the intensity of the gallbladder infection. If the cholecystitis is chronic, revealing its presence chiefly by digestive disorder and only moderate pain, the body temperature may be but slightly, if at all, raised, and may not even attract the patient's attention, while during the intervals between attacks of acute distress the temperature is likely to be quite normal. Indeed, it may be said that the freedom from febrile or other systemic disturbance furnishes one reason why these chronic cases are apt to escape detection.

The leukocyte count in like manner is subject to slight deviation from normal. In strictly chronic cases without marked symptoms, the leukocytes are not likely to show an increase of over eight or nine or possibly ten thousand with, of course, no pronounced preponderance of the polymorphonuclear elements. One

should be careful not to regard slight increase in temperature and white count in a given case of valvular disease as indicating an exacerbation of a chronic endocarditis. Except in acute instances of cholecystitis, more information is to be obtained by history, subjective symptoms, and painstaking manual examination than by study of temperature and leukocytes or even roentgenologic examination unless, of course, the roentgen ray is so fortunate as to disclose the presence of stones.

#### REPORT OF CASES

CASE 1.—Mrs. J. H., aged 54, the mother of nine children, on examination in November, 1917, was found to be corpulent and to display dyspnea on exertion, this together with some edema of the left leg, bleeding hemorrhoids, and cough constituting the symptoms for which she sought relief. There was a history of inflammatory rheumatism, typhoid fever, pneumonia and an attack of heart collapse a year and a half prior to my examination.

The pulse was accelerated and irregular, of the type due to auricular fibrillation. The systolic pressure was 140 mm. as nearly as could be determined, while the diastolic stood at 90 mm. The apex beat was  $4\frac{1}{2}$  inches to the left of the median line, and the transverse dullness seemed to be fully 6 inches. The mitral first tone was indistinct because of a soft systolic murmur, and the pulmonic second tone was accented. The liver was palpable and tender, but not uniformly so, as the left lobe was rather larger than was the portion to the right of the median line. The lungs were negative, and the single specimen of urine examined in the office was also negative.

The diagnosis was myocardial incompetence with mitral insufficiency, hepatic congestion and obesity. Digitalis, cathartics, rest and light diet were prescribed. During the succeeding year, this patient was seen only two or three times. At these times she showed very little improvement despite continuance of treatment.

In April, 1919, she suffered an acute stomach disturbance, and was seen by another physician who diagnosed acute cholecystitis. As the symptoms subsided after a few days of treatment, I did not see the patient until July, 1919, when she appeared because of aggravation of the original complaint. The heart was as before, except perhaps rather more arrhythmic and rapid. On going over the liver, we were at once struck by the distinctness of Riedel's lobe, and by the circumstance that directly beneath and below its inferior margin there could be felt a soft, very tender mass that was evidently the gallbladder. During 1918, suspicion had been aroused regarding the existence of a chronic cholecystitis, though the characteristic alteration in the outline of the liver did not become distinct until after the acute attack in April, 1919.

The advice to have the gallbladder drained was heeded, and when the gallbladder was opened, hundreds of small stones were discharged. A drainage tube was inserted, and the viscera was allowed to drain for a number of weeks. The patient's condition is now greatly improved. Her heart is still irregular, but the systolic pressure has increased twenty points which, taken in connection with the lessened dyspnea, the loss of stomach symptoms and her ability to attend to household duties daily, is taken to signify increased strength of the myocardium.

Here was a case thought to be one of heart disease alone, but which was complicated by a gallbladder infection which, as the operation has proved, was in reality the factor most responsible for the symptoms for which relief was sought.

CASE 2.—Miss A. B., aged 34, first seen in December, 1918, was tall and thin, having lost 45 pounds during the previous six months. There was a history of inflammatory rheumatism, several "krip attacks," and in the preceding January what was thought to be pleurisy on the right side with fever, nausea and vomiting. She complained of great shortness of

breath, cough and stomach trouble. Physical examination disclosed a feeble, irregular pulse of the fibrillating type, a very low pulse pressure, the systolic being 110 mm. as nearly as could be determined because of the great arrhythmia, and the diastolic about 100 mm., pulsating jugulars and a markedly dilated heart with the characteristic rumbling murmur of mitral stenosis, while the tender lower border of the liver extended to the level of the umbilicus. This organ was engorged generally, and yet its right lobe suggested a Riedel lobe. The lungs also showed congestion, and the urine contained albumin.

The condition was regarded so serious that she was confined to bed, and of course given other suitable treatment. Constipation was a marked and very obstinate symptom. The condition did not improve much, and in February, 1919, she rather suddenly developed unmistakable signs and symptoms of acute cholecystitis, namely, and high temperature, so that an operation became urgently indicated. This was successfully performed under local anesthesia, and two stones were removed from the cystic duct. Bile did not flow for ten days, but then came freely, and improvement followed promptly. At present this patient is so well that she is at work daily. The gallbladder must be kept draining, for as soon as the opening closes, the heart begins to grow more irregular and rapid, and the patient soon thereafter displays perceptible icterus. From a purely surgical standpoint, cholecystectomy is indicated; but it is doubtful whether her heart would enable her to survive the operation. We are content, therefore, to let well enough alone.

This case illustrates the difficulty of recognizing chronic cholecystitis complicating a decompensated cardiac lesion. The acute attack in February, 1919, was so typical in the spasmodic pain running up into the right back and shoulder, the nausea, vomiting, and twenty-four hours later the intense icterus, that one does not understand how it could be overlooked. Yet the patient herself recognized its features as identical with the attack in January, 1918, which was pronounced pleurisy and was followed by the cardiac incompetence for which advice was sought in the following December. It is my opinion that had I given more attention to the history of the supposed pleurisy, and examined the greatly engorged liver more carefully, I might have recognized the existence of the gallbladder infection before it made itself so obvious by its acute exacerbation. It strengthens my belief that in every case of cardiac disease with a history or symptoms of abdominal disturbance, minute attention should be paid to the gallbladder and appendix, the latter in many cases being the chief offender, as I hope to show in some future communication.

NOTE.—Mr. S. B. , seen first in 1916, reappeared in March, 1919, with the statement that he had been in bed for nine weeks because of broken compensation. He was cyanotic, and very restless, much from dyspnea and cough. Physical examination disclosed a hypertrophied heart in consequence of aortic regurgitation, numerous musical râles at the base of the right lung behind, and a palpable tender liver. The hematocrit was read 10.000, and the urine contained albumin.

On being seen was sent to a hospital and placed under medical treatment, with the result that at the end of a week of ten days the fever had become free of râles, and he no longer complained of cyanosis. The pulse also had greatly increased in rate and rhythm. But he now complained a great deal of trouble from his stomach. Catarrhis and the red and hard nodular results of the hepatic congestion, so that on palpation one could detect very early a Riedel lobe, this portion of the liver being very sensitive to pressure. Underneath could be detected what seemed to be the softer and wet more tender gall bladder. As all symptoms referable to the respiratory system had abated, and as the circulation was satisfactory, and as the digestive disturbance interfered with proper rest, he was informed of the cholecystitis and

advised to have the gallbladder opened and drained under a local anesthetic. To this, however, he would not consent, and he left the hospital abruptly for his home. No report from him has been received since his departure.

This case, like the preceding, illustrates the difficulty of recognizing the existence of chronic cholecystitis in a person suffering from the distressing symptoms of broken compensation of a coincident cardiac lesion. But it also emphasizes how serious may be such a combination in its effect on convalescence, that is, restoration of cardiac efficiency, and how important is a close study of the hepatic condition. It is so natural to regard the obvious circulatory embarrassment as responsible for the phenomena that unless each organ is scrutinized daily, we may overlook complications capable of turning the scales against recovery.

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### ALLEVIATION OF DISTRESSING DIGESTIVE SYMPTOMS IN "CARDIO-RENAL DISEASE"

SOME SUGGESTIONS

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All practitioners of medicine, particularly those specializing in gastro-enterology, have patients with so-called "cardio-renal insufficiency" who complain of indigestion, of distressing flatulence, of sensations of epigastric fullness after eating, and of a general feeling of digestive discomfort. These patients may present valvular lesions in various stages of compensation; there may be arrhythmia or myocardial inefficiency or tumultuous heart action. The urine may be loaded with albumin, may show granular or hyaline casts or both, or at times it may be fairly normal. The questions of actual cardiac and renal pathology will not be discussed in this study, but rather the methods of steadying the heart's action, of aiding compensation, of allowing more physical space to the thoracic and abdominal organs, so that they may be less handicapped in performing their functions, and of lightening the work of the kidneys.

As a cardiac "steadier" plus a diuretic, I have much confidence in the *infusion* of digitalis—more, perhaps, than in any other preparation of this drug. However, the infusion must be fresh and must be made from fresh and dependable digitalis *leaves*, otherwise the results will be disappointing. It is my custom to give one-half ounce, four times the first day, especially if the pulse is accelerated. After that I have found 2-teaspoonful doses, four times daily, a sufficiency. It is well to omit it altogether every fifth day, and if the pulse becomes rather slow, to omit it every fourth, or even every third day. This minimizes the danger of a cumulative effect. Unless the bowels are loose, which is seldom the case, I employ, with good effect, this prescription:

R Magnesium sulphatis  
 Pulvis digitalitatis (C. P.).....aa ʒiij  
 Triturate finely.  
 M. Sig. Two teaspoonfuls in one-half glass of water on arising

This prescription should produce two or three free watery stools, but the dose may be varied to obtain that result. In some instances, when the watery move-

ments seem to cause debility, this prescription may be given on alternate mornings, or even three days apart.

For the distressing accumulation of gas in the stomach, which so embarrasses the heart's action, this prescription has proved most helpful:

R. Spiritus anisi ..... ʒiij  
Zinci phenylsulfonatis ..... ʒiijss  
Magnae magnesiae ..... ʒiijss  
Aqua ..... q. s. ad ʒiijss  
M. Sig.: One teaspoonful every fifteen to thirty minutes as needed for gas.

This can be repeated almost ad libitum. It can produce no bad effect, unless the magnesia acts as a hydragogue cathartic, and generally it promotes the free expulsion of the disquieting gas, of which the patient complains so bitterly. In many of these uncompensated cases there is frequent dyspnea, coming on after slight exertion or without apparent cause, or deepening in intensity during the hours of night.

The following combination, while it unfortunately possesses an odor both foul and fierce, has to many sufferers under my observation afforded a most grateful succor for this distress:

R. Spiritus ammonii aromatici ..... ʒiijss  
Elivir ammonii valerianatis ..... ʒiijss  
M. Sig.: One teaspoonful in water every fifteen minutes to one hour as needed for difficult breathing.

This, like the previous prescriptions, may be repeated quite a number of times.

Dietetic restrictions and regulations are most important, as they tend to diminish intestinal flatulence, to encourage intestinal peristalsis, to lighten the eliminative burden of the kidneys, and to promote general nutrition.

In the suggestive dietary herein offered, it will be noted that sweets and fats are avoided, so far as possible, and that vegetables containing only 5 and 10 per cent. of carbohydrates are allowed, while the starchy foods are for the most part prohibited. Fresh lean meat may be eaten freely, but must be broiled, baked or roasted. The string beans, squash, onions, turnips, etc., may be cooked, but the green vegetables, usually eaten raw, may be cut up into a combination salad and flavored with lemon juice instead of the ordinary condiments. A limited amount of fresh buttermilk is admissible, and a small amount of cereal for breakfast, if the patient insists on it, as sometimes is the case. When cereals are eaten, a very scant amount of sugar may be permitted.

SUGGESTIVE DIET LIST

FOODS ALLOWED

Lettuce; cucumbers; spinach; asparagus; sauerkraut; beet greens; greens (turnip, mustard or collard); celery; tomatoes; Brussels sprouts; peas; cauliflower; egg plant; cabbage; radishes; beets; onions; string beans; pumpkin; turnip; squash; beets; carrots; ripe olives; grapefruit; lemons; oranges; unsweetened pickle; clams; oysters; liver; lean fresh meat of any kind, as beef, mutton, pork, chicken, fish or game, coffee or tea as sparingly as possible, and fluids, only enough to quench actual thirst.

FOODS TO AVOID

Sweets of all kinds; fats, as fat meat, butter and cream; sweet milk, eggs, and starchy foods, as breads, rice, grits, potatoes, dried beans or peas, and macaroni.

This diet will seem quite a revolutionary change to many patients, and some will for a while complain at the prohibition of breads and sweets especially. In a short time, however, in a majority of cases, the intestinal flatus will markedly diminish, the dyspnea will lighten, the heart will become more steady and efficient in its action, and the albuminous content in the urine will lessen or entirely disappear.

This dietary does not promote a gain in weight. On the contrary, there is generally some loss; but this is not prejudicial to the invalid's welfare. As general

improvement progresses, certain variations or modifications in the daily regimen may be allowed; but any inclination to increased dyspnea or inefficient heart action should indicate the necessity for a prompt return to the strict diet and regular medication.

There will, of course, be found some persons who lack the mental stability required for the successful advancement of this method; then, too, there will be found both hearts and kidneys seemingly beyond the power of compensation or recuperation.

Nevertheless, in a liberal proportion of these melancholy and long-suffering "cardiorrenal cases," the brief, but practical suggestions herein offered will be found decidedly helpful.

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CUTANEOUS REACTION TO QUININ  
IN QUININ IDIOSYNCRASY\*

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Some individuals are susceptible to the action of certain foreign substances. The articular rashes brought on by strawberries, the eczematoid dermatoses due to various proteins or food products, the asthma caused by white of egg, the hay-fever or asthma caused by pollens of plants or by inhalations of animal emanations or derivatives, the skin reaction to tuberculin, and the various symptoms following the use of certain drugs are specific examples of such idiosyncrasies. Symptoms commonly observed in hypersensitive individuals are: (1) articular or eczematoid rashes; (2) gastro-intestinal disturbances; (3) those characterized as asthma, or (4) those indicating exaggerated pharmacologic action of the antigenic drug.

Among the drugs to which man manifests this idiosyncrasy is quinin. This fact has long been known.

An attempt to develop a specific skin reaction to quinin was successfully made by Boerner.<sup>1</sup> By applying quinin bisulphate to a skin scarification made on himself and a colleague—both of them susceptible to quinin—he was able to obtain a definite and well marked local reaction in each case. Similar skin tests in non-susceptible individuals gave no reactions whatever. Boerner<sup>1</sup> concluded, therefore, that this reaction was specific and was most pronounced when using a 10 per cent. solution of quinin bisulphate.

O'Malley and Richey<sup>2</sup> tried out this method in two cases of quinin idiosyncrasy under their observation. They used 10 per cent. quinin bisulphate and obtained definite reactions, thus confirming Boerner's observation. They also obtained an equally well marked local reaction with a 5 per cent. solution of quinin dihydrochlorid. With emchonin or emchonidin sulphate, and with various other drugs tested, they could get no reactions whatever. In twelve non-susceptible persons no reactions could be obtained with quinin sulphate. These observers concluded, therefore, that this skin reaction is a good index of hypersensitization to quinin.

In the case here with presented, which recently came under my observation, this skin reaction was tested out with the idea of determining its value.

\* Read before the Tenth District (Indiana) Medical Society, Fort Wayne, Ind., Nov. 11, 1911.

<sup>1</sup> Boerner, Emil, Jr., *N. S. S. Research & Discover.* J. A. M. A. 68: 407 (March 24, 1912).

<sup>2</sup> O'Malley, J. J., and Richey, J. C., *Clinical Research and Investigation of Quinin Idiosyncrasy*, *Ann. Int. Med.* 24: 104 (1924), 114.

## REPORT OF CASE

Mrs. T. S., aged 54, entered St. Joseph's Hospital for a test cure. On the day of admission she was given 1 dram of a mixture of iron, quinin, and strychnin (N. T.), which contained one-fourth grain of quinin. Immediately after taking this dose she felt a peculiar "drawing in" sensation over the middle of the chest, which lasted several minutes. She promptly asked whether there was any quinin in the medicine she had just taken, and when informed that there was, she said that she had never been able to take that drug.

About an hour later a weltlike exanthem appeared over the entire body except the face. With the exanthem, there was intense itching. The exanthem and itching were worse over the back under the arms and on the lower extremities. When seen several hours after the skin manifestation presented the appearance of a severe eczematoid dermatitis. It began to fade from sixteen to eighteen hours, and disappeared completely at forty-six hours.

The patient said that about twenty-seven years before she had had an acute attack of grip for which she was given quinin. After several doses—the size of which she did not know—a rash and severe itching came on all over her body, and lasted from four to five days. On at least two other occasions she had been given quinin, and each time the same symptoms occurred within a few hours. So far as she knows she is the only member of her family who manifests any reactions after taking this drug.

## REACTION TEST

The opportunity thus presented itself to test out the cutaneous reaction already described. Accordingly, October 19, and again, November 5, the skin of the forearm was scarified in two places about 3 inches apart. Over the proximal abrasion 10 per cent. quinin solution in aqueous solution was applied. The distal scarification served as a control. Within a few minutes the patient began to feel an itching sensation around the scratch into which the quinin had been rubbed. A few minutes later an edematous papule began to appear around this scarification. It reached its maximum size, about 0.75 cm. in diameter, in about one-half hour. Surrounding this area of edema was a bright reddish patch of erythema measuring about 3.5 cm. in diameter. The reaction began to subside after the first half hour, and at the end of a few hours had completely disappeared. Around the distal or control scarification, nothing worthy of note occurred other than the usual normal reaction following traumatism of that kind.

The cutaneous reaction described was striking and unmistakable. It was tried out twice in this case, and the reactions were exactly identical. Evidently the cutaneous reaction to quinin is not only very definite but also rather characteristic, and can really be considered as a specific allergic phenomenon.

## SUMMARY

1. The test of desensitization to quinin showed heretofore (with further confirmation) the skin reaction to quinin, caused first by Morner<sup>1</sup> and confirmed by O'Malley and Barber.<sup>2</sup>
2. This reaction is observed only in individuals who are hyper-sensitive to this drug, and can be obtained on any side of the body, including the arms.
3. It seems to be a specific reaction, analogous to the other allergic reactions already known.
4. As a method for testing out hyper-sensitization to quinin, this test too seems to be very reliable and of great value of very great value.

1919 (Quin. Ther.) 1919.

## THE MAXIMUM NONFATAL OPENING OF THE CHEST WALL

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In a previous article, by the present writer in conjunction with R. D. Bell,<sup>1</sup> evidence was presented to show that in the normal thorax the pressure relationships are always practically equal in both pleural cavities and that therefore the prevalent conceptions of collapse of one lung and maintenance of respiration with the other in the condition of open pneumothorax are incorrect. In the same article also, it was shown that a bilateral open pneumothorax in a normal chest is practically no more dangerous to life than a unilateral opening unless the combined areas of the openings on both sides are greater than the area of the single opening on one side. Both theoretically and experimentally effects of practically the same severity result in the case of one or more openings into one pleural cavity as follow the creation of a double pneumothorax, provided that in each case the combined areas of the various openings are equal. Moreover, it was shown that the maximum opening in the chest wall compatible with life in the normal adult (that is, without pleural adhesions or induration of the mediastinum) could be approximated by means of the mathematical expression:

$$X = \frac{R_1}{R_2} \frac{T}{C} \sqrt{\frac{V}{T}}$$

in which  $V$  is the vital capacity

$R_1$  is the rate of respiration before the opening is made

$R_2$  is the rate of respiration after the opening is made

$T$  is the tidal air (approximately 500 c.c.)

$C$  is a factor less than 1 (assumed to be 0.8).

$X$  is the area of the glottis (about 2.25 sq. cm.)

In the substitution of numerical values, 3,700 was used to represent the vital capacity.<sup>2</sup> This was the commonly accepted average vital capacity, and on the basis of it a value for  $X$  was obtained of 51.5 sq. cm. (8.1 square inches). In other words, the computation was made that an opening of 51.5 sq. cm. in the chest wall was the maximum for which compensation could be made. At that time we were not acquainted with the work of Peabody and Wentworth<sup>3</sup> on the vital capacity. In their study it was found that in general the vital capacity of men is greater than that of women, and that an approximate relationship exists between the height of the individual and his vital capacity. In men, for example, the average normal vital capacity is 4,633 c.c.; but in men 6 feet or more in height, the normal vital capacity is 5,100 c.c., and in one man it was found to have the very high value of 7,180 c.c. The accompanying tables are quoted from their article. It is at once obvious that whenever the value of  $V$  in our mathematical expression changes, the value of  $X$  will also change in the same direction, that is, if  $V$  becomes greater, the value of  $X$  will also be increased, and vice versa. If in substituting numerical values in our equation we insert 4,800 for  $V$  (the normal vital capacity of men with a height of from 5 feet 8 1/2

1 Graham, F. A. and Bell, R. D.: Open Pneumothorax, Its Relation to the Treatment of Empyema, *Am. J. M. Sc.* 156:1:839 (Dec 1) 1918.

2 Hays, J. *Textbook of Physiology*, Philadelphia, 1911, p. 646.

3 Peabody, E. W., and Wentworth, J. A.: Clinical Studies of the Inspiration. IV. The Vital Capacity of the Lungs and Its Relation to Height, *Am. J. M. Sc.* 20:1:41 (Sept.) 1917.

inches to 6 feet), instead of 3,700 we obtain a distinctly larger value for  $X$ . If we assume as before that  $R_1$  (the rate of respiration before making the opening) during complete rest is 15 per minute and the maximum rate,  $R_2$ , for the greatest possible depth of respiration is 60 per minute, then:

$$X = \frac{4800 - 125}{125} = aC - 37.1 - 1.8 \quad \text{or}$$

$$X = 67.32 \text{ sq. cm., or } 10.4 \text{ sq. inches.}$$

Criticism has been made of the incorrectness of our mathematical expression on the ground that the value obtained for the maximum opening compatible with life, which was published in our previous article, was too small when compared with what was sometimes found clinically to be possible in connection with both war and operative wounds of the chest. But it should be remembered that the value of 51.5 sq. cm., which was previously given, represented merely an average value based on what was commonly considered as the average value of the vital capacity. As found in the

individuals of some of the other factors, as for example,  $C$ .

The validity of the statement in our former article that the value of  $X$  would be diminished by the presence of toxemia, infection, or any other cause which increases the level of metabolism, as well as by any condition which reduces the available breathing space of the lungs, has been confirmed at least in numerous observations on acute emphyema by other observers as well as ourselves. Also, Peabody and Wentworth have found that in nine patients with pleural effusions, the vital capacity varied between 74 and 42 per cent. of the normal. One patient with a massive pleural effusion had a vital capacity on two successive days of 48 and 40 per cent. Immediately after the aspiration of 2,200 c.c., his vital capacity was only 46 per cent. On the two following days it had risen to 69 and 68, and three weeks later it was 74 per cent. This observation is of particular interest in showing that the mere withdrawal of a pleural effusion is not sufficient to increase the vital capacity immediately, and it is therefore in direct opposition to a common belief that in cases of a true emphyema, the danger of an open pneumothorax created for drainage can be disregarded because the withdrawal of the effusion will in itself immediately relieve the patient sufficiently to make an open pneumothorax safe.

Obviously, this mathematical expression does not hold good for conditions in which the mediastinum has become more or less immobilized by induration or by adhesions.

TABLE 1.—VITAL CAPACITY OF THE LUNGS IN NORMAL MALES

Group	No. Studied	Height in Feet and partly of Inches	Normal Vital Cap. C.c.	No. Within 10% of Normal C.c.	Highest Vital C.c.	Lowest Vital C.c.	Highest est. Per cent. of age	Low est. Per cent. of age	No. Below 50%
I	11	5'4" to 5'8 1/2"	5,100	9	7,180	5,620	141	90	0
II	44	5'4 1/2" to 5'10"	4,800	11	5,800	4,300	121	90	0
III	53	5'2 1/2" to 5'8 1/2" or less	4,000	31	5,080	3,120	117	86	1

TABLE 2.—VITAL CAPACITY OF THE LUNGS IN NORMAL FEMALES

Group	No. Studied	Height in Feet and partly of Inches	Normal Vital Cap. C.c.	No. Within 10% of Normal C.c.	Highest Vital C.c.	Lowest Vital C.c.	Highest est. Per cent. of age	Low est. Per cent. of age	No. Below 50%
I	10	Over 5'6"	3,275	5	4,675	2,890	124	86	0
II	13	5'4 1/2" to 5'6"	3,050	9	3,495	2,660	112	88	2
III	21	5'4" or less	2,825	16	3,820	2,590	107	89	1

usual type of war surgery, this value was probably somewhat too small because of the fact that, as Peabody and Wentworth have shown, the average vital capacity of men is greater than that of women and is therefore greater than the general average vital capacity. Obviously also in the exceptionally large man of athletic build, as for example in the case of the man Peabody and Wentworth mention, who had a vital capacity of 7,180 c.c., a relatively enormous opening in the chest wall can be compensated for. In such a case, for instance, the value of  $X$  in our equation would be 101.3 sq. cm., or 15.6 square inches. It should be remembered also, as stated in our previous article, that what are often apparently very large operative openings in the thoracic wall are actually smaller than they seem to be because of the presence in the incision of a lung which has been delivered out, gauze sponges, instruments, fingers of the operator, etc., all of which tend by their plugging to reduce the area of the opening and the amount of air which is sucked in at inspiration. On the other hand, it should be borne in mind that the value of  $X$  represents the approximate maximum opening compatible with life only so long as the respiratory muscles can maintain a maximum respiratory movement, and in addition, that it is only an approximation because of the variability in different

## Clinical Notes, Suggestions, and New Instruments

### IDIOSYNCRASY TO ALCOHOL

WILLIAM W. CADBURY, M.D., CANTON, UTAH

In prescribing tinctures and elixirs, one is too prone to forget that they contain alcohol and to think only of the drug which forms the main constituent of the medicine.

I have been able to find no reference in textbooks to systemic media and therapeutics to susceptibility of patients to alcohol given in minute doses. The case reported below is unique, therefore, because of the patient's marked idiosyncrasy to alcohol even in very small quantities.

#### REPORT OF CASE

Chen C., aged 28, Chinese, whose previous history was unimportant, when seen, Nov. 21, 1918, reported that six months previously, after giving birth to a child, she developed a cough with hemoptis. Physical examination disclosed advanced pulmonary tuberculosis. The disease progressed steadily until the patient was last seen in June, 1919, at this time both lungs were extensively involved and a final summation of the disease appeared to be near at hand. Her first visit I prepared.

For expectorant I prescribed the following:  $C_1 = \frac{C}{100}$   
 1.0 g. Ambr. sulfolat.  $C_2 = \frac{C}{100}$   
 1.0 g. Ambr. sulfolat.  $C_3 = \frac{C}{100}$   
 1.0 g. Ambr. sulfolat.  $C_4 = \frac{C}{100}$

In estimating the amount of alcohol in a mixture that 97 per cent. alcohol was used in preparing the drug, we find that 15 c.c. of the mixture there would be about 14.5 c.c. of absolute alcohol in solution. The patient's husband estimated when I first saw him that each time after taking medicine his wife's face became flushed and she developed a lump in the throat, but he did not know the cause of the symptoms of alcohol intoxication. The unexpected change in the medicine in contributing the small but not noticeable administration from five or three to four days, a marked idiosyncrasy to alcohol.

A number of other prescriptions were also given during the course of the disease, each one containing small amounts of alcohol, and all were invariably followed by symptoms of alcoholism, flushing of the face, vertigo and even at times mild delirium. These symptoms were somewhat mitigated by diluting the dose with a large amount of water.

The husband informed me that his wife had never been able to drink even the weak Chinese wines containing only about 4 per cent. of alcohol without showing symptoms of intoxication so that eventually I took pains to give all medicines as powder or pill or in nontoxic liquid solutions.

A number of nonalcoholic remedies were given, but in no case was there evident any sign of intoxication following their administration.

Canton Christian College

#### A CASE OF CANCER FOLLOWING A SULPHURIC ACID BURN\*

DANIEL R. MERRILL, New York

So much is yet to be discovered concerning the circumstances surrounding the cause of cancer, that any new facts seem worthy of being reported. With this point in view, the following case, seen in a city clinic, is submitted.

##### REPORT OF CASE

C. M., a man, aged 57, employed in a dye factory, presented himself at the clinic with a prominent tumor on the dorsal surface of his right hand. Seven months prior to this, his hand had been burned by a few drops of sulphuric acid in a factory accident. Previously, the tissues in this region had, according to the patient, always been normal. The initial burn left a small ulcerated surface about the size of a pea which gave little pain, but which refused to heal. Three months later the patient noticed an increase in the size of the lesion, both in diameter and in height. Growth continued for the next four months.

Examination revealed a mass about  $1\frac{1}{2}$  inches wide and three-quarters inch high, presenting a reddish, ulcerated surface and a distinct red border. In the center, there was an orifice of a sinus from which a slight yellow discharge exuded, emitting a disagreeable odor. Pain was confined to the periphery, where it had been continuous for the past few months, increasing in intensity day by day. The axillary lymph nodes were not palpable at the time of examination.

The patient had been a man of regular habits, employed at outside work previous to obtaining his position at the dye factory, two years before. He had always enjoyed good health and his family history was negative.

The growth was excised by Dr. Van Ness of Newark, N. J., and a portion of the specimen were made. Healing was slow at first, a black crust underlaid with pus and sloughing material having formed. However, six weeks after the operation the area started to fill in with healthy pink granulation tissue, which slowly obliterated the excavated area. A subsequent examination revealed the fact that the tumor was made up of growing squamous cell carcinoma, the diagnosis being confirmed by Dr. Francis Carter Wood of the Coecker Research Laboratory. When the patient was discharged, the hand had almost entirely healed, but a small irregular, freely attached mass, about the size of a pea's mass and occupying part of the inner anterior part of the right hand, probably a metastasis involving the articular tissues, still remained. The new growth had started three months after the original tumor had been removed, and had rapidly increased during the past five weeks. The patient was seen at the hospital for further treatment.

##### COMMENT

A great many other chemical irritants have been reported as factors in producing a site for the occurrence of a malignant growth. Tar and paraffin, for example, sometimes cause an acute eczema followed by a hyperplasia of the tissues which frequently form a starting place for cancer. Soot by irritating the skin may cause an ulcer which later may

develop into chimney-sweep's cancer. Tobacco in its combustion gives off certain irritant products which may lead to ulcers of the lip or tongue, and a resultant malignant growth. Workers handling guano and anilin dyes often get sores on exposed parts, which, in time, may become cancerous. Recently Pflüger has experimentally produced cancer of the stomach in animals as a result of chronic irritation by nematodes; and Yamagiwa has developed epithelioma of the skin in rabbits with tar.

In all these cases, as well as in the present one, the cancerous condition followed a chronic, slowly healing ulcer, which, in turn, was produced by the chemical irritation. It appears that the healthy cells are in some way altered by the ulceration so that if a predisposition to cancer is present, the malignant condition will follow. It is very unlikely in the present case that the acid itself was the etiologic factor in the production of the tumor, as thousands of sulphuric acid burns never become cancerous. A suggested explanation is that the acid burn and subsequent ulcerating condition merely provided a place of lowered resistance, which, combined with a certain predisposition and the "cancer age" of the patient, led to the development of the malignant growth.

#### CEREBRAL GAS EMBOLISM OCCURRING DURING ADMINISTRATION OF ARTIFICIAL PNEUMOTHORAX

J. D. THOMAS, M.D., MOUNT VERNON, OHIO

*History.*—W. W., aged 37, white, machinist, native of Scotland, who had been in the United States four years, was admitted to the Ohio State Sanatorium for Incipient Pulmonary Tuberculosis, May 27, 1918, and his condition classified as moderately advanced (Turban II). He gave a history of having had tuberculosis ten years before, with several pulmonary hemorrhages at that time. He had recovered with no recurrence until April 1, 1918, when he developed a heavy cold which persisted. On admission he weighed 166 pounds, which was normal. He was 5 feet, 5 inches tall, stockily built, had a short, thick neck, and was of the typical apoplectic type.

*Examination.*—The sputum was positive for tubercle bacilli, May 31, July 23 and Dec. 10, 1918, and Jan. 4, 1919. The urine was negative on several different examinations. August 17, the sputum was streaked. On admission, the temperature ranged from normal to 99.4 F. until the middle of August, when it subsided to normal until October 8. At this time, the patient had an acute exacerbation ranging to 99.8 F. for a few days, when it again became normal. The pulse rate was always low, ranging from 54 to 70. The appetite was good, the bowels regular, and the patient felt comfortable all the time. There was considerable cough and expectoration. It was not possible to develop any stable degree of exercise, even under the most careful system of gradation.

*Treatment and Result.*—December 30, physical examination revealed evidence of a cavity formation in the right upper lobe which was confirmed by the roentgen ray. It was then decided to perform artificial pneumothorax. January 2, this was done, 350 c.c. of nitrogen gas being given in the fourth interspace, midway between the nipple and the sternum. The patient showed no disturbance and experienced no discomfort except slight soreness at the point of puncture. Cough and expectoration materially diminished after the first treatment. Subsequent treatments were given, as follows: January 2, 300 c.c.; January 18, 300 c.c.; January 25, 600 c.c.; February 5, 650 c.c.; February 17, 600 c.c., and March 3, 600 c.c. The patient was feeling very well and showed unmistakable signs of improvement.

March 14, after the usual procedure and with a manometer reading of from —3 to —7, about 100 c.c. of gas had been introduced, when the patient turned his head slowly, far to the right, saying, "There is something wrong." The face became cyanotic; the pupils were strongly contracted; the chin was drawn over the right shoulder; breathing was slow and stertorous; the eyes were drawn to the right; the entire body became quite rigid, with complete loss of consciousness and with tonic convulsions and frothing at the mouth. After

\*From *Columbia University College of Physicians and Surgeons*.

about eight minutes of convulsive movements, he relaxed and subsided into a semicomatose condition. Whenever aroused, he had a staring expression and would immediately relapse into a comatose state. There was complete loss of sensation and reflexes. The pulse rate was 54; respiration was 18, and was somewhat labored. During the night following this experience, the patient was quite restless, involuntarily throwing the bedding, moaning and sighing aloud, and frequently calling out and beating the bed with the right fist. Left side movements were wholly uncontrolled. He tried to get out of bed, but he could not coordinate his movements.

During the day of the fifteenth, he was still unconscious and very restless, moaning and talking incoherently all the time. He made an attempt to get out of bed, but fell on the floor and had to be lifted back. He had three involuntary actions of the bowels, and voided urine frequently and involuntarily. Toward evening, he became more quiet and seemed to show some return of consciousness. He had a quiet and restful night, and in the morning he was perfectly rational. The second day after this, he was allowed to get out of bed for a short time. The third day, he was up for all meals, and was about the cottage. On the fifth day, he was allowed to go to the general dining room, feeling as well as usual. He showed absolutely no untoward results from the experience and was discharged, April 27, as "quiescent."

REPORT OF A CASE OF VOLVULUS OF AN  
INTUSSUSCEPTION

E. L. ELIASON, M.D., PHILADELPHIA

*History.*—I. A., a negro, aged 22, was admitted to the hospital, July 3, complaining of pain in the right iliac region. On the preceding February 26, the patient had been operated on for acute appendicitis, and on June 17, for abdominal adhesions which were found and freed. On admission, July 3, 1916, the temperature was 97 F., the pulse 84, and respiration was 24. The abdomen was flat and soft. No tender areas and no masses were found. There had been no vomiting, and the bowels were regular and had moved the previous day. The patient stated that he had been having the same type of pain ever since his operation for adhesions, sixteen days before. He was given a simple enema  $\frac{1}{32}$  grain of physostigmin (eserin) and morphin, with good results. The following day he felt relieved and was discharged.

*Clinical Course.*—July 13, the patient returned to the dispensary complaining of severe abdominal pain. He was again admitted and given  $\frac{1}{16}$  grain of morphin with no relief. Two hours later, he was given 10 grains of barbital, and a sterile water hypodermic by the resident physician, who suspected a hysterical element in the condition. The patient obtained relief and slept.

July 14, the temperature was 98, the pulse 80, and the respiration 24. The leukocyte count was 8,100. The patient's bowels had moved, and he had voided urine normally. He did not vomit or feel nauseated, but, on the contrary, ate soft diet with relish and asked for more. The abdomen was soft, showed no distention, and auscultation elicited normal peristaltic sounds. The urine showed no blood, but did show marked indican reaction. The bowels moved as a result of a soap-suds enema, and were normal macroscopically.

July 15, the night nurse's report for 1 a. m. was to the effect that the patient was quiet and had been sleeping most of the night. His temperature was 98.2 F., and pulse 80. The nurse's 2 a. m. report stated that the patient was having severe pains and was tossing about the bed, groaning and perspiring profusely. The patient later got out of bed in the nurse's absence and was found in the hall on the floor, crying out with pain. When I saw him for the first time at 10 a. m., he gave every evidence of being hard hit by some abdominal catastrophe. The skin was cold and clammy. The temperature 96 F., and the pulse 120. He was groaning with pain and was in a state of collapse. Abdominal examination revealed a tender mass in the left iliac fossa.

*Operation.*—A midline incision was made, and a mass was delivered which proved to be a volvulus of the ileum, under-

going gangrene. When the volvulus was untwisted, the loop was found to consist of an intussusception of the ileum, the intussuscepting loop being glued tightly with well formed adhesion to the intussuscepted loop. These adhesions were too firm to separate. Owing to the extreme condition of the patient, the diseased intestine was excised and the two ends of the normal ileum brought out of the wound and left open. The wound was closed. The patient died ten hours later.

COMMENT

Examination of the removed intestine revealed beginning gangrene of the enveloping loop of the volvulated intussusception. The inner loop was in the last stage of gangrene and just ready to slough off into the bowel. Nature had made a firm anastomosis at the point of entrance of the one loop into the other. Judging from the advanced decomposition of the inner loop, the conclusion had to be drawn that the intussusception had existed for days, probably since his first symptoms seventeen days before, while the outer loop showed only evidence of strangulation of hours' duration. In all probability the volvulus occurred at 1 a. m. of the morning of the operation, thus accounting for the patient's sudden collapse.

730 South Sixteenth Street.

AN ETHER DROPPER

I. E. HILL, M.D., HARRISBURG, Pa.

One of the petty annoyances of the anesthetist is the arranging of a satisfactory dropper for the ether can.

Every one who gives many anesthetics, at some time or other, has wished for a device of some sort that would do

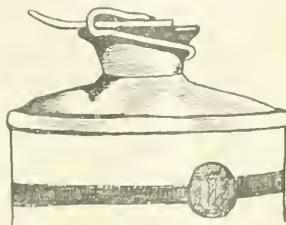


FIG. 1.—Top of ether can, with dropper.

away with the inserting of the wick of gauze safety cap or similar makeshift dropper, and at the same time deliver the ether from the can in a suitable manner.



FIG. 2.—Interior and exterior, showing the dropper in position.

The experimenting was many days ago. I have a number of simple contrivances which are well classified, all the same, but at the same time add a touch of originality, and give a finished result, so other administrators.

The dropper is made of thin lead metal and is thoroughly covered with the usual oil-soluble varnish. The base of the metal is a fine spring from which ether can be readily applied or removed. Whether one wants ether to come out or to be held completely retained in it, the dropper will do both equally well.

## Therapeutics

A JOURNAL DEVOTED TO THE IMPROVEMENT OF THERAPY.  
A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS  
AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

### USE AND ABUSE OF CATHARTICS\*

(Continued from page 1888)

#### SENNA

As a purgative, senna is more powerful than cascara sagrada, and often acts when the latter fails. It requires from four to eight hours for action. Large doses are therefore better given in the morning; small doses may be administered at bedtime. It is much more prone to produce griping, and in some patients to cause a feeling of abdominal soreness. On the principle that the mildest is the best, cascara is to be preferred to senna, especially for prolonged use. When, however, a single prompt, thorough evacuation is aimed at, senna is the superior.

Roentgenoscopic examination has demonstrated that senna exerts its chief effect on the large intestine. The movements of stomach and small intestine are not markedly changed; but, the moment the bismuth meal passes the ileocecal valve, it traverses the colon in great haste. This makes senna useful to complement the action of duodenal purgatives, such as the mercurials, and shows the rationale of the old prescription of blue mass at night and "black draft" in the morning.

From therapeutic doses there is little tendency to hypercatharsis, inflammation, or to constipation after its use. However, as senna is the most drastic of the purgatives, it is particularly contraindicated in spastic constipation and in conditions of intestinal inflammation. For patients with hemorrhoids it should be prescribed with caution and only in small doses.

We must remember that the coloring matter of senna gives to and urine a deep yellow color, and that this urine becomes red under the influence of alkali. The later appearance might give rise to the false fear of the presence of hematuria. Some of the cathartic principle is eliminated into the milk of nursing women. Hence, purging the mother may also purge the nursing.

The taste of senna, though bitter, is not nearly as intense as that of cascara sagrada; and it is more easily digested. Thus the official *syrup of senna*, containing 25 per cent. of the fluidextract and flavored with coriander, is sufficiently pleasant for most children to take without protest. The *aromatic syrup of senna* of the National Formulary is still more pleasant and only of half the strength (12.5 per cent.), though it also contains, and probably unnecessarily, 5 per cent. of jalap, 17 1/2 per cent. of rhubarb, and 30 per cent. of alcohol. It is flavored with cinnamon, cloves, nutmeg and lemon. A teaspoonful of the official syrup or two teaspoonfuls of the aromatic would be sufficient to act on a sensitive adult or an older child. A 1-year-old babe would be acted on by 15 drops of the National Formulary preparation. As these syrups are readily available, it is surely, to say the least, inexpedient to prescribe such nostrums as "castoria" and "syrup of figs," which owe their value chiefly to senna.

In coffee or prune juice the taste of senna is hardly noticeable. It is recommended that senna leaves (2

gm.) be added to ground coffee (8 gm.) and infused with 90 c.c. each of hot coffee and hot milk; or else a teaspoonful of senna leaves be tied up in a small muslin bag and stewed with 250 gm. of prunes, in either case adding sweetening to taste. Senna forms the laxative ingredient of nearly all the various "herb teas," so much used by grandmothers. In these days of the automobile and the aeroplane, however, the slow and tedious, even though economical process of domestic extraction, is bound to become obsolete. Coffee or prune juice may more readily be made purgative by the addition of a dose of syrup or of fluidextract of senna.

The most pleasant way of taking senna is to use the powdered leaves, letting the alimentary tract do its own extracting. Thus, the *compound powder of glycyrrhiza* owes its popularity to its rather pleasant taste. It contains 18 per cent. of senna, glycyrrhiza and sugar for sweetening, and oil of fennel for flavoring. The sulphur contents (8 per cent.), would probably not be missed if it were deleted from the formula; for sulphur is a very feeble agent as compared with senna. The dose of compound powder of glycyrrhiza for an adult is a teaspoonful or more stirred up with water. For children, the dosage given in the accompanying tabulation may be employed.

#### DOSE OF COMPOUND POWDER OF GLYCYRRHIZA

Age of Child	FOR CHILDREN	Gm.
6 months	.....	0.60
1 year	.....	0.90
2 years	.....	1.20
3 years	.....	2.00
5 years	.....	3.00

The *confection of senna* was very properly deleted from the present pharmacopœia. By no stretch of the imagination could it have been called a confection in the modern sense. A more pleasant preparation can be made in any household after the subjoined formula, which will yield a candy medication of approximately the same strength and dose as the compound glycyrrhiza powder.

#### LAXATIVE FRUIT CAKE

Senna leaves	.....	} Of each, equal parts
Figs	.....	
Dates (freed from stones)	.....	
Prunes (freed from stones)	.....	
Raisins (seedless)	.....	

\* Chop fine in a chopping bowl, mix by kneading, roll into cylinders as thick as a thumb.

Dose: 1 slice, larger or smaller according to size of the patient.

Perhaps the very pleasantness of this preparation is a disadvantage, as it may invite unnecessary use, and thus lead to the pernicious practice of habitual catharsis.

The *fluidextract of senna* might be used in a manner similar to that of cascara sagrada and for the same purpose—to increase intestinal irritability—in the curative treatment of chronic constipation, in doses of from 0.5 to 1 c.c. several times daily, and progressively reduced; or else in dose of from 2 to 4 c.c. for a single thorough evacuation. The addition of from 0.25 to 0.50 c.c. of tincture of belladonna to each dose, to antagonize griping, is suggested, though the patient may object to the dryness of the mouth and the impairment of vision produced thereby.

Little can be said in view of the old abominably tasting "black draft," the *compound infusion of senna*, excepting on the score of its efficiency. It is a relic of the days, fortunately now past, when nauseous medicine was given by the teaspoonful. The combination of senna (6 per cent.), which is chiefly a stimulant to per-

\* This is the title of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

istalsis, with magnesium sulphate (12 per cent), which keeps the feces fluid but does not have much effect on the musculature, is an instance of good synergism. The manna (12 per cent.), on the other hand, is too feeble in activity and in taste to be of much value either as an adjuvant or as a corrective. Fennel is used as flavoring. The average dose of 120 c.c. of this preparation will open the bowels, if it is within the power of any cathartic to do so. It might be remembered as a last resort, when other cathartics have failed and intestinal obstruction is probably not present. When it fails, a strong suspicion of mechanical interference with intestinal evacuation may be entertained. Of course, when intestinal obstruction is known to be present, this powerful agent is decidedly contraindicated, as it is more dangerous than the surgeon.

(To be continued)

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES OF WHICH THE COUNCIL RESERVES ITS ACTION WILL BE SENT ON APPLICATION.

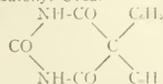
W. A. PUCKNER, SECRETARY

### BENZYL BENZOATE (See N. N. R., 1919, p. 53).

**Benzyl Benzoate for Therapeutic Use**—Van Dyk and Company.—A brand of benzyl benzoate which complies with the N. N. R. standards.

Manufactured by Van Dyk and Co., No. U. S. patent or trademark.

**LUMINAL**.—Phenobarbital.—Phenyl Ethyl-Barbituric Acid.—Phenyl-Ethyl-Malonyl-Urea.



2,4,6-trioxy-5-phenyl-ethyl pyrimidin. Phenobarbital (luminal) differs from barbital (veronal) in that one ethyl group (C<sub>2</sub>H<sub>5</sub>) has been replaced by one phenyl group (C<sub>6</sub>H<sub>5</sub>).

**Actions and Uses.**—It is claimed that the introduction of the phenyl group increases the hypnotic power of luminal (phenobarbital) over that of barbital.

Luminal is said to produce sleep in the cat and dog with a satisfactory range between the effective and lethal doses, affording a deep, quiet sleep, without injury to the respiration or circulation. Very rarely a period of excitement precedes sleep.

It has a sedative action on respiration, lessening the frequency of breathing, although the volume of each respiratory is increased. It kills by respiratory paralysis. It is eliminated by the kidneys, a certain portion being probably decomposed in the organism. No renal injuries or gastric disturbances have been observed.

Luminal is claimed to be a useful hypnotic in neuralgic insomnia and conditions of excitement of the nervous system.

**Dosage.**—From 0.2 to 0.3 Gm. (3 to 5 grains) increased if necessary to 0.8 Gm. (12 grains). A maximum dose of 0.8 Gm. (12 grains) should not be exceeded. Small doses are sometimes efficient.

Manufactured by the Winthrop Chemical Co., Inc., New York, U. S. patent No. 1,021,872 (May 7, 1912; expires 1929); U. S. trademark No. 87,327.

**Luminal Tablets 13 grains.**—Each tablet contains luminal 8 grains. Luminal is a white, odorless, slightly bitter powder. It is insoluble in cold water, slightly soluble in hot water, and in alcohol, ether and chloroform, and in a kerosene solvent. It dissolves from boiling water in hot alcoholic liquids and in a perceptible amount of acids from its alkaline solutions. An aqueous solution of it has an acid reaction to litmus.

Luminal melts not below 172°C. Dissolve about 0.1 Gm. of luminal for a short time in 10 c.c. of normal sodium hydroxide and 2 Cc. of water, filter the filtrate into two portions and add measured volume solution to one and silver nitrate test solution to the other. White precipitate is given in each case.

Boil about 1 Gm. of luminal for 5 minutes in 10 Cc. of a 1 per cent solution of sodium hydroxide. Ammonia is evolved. Dissolve about 1 Gm. of luminal in 5 Cc. of normal sodium hydroxide and heat the solution for four hours on a boiling water bath, replacing the evaporated water from time to time. Crystals of phenyl-ethyl-barbituric acid are formed on cooling. After removing the filtrate from above alcohol these crystals melt at 147°C. Dissolve about 0.1 Gm. of luminal in 1 Cc. of concentrated sulphuric acid. The solution is colorless. Incubate about 0.5 Gm. of luminal accurately weighed. The ash amounts to not more than 1 per cent.

**LUMINAL-SODIUM.**—Phenobarbital Sodium.—Sodium Phenyl-Ethyl-Barbiturate.—Luminal Soluble.—Na(C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>N<sub>2</sub>O<sub>3</sub>).—The monosodium salt of phenyl-ethyl-barbituric acid.

**Actions and Uses.**—The same as those of luminal.

**Dosage.**—For hypodermic injection luminal-sodium is used in the form of 20 per cent. solution, prepared by dissolving the salt in boiled and cooled distilled water; 2 Cc. (30 minims) of the solution contain 0.4 Gm. (6 grains) of luminal-sodium. The dose of luminal-sodium is 10 per cent. greater than that of luminal.

Luminal-sodium may be given hypodermically in doses of 0.1 to 0.3 Gm. (1½ to 5 grains).

Manufactured by the Winthrop Chemical Co., Inc., New York, U. S. patent No. 1,025,872 (May 7, 1912; expires 1929); U. S. trademark No. 87,327.

Luminal-sodium is a white, bitter, powdery, very soluble in water, slightly soluble in alcohol, practically insoluble in ether and chloroform. An aqueous solution of luminal-sodium has an alkaline reaction to litmus. On long standing or prolonged boiling of the aqueous solution 1 m. mole of carbon dioxide is liberated and 1 m. mole of methyl urea is precipitated after recrystallization from dilute alcohol its substance melts at 147°C.

Incubate about 0.5 Gm. of luminal-sodium. The residue responds to tests for sodium carbonate.

Accurately weigh a solution of luminal-sodium with hydrochloric acid and shake with ether. Evaporate the solvent. The residue responds to tests for luminal (which see).

On 1 Gm. of luminal-sodium, dissolve without residue 9.20 Cc. of alcohol (distilled) from barbituric sodium, which requires more than 500 Cc. of alcohol for solution.

Dry about 1 Gm. of luminal-sodium accurately weighed to constant weight over sulphuric acid. The loss does not exceed 5 per cent.

**SAJODIN.**—Calcium Monoiodobenenate.—(C<sub>6</sub>H<sub>4</sub>IOO)<sub>2</sub>Ca.—The calcium salt of monoiodobenzoic acid.

**Actions and Uses.**—Sajodin is used as a substitute for iodides. The iodine of sajodin, being longer retained, is perhaps better utilized. It is also less liable to produce gastric disturbances.

**Dosage.**—From 1 to 3 Gm. (15 to 45 grains) daily.

Manufactured by the Winthrop Chemical Co., Inc., New York, U. S. patent No. 839,241 (Dec. 25, 1906; expires 1924); U. S. trademark No. 61,730.

**Sajodin Tablets 8 grains.**—Each tablet contains sajodin 8 grains.

Sajodin is a colorless or slightly yellow powder, odorless, tasteless, non-toxic to the touch, insoluble in water, very slightly soluble in cold alcohol and in ether, and freely soluble in warm chloroform. When heated it chars and gives off violet vapor of iodine and finally a residue of calcium oxide remains.

Stoichiometrically weigh 10 Cc. of hot water and 10 Cc. of 10 per cent. sodium nitrate solution (soluble 1:100). Five Cc. of the mixture is evaporated to dryness in a water-bath (temperature 50°C.). Dissolve the residue in 5 Cc. warm chloroform. The solution is colorless but slightly opalescent and only a trace of solid matter remains after 10 hours.

Stoichiometrically weigh 0.5 Gm. of sajodin. The residue dissolves completely in hydrochloric acid and the solution may be allowed to evaporate after it has precipitated on addition of an excess of water. The strongly opalescent 10 per cent. solution is evaporated to dryness.

Dry about 1 Gm. of sajodin accurately weighed to constant weight over calcium chloride. The loss is not more than 1 per cent.

Ignite thoroughly in a crucible weighed to 0.001 Gm. The residue is dried at 100°C. for 24 hours and weighed in a desiccator. The loss is not more than 1 per cent.

Ignite about 1 Gm. of sajodin accurately weighed to constant weight over calcium chloride. The loss is not more than 1 per cent.

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# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 27, 1919

## CHLORINATION OF WATER SUPPLIES

The chlorination of water supplies is probably the most important contribution made by this country to the art of water purification. In fact, this process stands out as the most useful procedure yet devised for insuring the safety of a municipal water supply. The results that could be achieved by adding calcium hypochlorite to water were first demonstrated in some experiments by G. A. Johnson at the Union Stock Yards in Chicago. Immediate publicity was given to this work by the treatment of the Jersey City supply at Boonton and the celebrated lawsuit that followed. The next few years witnessed a rapid development in the installation of plants using calcium hypochlorite, approximately 500 of these being in operation at the end of 1911. Disadvantages in the use of the lime salt soon appeared, due primarily to the lack of uniformity in the strength of the commercial product and also to the loss of germicidal efficiency, following storage of this chemical. These disadvantages were in large part overcome by the introduction of liquefied chlorine gas, or "liquid chlorine." Greater precision and uniformity of application became possible through this means, and the use of the liquid chlorine cylinders has practically displaced the bleaching powder. It is estimated that at the end of 1918 approximately 2,500 water purification plants in the United States were being operated with the use of liquid chlorine.

While few sanitary engineers believe that chlorination is a substitute for filtration, there is general agreement that, as an adjunct to the filtering process and in most emergency conditions, chlorination is almost indispensable for many supplies. The expense of hypochlorite amounts to only about 40 cents per million gallons of water treated, or, for a municipality of 5,000, only about \$150 a year, including depreciation.

The principal objection to water chlorination has been the occasional production of disagreeable odors or tastes. This is partly a matter of psychology; in many places where chlorination has been practiced and where newspapers have not taken up the matter in a sensational way, there has been no material objec-

tion on the part of the consumers. The interesting experience of the city of Milwaukee<sup>1</sup> shows that the occurrence of unpleasant odors in a water supply may be chargeable only in part to the chlorine. In that city it was found that the sewage was laden with coal tar derivatives and that the odor was primarily due to these substances, perhaps acted on by the chlorine. The extremely disagreeable taste in the Milwaukee water vanished altogether when sewage from a coke plant was diverted from the lake, although chlorination was continued. It seems likely that in other cases in which the chlorine itself has been accused, the presence of other substances, especially the coal tar derivatives, has been essentially responsible.

The remarkable decline in typhoid fever in American cities in the last ten years has been clearly set forth in the annual statistical summaries published by THE JOURNAL; and some sanitarians, especially waterworks engineers, have been inclined to attribute this improvement solely to water chlorination. This is probably an extreme view, since other factors, such as the growth in milk pasteurization, have been operative during the same period to reduce typhoid prevalence. Even, however, if it is impossible to ascribe all the credit for typhoid diminution to water chlorination, it is enough to say that this procedure has had a large share in the improvement effected. If it were still more widely used, especially in the smaller towns and cities using surface water without filtration, there is no question that a further impetus would be given to the work of typhoid prevention in the United States.

## IS ALCOHOL A STIMULANT?

Until comparatively recently, alcohol was regarded as a respiratory and cardiac stimulant. Whisky was probably the most popular domestic remedy for such occasional upsets as fainting, in which stimulation was presumably required. The popular idea that alcohol is a tone stimulant has so often proved to be untenable on the basis of scientific evidence that it seems almost superfluous to refute the mistaken notion anew. No one will deny that a feeling of relief often follows the use of alcohol in conditions in which stimulation seems to be indicated. In such cases, however, it has been shown to act merely as an irritant to the mucous membranes of the mouth and throat, promoting thus a beneficial local reaction before the alcohol has had time to be absorbed and stimulate in any way the depressed function.

There would be little occasion to refer again to the subject at this time had not a layman of prominence, Mr. G. E. Flint, recently, in a fiery volume,<sup>2</sup> vigorously defended alcohol as a stimulant. Any tyro in physiol-

1. J. Am. Waterworks Assn. 4: 515, 1919.

2. Flint, G. E.: The Whole Truth About Alcohol, with an Introduction by Dr. Abraham Jacobi, New York, the Macmillan Company, 1919.

ogy can find contradictions in Flint's book which, as a recent reviewer<sup>3</sup> remarked in *THE JOURNAL*, "sometimes quotes confidently as fact what is absolutely not true." Consider, for example, this statement (page 155):

That alcohol is very easily digested is proved by the fact that the carbohydrates cannot be digested as such, but only after they have been changed into sugar and finally into alcohol.

To the author of such statements, seemingly endorsed by a medical expert, alcohol is distinctly a "heart stimulant." And then there is further instruction: "That alcohol is not a stimulant has never been proved."

In animal experimentation the use of anesthetics, which are commonly employed to insure painless effects in such studies, may interfere with the interpretation of the observations in which alcohol, itself a narcotic, is concerned. Lately, satisfactory methods of investigation without the use of the anesthetic when alcohol is being tested have been devised. Hyatt,<sup>4</sup> who has given the most recent report, found that when alcohol is given by mouth there is a rapid rise in blood pressure followed by an immediate return to normal. This is a purely local effect due to irritation of the gustatory nerves and swallowing movements. The same result can be obtained with dilute acids. When the alcohol was introduced directly into the circulation without preliminary contact with mucous membranes, there was either no effect or a fall in pressure. An anesthetic dose may actually be given by introduction in this manner into the circulation, to which it must find its way in any mode of administration, without any stimulation of the heart or respiration. Even when moderate doses of 40 per cent. alcohol are introduced into the stomach slowly by the use of a gastric sound, no change in pressure is produced.

These experiments confirm the earlier studies of the same sort which Brooks<sup>5</sup> has described in *THE JOURNAL*. Why need the subject receive further argument? In refuting the claim that alcohol is in any sense a direct stimulant of the heart, a distinguished British committee reporting to the Central Control Board thus formulated<sup>6</sup> the status of the controversy:

The fact that the beneficial effect appears almost immediately and long before any significant amount of alcohol can have been absorbed and carried to the heart, is evidence for this local and indirect nature of the action. Its use in these circumstances is, therefore, comparable with that of smelling salts, or the irritating fumes of burnt feathers, traditionally employed for the same purpose. When, in conditions of more protracted weakness of the heart, the administration of alcohol has a beneficial effect, this must be attributed mainly to its mildly narcotic and sedative action, relieving the centers which

modify the action of the heart from the disturbing influence of pain and anxiety. The promotion of a patient's comfort, the relief of mental strain, may be an essential element in the treatment of disease, and an important factor in recovery. It does not, however, justify the description of alcohol as a "stimulant" of the heart.

#### THE DETERMINATION OF RACIAL RELATIONSHIPS BY MEANS OF BLOOD

The question of the relationship of different races to one another is a matter of considerable interest. Up to the present, morphologic criteria have been used almost exclusively in attempts to decide what this relationship is. Various anthropometric tests have been devised, for example, the so-called cranial index, the facial angle, and similar tests. These tests are in a sense as obvious as differences in stature, and such striking differences in conformation as the peculiarities in the eye slits which characterize the oriental races. With the advent of immunologic knowledge, the methods of serology were applied to the study of racial peculiarities. In the early days of serology, the precipitin test was used to demonstrate the blood relationship between man and the higher apes. The possibility of differentiating groups within the same species was not apparent until some time after serology became well established. Indeed, it was not until Landsteiner demonstrated the fact that serologic differences occurred among individuals of the same species that the possibility of using serologic methods became apparent.

In certain fields of operation in connection with the recent war, extraordinary opportunities were offered for the study of different races on account of the bringing together of military units from various parts of the world. In the British campaign in Mesopotamia, particularly, an extremely cosmopolitan group was collected. Advantage of this was taken by L. and H. Hirschfeld,<sup>1</sup> two Swiss serologists, who made extensive studies of the blood of soldiers of different nationalities and of the population of Mesopotamia. The type of blood test chosen was that in every day use in connection with the transfusion of blood, namely, the determination of the group into which individuals should be placed with reference to the presence of iso-agglutinins. The method as ordinarily used places individuals in one of four groups. The Hirschfelds tested English, French, Italian, Serbian, Greek, Bulgarian, Russian, Arabian, Turkish, Senegalese, Amhara and Indian soldiers, and also tested the blood of Jewish refugees.

As the result of a great many tests, the observer were able to divide the nationalities into three groups: a European type, which contained the English, French, Italian, Greeks, Bulgarian, and Serbian; and which

3. *Book Notices*, J. A. M. A. 73: 1001 (Sept. 27) 1919.

4. Hyatt, E. G.: The Action of Alcohol on the Heart and Respiration, *J. Lab. & Clin. Med.* 5: 56 (Oct.) 1914.

5. Brooks, Clyde: The Action of Alcohol on the Nervous System, *Unanesthetized Animal*, J. A. M. A. 55: 372 (July 30) 1910.

6. *Alcohol: Its Action on the Human Organism*, London, H. M. Stationery Office, 1918, p. 76.

1. Hirschfeld, Ludwig, and Hirschfeld, Hans: Serologie der Blutverwandtschaften, *Beiträge zur Klinischen Medizin*, Leipzig, 24: 10 (1910).

according to the studies of Landsteiner and von Dün-  
gern, would also contain the Germans and Austrians;  
an intermediate group containing the Arabs, Turks,  
Russians and Jews, and an Asio-African group con-  
taining the negroes, East Indians, and natives of Indo-  
China and Madagascar. The authors draw the con-  
clusion that these results are suggestive of a dual  
origin of the human race. According to this concep-  
tion, the European type and the Asio-African type  
originated independently, and the intermediate type  
represents the fusion of the other two types. The  
validity of these conclusions may, of course, be ques-  
tioned; but the studies are certainly of interest not  
only on account of the immediate results but also  
because they suggest further studies of different races  
along serologic lines.

#### HEMOGLOBIN DETERMINATION

The method for the determination of the hemoglobin  
content of the blood introduced by Sahli is probably  
one of the most commonly used today. The method  
is fairly reliable and the apparatus required is not  
complicated; it consists of a simple color standard  
(usually acid hematin) and a calibrated tube in which  
the measured amount of blood is treated appropriately  
for comparison. Clinical chemists have recognized,  
however, that the Sahli method is open to certain  
objections: the inaccuracies due to the variations in the  
calibrations and in the construction of the tubes; the  
fading of the standard; the variations of the readings  
in different lights, the delay in the development of the  
permanent color, and the "personal equation."

About two years ago, Palmer<sup>2</sup> suggested converting  
the hemoglobin to carbon monoxid-hemoglobin and  
comparing this with a standard solution of like com-  
position. The comparisons were made in a colorimeter,  
a modification that enhanced greatly the accuracy and  
ease of the determination. Since then Cohen and  
Smith<sup>3</sup> of the Yale Station of the Chemical Warfare  
Service have shown that the Palmer method is deficient  
in one particular: Palmer recommended artificial  
gas for his source of carbon monoxid; Cohen and  
Smith noted that the standard made at New Haven  
deteriorated, most likely owing to the use of an  
inferior quality of illuminating gas. Hence they have  
proposed a modification of the Palmer method by  
reverting to the original Sahli standard but retaining  
the valuable technical features of the Palmer proce-  
dure. By means of check determinations, for which  
the complex Van Slyke<sup>4</sup> apparatus was used as a

control, the Sahli-Palmer modification was shown to  
be accurate within 2 per cent., even in the hands of  
relatively inexperienced workers. Its limitations are  
that a special form of colorimeter is required, and  
due time must be allowed for the full development  
of the acid hematin color.

Berman<sup>5</sup> has just proposed an acid hematin method,  
modifying the Sahli procedure slightly in two respects:  
Instead of diluting the hemoglobin standard with part  
water and part tenth-normal hydrochloric acid solu-  
tion, the dilution is made entirely with tenth-normal  
acid solution, and after dilution, the acid-hemoglobin  
mixture is boiled one minute to hasten the formation  
of the maximum depth of the acid hematin color.  
According to the author's data, the accuracy of the  
latter method may be kept within 3 per cent. It is  
doubtful whether the many laboratory users of the  
Palmer method will wish to return to the brownish acid  
hematin color in preference to the beautiful and easily  
contrasted pink color of the carbon monoxid-hemo-  
globin; perhaps the difficulty may be solved by a  
refined method of securing a satisfactory grade of  
carbon monoxid.

### Current Comment

#### A REMINDER

A blue slip to be used in remitting subscriptions and  
Fellowship dues for 1920 is inserted in THE JOURNAL  
this week. Last week we explained its use under the  
heading "Will You Help?" The use of this slip by  
Fellows and subscribers will result in a considerable  
saving for the Association on the cost of sending indi-  
vidual statements. In each of the several years past,  
more than 20,000 subscribers and Fellows utilized sim-  
ilar slips, and it is hoped that even a larger number  
this year will give their cooperation in this matter.  
Little things promptly performed constitute most of  
life's courtesies.

#### INFLUENZA AND TUBERCULOSIS

The reappearance of influenza a year ago led to the  
prediction by many writers that a marked increase in  
active pulmonary tuberculosis was sure to ensue. Fol-  
lowing the epidemic of 1889-1890, a number of articles  
appeared in which the statement was made that influ-  
enza frequently caused a lighting up of quiescent tuber-  
culosis. This view became current with the medical  
profession and led to the foregoing prophecy. Some  
recent observations of Fishberg<sup>6</sup> seem to indicate that  
a decided revision of our views is necessary. Fishberg  
points out that when a patient with tuberculosis states  
that the onset of his disease followed influenza, it is  
very necessary to determine just what the patient  
means by influenza. The terms "grip" and "influenza"

1. Kauter, Theodore. Hemoglobin Estimation. J. A. M. A. **66**: 1370 (Apr. 1, 1916).

2. Palmer, W. W. Colorimetric Determination of Hemoglobin, J. Biol. Chem. **33**: 111 (Jan. 1, 1919). Laboratory Methods of the U. S. Army, Medical War Manual, **6**: 1, 1919.

3. Cohen, Bernard, and Smith, A. H.: The Colorimetric Determination of Hemoglobin, J. Biol. Chem. **34**: 489 (Oct.) 1919.

4. Van Slyke, J. D.: Gasometric Determination of the Oxygen and Hemoglobin of Blood, J. Biol. Chem. **33**: 127 (Jan.) 1919, Medical War Manual, **6**, p. 17.

5. Berman, Louis: The Determination of Hemoglobin by the Acid Hematin Method, Arch. Int. Med. **24**: 553 (Nov.) 1919.

6. Fishberg: Am. Rev. Tuberc. **3**: 532, 1919.

are used so loosely by both the layman and the physician that what the patient describes as influenza is frequently not true epidemic influenza at all but an ordinary upper air passage infection such as is likely to occur at any time. Furthermore, the early symptoms of tuberculosis itself may take the form of just such an upper air passage infection. The question is also complicated by the fact that many of us have not yet learned to differentiate pulmonary tuberculosis from the postinfluenzal pulmonary lesions that simulate it. Fishberg's conclusions, and they are supported by evidence from other observers, rather indicate that patients with tuberculosis are as resistant to influenza as the average individual, that they develop pulmonary complications possibly less frequently than the non-tuberculous, and that the ultimate effect of an attack of influenza, in most instances, is not to cause the tuberculosis to light up. Fishberg's article is timely and calls attention to the necessity for a critical analysis of the late complications of influenza. We are inclined to believe, however, that it is as yet somewhat early to decide whether as radical a change of opinion is warranted as his article would indicate.

#### A QUARTER CENTURY OF SERUM THERAPY IN DIPHTHERIA

In a recent address before the Académie de médecine of Paris, Louis Martin<sup>1</sup> recalled that in September, 1894, Roux communicated to a medical congress in Budapest the results of his pioneer studies on the serum therapy of diphtheria. To physicians of the present generation it seems long ago that Behring and his collaborators, Kitasato and Wernicke, definitely showed that the cell-free blood serum of animals immunized with diphtheria toxin acquires the power to protect other animals of the same and different species against the poison. Yet, in the quarter century that has elapsed since Roux put to the test of human clinical experience the treatment discovered by Behring, what enormous practical advantages to mankind have been derived from these brilliant scientific investigations. The outcome with the first larger group of diphtheria patients who received no other medical treatment than administration of antidiphtheric serum was so striking that the procedure found prompt recognition from clinicians. Serum therapy in diphtheria became an accepted method. It is unnecessary to dwell on the fact that the mortality in this disease has been reduced from 30 per cent. or more to 8 per cent. or less in practice. The beneficent results can be learned from the experience of every community in the civilized world. The maximum of therapeutic efficiency has not yet been reached. With speedier diagnosis, with more direct methods of introducing the antitoxin, with better concentration and preparation of the latter, and with more heroic dosage in emergencies, the results seem destined to become even more favorable than they have been in the past. Now that the war is over and men can once more turn their

thoughts to activities that are worth while, let us remember that the discovery of diphtheria antitoxin was not an overnight affair or a chance find. Only patient, laborious researches brought ultimate success. In the study of diphtheria, by which such brilliant results have been achieved, the laboratory and the clinic have worked hand in hand. Looking forward to further great discoveries in the domain of medicine, let us not fail to encourage in the case of other diseases likewise this fruitful collaboration between science and practice.

#### THE ORIGIN OF MACROPHAGES

In his earliest explanations of cell ingestion, or phagocytosis, of foreign particles, Metchnikoff pointed out that the process is quite comparable to what takes place in the intracellular digestive functions among unicellular forms of life. In the lowest animals the single cell must perform all necessary functions, whereas in the course of evolution to the higher forms a division of labor has taken place, which is expressed by a differentiation in structure and activity. Bearing in mind the evolutionary history of the cells, we should not be surprised if various types of cells besides the specialized leukocytes could, if occasion arose, assume the primitive function of cell ingestion. Metchnikoff<sup>2</sup> has, indeed, distinguished between the "motile" and "fixed" phagocytes, the former the leukocytes of the circulating blood, the latter certain connective tissue cells, endothelial cells, cellular elements in the lymph nodes and spleen pulp; in fact, all phagocytic cells that are ordinarily confined to some definite locality in the body. Among phagocytic cells Metchnikoff further distinguished between "microphages," by which he designated the polymorphonuclear leukocytes of the circulating blood, and "macrophages." The latter include the fixed cells mentioned, together with the large mononuclear elements of the blood. Following his conceptions still further, we may regard the macrophages as concerned primarily with the engulfing of cellular detritus and foreign particles, whereas the microphages are more commonly engaged in the resorption of bacteria. The origin of these phagocytic cells, between which no sharp division of classification can be drawn, has been the subject of considerable speculation. Are they derived from connective tissue, endothelium or lymph cells, to all of which they have at times seemed to bear some relation? What is the identity of the various phagocytic cells which have received a diversity of new names in recent years and which seem to be so important in the defense against certain pathologic processes in the organism? With respect to some of them, several investigators have reached the conclusion that, as lymphocytic cells do not possess the power of phagocytosis, the macrophages are derived from connective tissue. Recently, however, Foot<sup>3</sup> has championed the view that the macrophages of the loose connective tissue are in

<sup>1</sup> A discussion of this subject can be found in Zinner, H., *Infection and Resistance*, New York, The Macmillan Company, 1914, p. 117, on phagocytosis.

<sup>2</sup> Foot, N. C., *Studies on Endothelial Reaction in the Macrophages of the Loose Connective Tissue*, J. M. B. A., **10**, (1913), p. 117.

<sup>3</sup> Martin, Louis. *Vingt cinq années de sérothérapie antidiphthérique*. *l'Ann. de l'Acad. de méd.*, **82**: 173 (Oct. 14) 1919.

reality of endothelial origin. From studies conducted in the department of pathology at the Harvard Medical School, he concludes that they do not originate in the epithelium or the connective tissue cells, or from lymphocytes. According to Foot they are probably derived from the proliferating vascular endothelium in the immediate vicinity of the lesion that calls them forth, rather than from the vascular endothelium in general.

#### NEW NURSING LEGISLATION PROPOSED FOR NEW YORK STATE

Since the influenza epidemic of last year with the accompanying shortage of nurses, much discussion has ensued relative to proposed reforms in nursing legislation in order to make available an adequate supply of nurses, not only for ordinary times but also for times of stress. *THE JOURNAL* has received a copy of a bill which it is proposed to introduce into the 1920 legislature of New York as an amendment to the present law covering nursing. The main features of this bill are the statement of definite qualifications for those carrying the title R. N., and an annual re-registration. A new class to be known as trained attendants, with the designation T. A., is created; it is to include persons over 18 years of age holding a certificate from a school for trained attendants connected with any institution, properly licensed, giving a course of at least nine months, including six months of practical experience. Trained attendants are also to re-register annually. In addition to those licensed as trained attendants with the qualifications mentioned, the regents may license any one who pays a fee of \$5 and submits satisfactory evidence that she is more than 18 years of age and of good character, that she has had two years' experience in the care of the sick and is qualified to practice as a trained attendant. Such candidates must also be certified to by three licensed physicians who have personal knowledge of the applicant's qualifications. Finally, there is a saving clause, which states that nothing contained in the bill shall prevent any person from engaging in nursing, provided that he or she does not assume the title of trained, certified, graduate or registered nurse or trained attendant.

#### SUPERVITAMINS

This from a recent issue of *Physiological Abstracts*:

Three rats fed on the same diet with the addition of 2 cc. per cent. "Orypar," a commercial vitamine, lived for a much longer and retained their desire for food for a much longer period.

With the present high cost of food-stuffs, one may question the wisdom of taking anything that will prolong the thirst for food after death. Nevertheless, the same physiological achievement evokes one's admiration. Science is, indeed, wonderful.

**Hematogenous Peritonitis.**—Of the serum germ which causes the peritonitis by the blood stream and produces a serous effusion as the pneumococcus is the best known. There is a strong probability that this germ can enter the peritoneum by passing inward along the fallopian tubes with the possibility of a secondary reaction in the tubes.—*W. H. Burt, Clin. Jour. Oct. 1, 1919.*

## Medical News

(PUBLISHERS) WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Illegal Practitioner Fined.**—Shew Ping, a Chinese herb doctor of San Francisco, was found guilty of practicing medicine without a license and was fined \$200.

**Chiropractic Act on Ballot.**—An act providing for the creation of a board of chiropractic examiners apart from the state board of medical examiners will be on the 1920 California ballot.

### ILLINOIS

**Society Organ Resumes Publication.**—The *Bulletin*, a monthly publication, the official organ of the Montgomery County Medical Society, which was suspended during the war, resumed publication with the November issue.

**Physician Acquitted.**—In the case of Dr. Horace Reddish, Jerseyville, charged with the murder of his father and a domestic in their home near Jerseyville several months ago, the jury, December 10, found the defendant not guilty.

**Indicted as Illegal Practitioners.**—According to report, Miss Victoria Japa of 4423 Walton Street, Chicago, was arrested by the department of registration and education for practicing as a midwife without a state license, and was fined \$50 and costs.—Andrew Garratt of East St. Louis was arrested for practicing medicine without a license and was fined \$50 and costs. He could not pay the fine and was committed to the county jail for two months.—Carl E. Schulte of St. Louis was also arrested by the department for practicing medicine in Illinois without a state license. Schulte was fined \$50 and costs, the total amount being \$83.40, which he paid.

**Chiropractors Fined.**—For the third time in eighteen months Mrs. Emma Calvin of Monticello has been fined for practicing as a chiropractor without a state license. The fine in each of the former convictions was \$150 and costs, and for the third conviction the fine is \$200 and costs and ten days in jail. This is said to be the first jail sentence the Illinois Department of Registration and Education has been able to secure against a chiropractor for practicing without a state license. Mrs. Calvin graduated from the Palmer School of Chiropractic at Davenport, Iowa, and claims that by reason of such graduation she is entitled to treat human ailments without regard to any law on the subject. H. N. Mettler of Rock Island, another chiropractor, has been fined \$200 and costs for practicing without a state license. Mettler is also a Palmer graduate and, like all other chiropractors who are not licensed, claims that the law does not apply to him. On a former occasion, Mettler was fined \$150 for violating the medical practice act, paid the fine, and started right to practicing again.

### Chicago

**College of Surgeons Secures Home.**—The Nickerson residence on East Erie Street has been purchased by the Chicago members of the American College of Surgeons and turned over to that organization to be used as an administrative home.

**More Money Asked for Speedway.**—In order to complete the Speedway Hospital it will be necessary to ask Congress to appropriate at least \$2,500,000, bringing the cost of the project up to \$5,500,000. The Surgeon-General, U. S. P. H. S., reported to favor the project.

**Washingtonian Home Closed.**—The Washingtonian Home, which has been in existence for more than half a century and is said to have a record of 50,000 cures, will close its doors, January 1, on account of the decrease in patronage from 100 patients a month to twelve or fifteen. It is expected that the energies of the organization will be devoted to the treatment of drug addicts.

**Grant for Medical Research.**—At the annual meeting of the Committee for Grants for Research of the American Association for the Advancement of Science, the sum of \$400 was awarded to Leslie B. Argy, Ph.D., of Northwestern University Medical School in support of his study of the origin, growth and fate of giant cells or osteoclasts which have usually been held responsible for bone dissolution.

**Former Assistants Honor Professor LeCount.**—December 17, former assistants of Dr. Edwin R. Le Count, professor of pathology in Rush Medical College, tendered him a banquet and presented him with two paintings as a recognition of esteem and gratitude. The presentation address was made by Dr. Frank R. Nuzum, Janesville, Wis., who presided. Addresses were also made by Drs. Herman A. Brennecke, Aurora; George E. Clements, Crawfordsville, Ind.; William H. Burmeister, George H. Coleman, Arthur H. Curtis, Morris Fishbein, Edward H. Hatton and James P. Simonds, Chicago.

**Physician Convicted.**—Dr. Lillian Hobbs Seymour, also known as Dr. Lillian R. Hobbs, is said to have been convicted of murder by abortion, December 16, by a jury in Judge Scanlon's court and to have been sentenced to imprisonment for fourteen years in the state penitentiary. This is the second time Dr. Hobbs was placed on trial in the same case. In 1916, she was found guilty and sentenced to fourteen years imprisonment, but later was granted a new hearing on technicality. The conviction is said to have been based on antimotem statements of the two young women on whom she is said to have performed an illegal operation.

INDIANA

**Personal.**—Dr. Augustus R. Schaefer, Alexandria, was found insensible and almost frozen at his home, December 10, and is under treatment in the Alexandria Hospital.—Dr. Benoni S. Rose, Evansville, was elected president and Dr. J. S. Stephens, secretary, of the Medical Service Club of Evansville.—Dr. Milton C. Wilson, Lafayette, has been appointed physician for the county farm and county jail.—Dr. William C. Dunscombe, Lafayette, has resigned as superintendent of the Wabash Valley Sanitarium, Lafayette.—Dr. George S. Bliss, superintendent of the Indiana School for Feeble-Minded Youth, Fort Wayne, has resigned.

MARYLAND

**National Guard Item.**—The Adjutant-General of Maryland has been authorized by the War Department to organize a field hospital company (motorized) for the national guard of the state.

**Libraries to Be United.**—According to plans now being considered by the authorities of the Johns Hopkins University, the libraries of the hospital, the school of hygiene, and the medical school ultimately will be collected under one roof in a new library building to be erected in the hospital group.

**Health Wardens Named.**—In naming the health wardens for Baltimore city, Health Commissioner C. Hampson Jones made but five changes among the twenty-eight wardens now connected with the department. Those appointed were: Drs. Maurice Feldman, J. Walker Thomas, Roscoe Z. G. Cross, H. J. Carrick and W. Edward Grempler.

**Appointments in Baltimore City Health Department.**—Health Commissioner C. Hampson Jones, inaugurating the merit system in the Baltimore City Health Department, has reappointed Dr. John F. Hogan, assistant commissioner of health, in charge of the bureau of communicable diseases, and Dr. Marion B. Hopkins, chief of the bureau of food and dairy inspection.

**Joint Meeting.**—A joint meeting of the Maryland Psychiatric Society, Baltimore County Medical Association and State Lunacy Commission, to which the members of both the State and Baltimore City Bar Association were invited, was held December 17, at the Spring Grove State Hospital at Catonsville, to discuss the question of the care of the criminal insane. Addresses were made by Dr. V. P. Herring, secretary of the Lunacy Commission, and by Dr. John Oliver. Plans to be laid before the legislature for 1926 were considered.

**Appointments to Baltimore Health Department.**—Giving further evidence of his intention to put the health department on an efficiency basis, Dr. C. Hampson Jones, health commissioner, has reappointed the following: Dr. William Royal Stokes, chief bacteriologist; Dr. Mary Sherwood, head of the bureau for the prevention of infant mortality; Dr. Mary C. Willis, assistant to Dr. Sherwood; Dr. C. L. Ewing, assistant bacteriologist, and Dr. John E. O'Neill, superintendent of the tuberculosis dispensary. In addition he has appointed: Dr. Howard J. Maldeis, city medical examiner; Dr. Standish McCleary, assistant medical examiner, and Dr. Bartus T. Baggett, assistant physician in the tuberculosis dispensary.

MISSOURI

**Bill for New Marine Hospital in St. Louis.**—Congressman J. C. Dyer of Missouri has introduced a bill (H. R. 11,333) in the House of Representatives authorizing the Secretary of the Treasury to sell the present marine hospital site and to acquire a suitable and sufficient site in or near St. Louis for the construction of "a complete hospital plant for the treatment of beneficiaries of the War Risk Insurance and Public Health Service." It was referred to the House Committee on Buildings and Grounds.

NEBRASKA

**Personal.**—Dr. Ira H. Dillon, Auburn, has been appointed chief of the bureau of public health of Lincoln.—Dr. Alfred E. Westervelt, Omaha, is in Manchuria working against cholera under the central division of the Red Cross.—Dr. David G. Griffiths, formerly superintendent of the Beatrice Hospital for the Feeble-Minded, has been appointed superintendent of the Lincoln State Hospital for the Insane and has been succeeded at Beatrice by Dr. Samuel J. Stewart, Hastings.—Dr. Philip H. Bartholomew, Blue Hill, has been succeeded by Dr. Richard T. Leeder as representative of the government in the office of the state board of health.

NORTH CAROLINA

**Personal.**—Dr. Joseph A. Speed has been appointed college physician of Trinity College, Durham.—Dr. Harry Q. Alexander, Pineville, has resigned as president of the North Carolina Farmer's Union, and will resume practice.

**New Sanatorium.**—Dr. Watson S. Rankin, Raleigh; Richard M. King, James E. Smoot, Joe A. Hartsell, William D. Pemberton and William H. Wadsworth, all of Concord, have purchased the Wagoner Grove and will erect on this site a hospital, to be known as the Caharrus Sanatorium, at a cost of about \$60,000.

**Plans for Health Work.**—Dr. Watson S. Rankin, secretary of the state board of health, Raleigh, November 22, held a conference with Drs. E. F. Long, Davidson County; A. C. Bulla, Forsyth County, and J. L. Smith, Wilson County, in order to map out plans for the fifteen cooperating counties of the state for health work during the next year.

**New Officers.**—Guilford County Medical Society, at its annual meeting held in Greensboro, December 4, elected Dr. Charles W. Banner, president; Dr. Robert A. Schoonover, vice president, and Dr. Frederick J. Pate, secretary-treasurer, all of Greensboro.—Physicians of the Tenth Congressional District met in Asheville, November 12, and organized the Tenth District Medical Society. The following officers were elected: president, Dr. Clyde E. Cotton, Asheville; vice presidents, Drs. John R. McCracken, Waynesville, Macon County; Percival R. Bennett, Bryson City, Swain County; Fred L. Siler, Franklin, Macon County, and Benjamin L. Ashworth, Marion, McDowell County, and secretary, Dr. Wilham J. Humeccut, Asheville.

PENNSYLVANIA

**Gorgas in Pittsburgh.** January 8, Gen. William C. Gorgas, formerly Surgeon-General, U. S. Army, will deliver an address on "Yellow Fever," in Pittsburgh, under the auspices of the Society for Biological Research of the University of Pittsburgh.

**Field Hospital and Ambulance Companies Authorized.**—The Adjutant-General of Pennsylvania has been authorized by the War Department to organize four field hospitals (motorized) and one headquarters, and four ambulances (motorized) and one headquarters for the national guard of the state.

**First Social Disease in Quarantine in Pennsylvania.**—The first quarantine for social disease in Pennsylvania was enforced by the Harrisburg department of health and the state health department. The victim, after being warned, broke quarantine and was arrested and sent to jail and her cell quarantined. State and city health authorities visited the house and placed a big yellow placard on the door with the name of the disease prominently displayed as a warning to the public. The same regulations apply to the quarantine as in smallpox. The woman left the house less than two hours after the quarantine was established.

Philadelphia

**Gift to Hospital.**—Seven acres adjoining the Chestnut Hill Hospital has been presented to the institution by Henry A.

of the City of Columbus Hill. Mr. Laughlan made the donation in memory of his wife, Mary Red Laughlan. Through this gift it is possible for the hospital to continue on its present course. If necessary, funds can be raised to make contemplated improvements, and the hospital will meet the demands of Columbus Hill residents for additional accommodations. Lewis Wharton and Joseph C. Fraley have each pledged \$1,000 toward the new project.

**Army Equipment for Hospital.**—Improvements and equipment valued at nearly \$75,000 has been offered to the Philadelphia General Hospital by the United States Army which is the last part of the institution to leave hospital territory this last year. The army authorities had a contract with the city by which they got the use of part of the hospital at a rental of \$1 a year on condition that when they left the institution they would put it in its original condition. Thousands of dollars were spent in painting and renovating the wards, putting in a modern kitchen, improving plumbing and wiring, and the equipment was left the city had on hand at the institution, and the "putting back in original condition" by the army would have meant the destruction of most of these improvements, according to Director Krusen of the Department of Public Health and Charities. In addition the city was able to buy for \$251 a Red Cross building, erected by the War Department at many times that cost. This is expected to be one of the most useful additions to the city's hospital.

**Personal.**—Dr. J. A. Lichty, Pittsburgh, delivered an address on "The Treatment of Thyroid and Other Endocrine Disturbances as Viewed by an Internist," before the section on general medicine at the College of Physicians, December 17.—Dr. H. H. Finkle has been elected medical director of the Charity Hospital succeeding Dr. W. Krusen, resigned.—Dr. Harvey Cushing delivered the second of the series of Nathan Lewis Hatfield lectures at the College of Physicians, December 16. His subject was "The Major Hereditary Neurologias and Their Surgical Treatment."—George M. Kohler of Washington delivered a lecture on "Opportunity in Relation to Tuberculosis," before the section of industrial medicine and public health of the College of Physicians, December 17.—Dr. Wilmer Krusen will be the guest of honor at a testimonial dinner given by the physicians of Philadelphia at the Bellevue-Stratford Hotel, December 30.—Dr. C. Lincoln Furbush, incoming director of the Health of Philadelphia, will be the guest of honor at a reception held in the Hotel Adelphia, January 9, and given by the Northern Medical Association to celebrate its twenty-fourth anniversary.—Dr. S. S. Woody of the Philadelphia Hospital for Contagious Diseases, has just returned from Georgetown, Del., where he went at the request of the state board in the fight against smallpox. According to Dr. Woody, the cases at Georgetown, while many, are not serious, and the local medical authorities have the matter under control. General vaccination has been ordered and arrangements for other county hospitals should necessarily require little delay.—Dr. C. H. Bremer has been appointed director and in charge of the new pathologic laboratory of the Philadelphia General Hospital by Dr. Wilmer Krusen of the Department of Public Health and Charities.

### SOUTH CAROLINA

**Hospital Note.**—The total Samaritan Greenville (Spartanburg) hospital was 1,000 for 1919 patients to cost \$60,000. The city of Greenville County has provided \$2,500.

### SOUTH DAKOTA

**District Officers Elected.**—At the annual meeting of the South Dakota State Medical Society, December 2, at Sioux Falls, the following district officers were elected: president, Dr. George W. Benson; secretary, Dr. J. H. Johnson; and Dr. Samuel A. Johnson, secretary-at-large, all of Sioux Falls.

**Personal.**—Dr. John W. Freeman, Lead, and Robert D. Stone, Aberdeen, have been elected members of the State Medical Society.—Dr. G. L. E. Zimmerman, Sioux Falls, was appointed health examiner for young children at the Industrial, Normal and Industrial School, Aberdeen.

### TENNESSEE

**Branch Laboratory Established.** The first branch laboratory of the state board of health has begun work in West Tennessee. This work has been undertaken by the University of Tennessee Medical School, and will be carried on by

the laboratories of the departments of bacteriology and public health at the University.

**Hospital Notes.**—Drs. Charles P. Edwards and Enoch W. Lupton have purchased from the city of Kingsport the Community Hospital which was founded in 1918 for checking influenza. Announcement is made that Vanderbilt University has taken over the Galloway Memorial Hospital, Nashville, and will immediately complete it and put it in operation.

**Vanderbilt Gets Four Million Dollars.**—It has just been announced that the General Education Board, New York, has appropriated \$4,000,000 to enable Vanderbilt University, Nashville, to reorganize completely its medical school. This amount is said to come from the general funds of the board and not out of Mr. Rockefeller's recent donation of \$2,000,000 for the promotion of medical education in the United States.

**Harrison Law Violator Sentenced.**—In the case of Dr. Ben Freidman, Memphis, who is said to have been convicted of violating the Harrison Narcotic Law, and who appealed to the district court of appeals and then to the Supreme Court of the United States, the decision of the lower courts has been sustained and the defendant, who had been sentenced to imprisonment for two years in the federal penitentiary, Atlanta, was taken to Atlanta, December 6, to begin his term.

**Personal.**—Dr. Walter S. Nash has been appointed chief of the medical staff of the Knoxville City Hospital.—Dr. Clarence B. A. Turner, Newbern, has been appointed president of the Dyer County Board of Health, succeeding Dr. Stanley B. Sharpe, Dyersburg, resigned.—Dr. Iverson L. Lofton, Nashville, is reported to be seriously ill as the result of a cerebral hemorrhage.—Drs. Worcester A. Bryan, Lucas E. Burch, and Robert W. Grizzard, Jr., have been elected as the executive committee of the medical staff of the Woman's Hospital, Nashville.—Dr. Herbert L. Baugh, Flynnshick, has been appointed registrar of vital statistics for the state board of health.

### TEXAS

**Convalescent Home Honor.**—The Red Cross Convalescent Home, Fort Bliss, in which about fifty returned soldiers were being cared for, was destroyed by fire, December 6. All the patients were removed in safety.

**Health Department Plan Adopted.**—The county health department plan has been inaugurated in Wichita and Bell counties, and will be inaugurated in Wilson, Tarrant, and Jefferson counties by January 1.

**Memorial Hospital for Cooper.**—A movement has taken tangible form to build at Cooper a hospital to cost not less than \$50,000 as a memorial to the soldiers from Delta County who fell in the world war.

**Clinics at Dallas Hospitals.**—Medical clinics were held in Dallas, November 24 and 25, by Drs. Llewellyn F. Barker, Baltimore; Joseph C. Bloodgood, Baltimore; George W. Crile, Cleveland, and Drs. Rudolph Matas and Isadore Dyer, New Orleans. The clinics were held at the St. Paul and Baptist sanatoriums, and the City Hospital.

**Personal.**—Dr. Beverly T. Young, San Antonio, superintendent of the Southwestern Insane Asylum for several years, has resigned and has been succeeded by Dr. Job G. Springer, Elmendorf.—Dr. Lane B. Kline has resigned as city health officer of Houston, and has been succeeded temporarily by Dr. Carl B. Young.—Dr. Gustavus A. Spivey has been appointed assistant health officer of Dallas County and has resigned as a member of the staff of the Emergency Hospital, Dallas.

### CANADA

**Personal.**—Dr. Neil Macphater, Calgary, Alta., was operated on recently at the Presbyterian Hospital, Chicago, for glaucoma of the right eye, and is reported to be doing well.

**Hospital News.**—The N. C. O's and men of No. 3 Canadian General Hospital (McGill University) have taken steps to form a permanent club to be composed solely of members of the unit. Brig.-Gen. H. S. Birkett, C.B., commander of the hospital in France in 1915, presided at the initial meeting.—The hospital at Summerland, B. C., was destroyed by fire on Dec. 16, 1919. The patients and staff escaped uninjured. The loss totals \$12,000.

**Medical Societies.**—At its recent annual convention, the Manitoba Medical Association elected the following officers:

president, Col. John A. Gunn, M.D., Winnipeg; secretary, Dr. Thomas K. G. Hamilton, Winnipeg; treasurer, Dr. Sidney J. S. Peirce, Brandon.—The Alberta Medical Association has elected the following officers: president, Dr. William F. Gershaw, Medicine Hat, and vice presidents, Drs. Walter S. Galbraith, Lethbridge, and Robert B. Wells, Edmonton.

**Public Health News.**—The Toronto city council having refused to issue a proclamation putting the Ontario Vaccination Act into effect as regards compulsory vaccination in that city, the provincial board of health has taken up the matter, and an order of the court is being sought to compel the city of Toronto to do its duty. The case comes up for hearing on December 23. In the meantime smallpox continues to spread in Toronto, and the total number of cases to date is more than 1,600. So far there have been no deaths.—All Ontario is now in quarantine so far as Montreal is concerned. No person traveling from the province of Ontario into Montreal, nor any citizen of the United States entering Montreal via Ontario, will be permitted entrance into that city unless able to produce certificate of vaccination within seven years. Failing such, or immediate vaccination by vaccinators on the trains, they must return to their homes.

**University News.**—Extension courses and lectures for graduates in medicine are being established for the practitioners of the province of Ontario by the Medical Faculty of the University of Toronto. A standing committee has been appointed to advise as to clinics and lectures. The committee will be prepared to arrange lectures to aid medical societies or groups of physicians who desire to keep up to date.—Talk has been revived concerning the removal of Queens medical faculty from Kingston to Ottawa. Members of the board of trade of Kingston and citizens recently discussed it at a largely attended meeting of that body and a resolution unanimously passed that every effort should be made to retain the medical faculty in Kingston. Principal Taylor said that if the entire medical college was to be kept in Kingston, \$1,000,000 would be needed, while if part of it were moved to Ottawa, one or two chairs would have to be duplicated. Pressure to make the move had come from the graduates of Queen's and Principal Taylor said it was not to be lightly regarded.

### GENERAL

**Society Changes Name.**—The Western Roentgen Society at its recent meeting in Chicago changed its name to the Radiological Society of North America.

**Industrial Nursing.**—The industrial nurses of the National Organization for Public Health Nursing plan to form an industrial nursing section in the National Organization at the meeting in Atlanta, Ga., next April. The object of this section will be the formation and maintenance of high standards for service in industry.

**Hygiene and Prohibition Help Health.**—Surgeon-General Rupert Blue states that the improvement of the health conditions in the United States during the last year has been due partly to prohibition and partly to the lessons of hygiene learned in the war. The relief from war strain also was a factor in the reduction of illness.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Mount Sinai Hospital, Chicago, \$4,000, the proceeds of a musical pageant given in Chicago, December 7.

Children's Hospital, Boston, and Convalescent Home of the Childless Hospital, Boston, each \$10,000; Baldwinville (Mass.) Cottage Hospital for Children, \$5,000, by the will of Caroline S. Freeman, Weston, Mass.

Pasavant Memorial Hospital, Chicago, \$100,000, the proceeds of the Atlantic City Board Walk, the second week in December.

**Bill for Examination by Physicians of Pension Bureau.**—A bill to empower examining surgeons now employed by the Pension Bureau to make medical examinations for the War Risk Insurance Bureau and Federal Board of Vocation Education has been introduced in the House by Congressman Louis C. Crampton of Michigan. It is understood that the measure contemplates economy and the reduction of duplication of effort in performing examinations. The measure has been referred to the House Committee on Interstate and Foreign Commerce. It is H. R. 10,972.

**Sioux Valley Physicians to Meet.**—Sioux Valley Medical Association will hold its twenty-fourth semiannual session at Sioux City, Iowa, January 21 and 22, with headquarters at Hotel Martin, under the presidency of Dr. Alfred E. Spalding, Luyven, Minn. The banquet will be held on the

evening of the first day at which Col. Robert M. Culler, M. C., U. S. Army, will deliver an address on "Medical Memories of the War," and Dr. Donald Macrae, Jr., Council Bluffs, Iowa, formerly colonel, M. C., U. S. Army, will speak on "Who Won the War."

**Personal.**—George A. Lung, Captain, M. C., U. S. Navy, who has been for a long time in command of the U. S. Naval Hospital, Brooklyn, and has recently been transferred to the command of the Naval Hospital, Newport News, Va., was given a farewell dinner and theater party, December 8. After the theater, Captain Lung was the guest of a supper party at Hotel Astor.—Dr. William J. Mayo, Rochester, Minn., and Dr. Franklin H. Martin, Chicago, will leave for the Argentine Republic and other South American countries, January 7.—Dr. Robert H. Crawford, Rock Hill, S. C., has been awarded the Greek Medal of Military Merit.

**Seaboard Physicians Hold Meeting.**—The twenty-fourth annual meeting of the Seaboard Medical Association of Virginia and North Carolina was held in Norfolk, Va., December 2 to 4, under the presidency of Dr. William L. Harris, Norfolk, Elizabeth City, N. C., was selected as the next place of meeting, and the following officers were elected: president, Dr. Cyrus Thompson, Jacksonville, N. C., vice presidents, Drs. Edward C. S. Taliaferro, Norfolk, Va.; Zenas Fearing, Elizabeth City, N. C.; Thomas B. Luford, Princess Anne, Va., and Stuart M. Mann, Moyock, N. C.; secretary, Dr. Clarence Porter Jones, Newport News, Va., and treasurer, Dr. George A. Caton, Newbern, N. C.

**Deficiency Appropriation for Public Health Service.**—Both branches of Congress have passed an urgent deficiency appropriation measure which carries the sum of \$2,000,000 to be expended by the United States Public Health Service. This amount is to be expended "for medical, surgical, and hospital services and supplies for war risk insurance patients and other beneficiaries of the Public Health Service, including necessary personnel, regular and reserve commissioned officers of the Public Health Service, clerical help in the District of Columbia and elsewhere, maintenance, equipment, leases, fuel, lights, water, printing, freight, transportation, and travel, maintenance and operation of passenger motor vehicles, and reasonable burial expenses." The measure also provides for the completion of the government hospital at Broadview, Cook County, Illinois, and authorizes the Secretary of the Treasury to submit additional estimates up to \$2,500,000 for making it a "complete working hospital." The measure has gone to the President for approval.

### FOREIGN

**Honor to British Admiral.**—Surgeon Vice-Admiral Sir Robert Hill, medical director general of the Royal Navy, has been awarded, in the name of the U. S. Navy, the Distinguished Service Medal.

**Prize Offered for Cure of Foot-and-Mouth Disease.**—The *Policlinico* states that the Federation of Dairies in the Cremona district has offered a prize of 100,000 lire for any means that will arrest the damage wrought by epizootic foot-and-mouth disease.

**Prize to Swedish Physiologist.**—The Swedish Medical Association has awarded its jubilee prize this year to Dr. Hans Gertz of the physiology laboratory of the Karolinska Institute for his work on the functions of the labyrinth. It was published in the *Nordisk Medicinskt Arkiv* in 1918.

**From Palace to Hospital.**—The Charlottenburg royal residence at Berlin has been transformed into a large hospital and vocational school for the wounded soldiers. Barracks have been erected in the grounds to supplement the buildings, and provide workrooms for making artificial limbs, etc.

**New Quarantine Hospital at Newchwang, China.**—A new quarantine hospital is being built at Newchwang under the auspices of the Manchurian Plague Prevention Service at a cost of 40,000 taels, the money to be drawn from the local customs. Dr. Wu Lien-teh, president of the National Medical Association of China and editor of the *National Medical Journal* of China, has been appointed to have charge of this hospital.

**Chinese Physician Goes to Johns Hopkins School of Hygiene and Public Health.**—Dr. Lim Chong Lang, M.P., B.S. (Hongkong), for the past two years senior medical officer of the Peking Central Hospital, has obtained a Rockefeller fellowship and will proceed to Johns Hopkins University to enter the School of Hygiene and Public Health.



## Government Services

### Personnel of the Medical Department

For the week ending December 19, there were on duty in the medical department 2,212 medical officers, including 1 major-general, 2 brigadier-generals, 163 colonels, 162 lieutenant-colonels, 528 majors, 836 captains and 520 first lieutenants. The medical reserve corps contained 4,183 officers, an increase of 74 from the previous week, which included 2 brigadier-generals, 74 colonels, 254 lieutenant-colonels, 1,125 majors, 1,753 captains and 890 first lieutenants.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

ARKANSAS	MISSISSIPPI
Nashville—Nelson, C. H.	Raymond—Hagaman, F. H.
CALIFORNIA	OREGON
San Francisco—Winnard, W. F. R.	Grant's Pass—Johnson, J. P. M.
MASSACHUSETTS	PENNSYLVANIA
Brookline—Wilcox, J. M.	Coudersport—Smith, J. H.

### Report of the Surgeon-General, U. S. Navy

The annual report of the Surgeon-General of the Navy for the fiscal year 1919 reveals the efficiency which has always been characteristic of the Navy. The report includes health statistics up to the close of the calendar year 1918, and operations of the Medical Department of the Navy to June 30, 1919, practically completing the record for war work, except as regards the return of the Army sick and wounded from abroad, and the efforts for the reeducation and rehabilitation of the disabled of the Navy and Marine corps.

The main concern of the Bureau of Medicine and Surgery has continued to be the health of the Navy and of the millions of soldiers committed to its care on the Atlantic in home and foreign waters.

The transportation of Army troops to and from Europe by the Navy and the return of the sick and wounded stand out among the most brilliant achievements of the war. This work was conducted by vessels constituting an integral part of the Navy, the cruiser and transport service and the Army transport service. The number of sick and wounded to be returned was far too great to be carried by the naval hospital ships, and therefore an arrangement developed by which Navy transports on the westward passage would serve to the limit of capacity for the return of Army sick and wounded, and this plan was worked out with great credit to the service. Before the armistice was signed, about 100 Army patients were returned home on each return voyage, as this was all that could be evacuated quickly and safely in case of accident. After the removal of the submarine menace, about 650 patients were carried on each voyage, and this required new organization and an increase in the hospital corps complement. During the fiscal year 1919, seventy-six hospital corps men were received and given instruction in laboratory work before assignment to duty.

The transportation of sick and wounded after the signing of the armistice necessitated an increase in the transport service from thirty-eight to 129 vessels. Many of these ships were provided with adequate sick bays for healthy troops, but not infrequently sick and wounded were sent on board each vessel a medical department adequate to meet exceptional demand, and for this purpose there was a commissioned medical personnel of more than 500 men. Between Nov. 11, 1918, and June 30, 1919, 1,235,933 troops had been returned by this service from Europe, and of this number 11,522 were classified as sick or wounded.

July 1, 1919, the total of the Medical Corps on active duty numbered 592 officers of the reserve forces, 865 officers of the permanent medical corps, 315 officers holding temporary appointments, and eighty-two former pharmacists commissioned as assistant surgeons. At present there are 301 vacancies in the Medical Corps of the regular establishment. As 104 resignations have been received up to date from officers holding permanent commissions, the size of the vacancy list is giving the bureau considerable concern. It is recom-

mended that Congress provide means whereby officers holding temporary appointments in the Officers Reserve Corps may enter the permanent corps, and that in view of this fact the present statutory age limit be waived and one of 40 years substituted. This will insure to the government twenty-four years of prospective service before retirement on account of age would become operative.

Much thought has been devoted to the provision of an educational program in the specialties for officers of the regular establishment, and it is suggested that a course be mapped out at the United States Naval Medical School which will extend for a period of about three months, during which each officer will be carefully observed to determine his special fitness. It would then be desirable to arrange special courses in one of the larger medical centers. After such courses, these young officers would be available for assignment as specialists in the naval hospitals, in addition to their duties as general medical officers.

The assignment of female nurses to ships, a practice that was inaugurated during the war, has proved satisfactory; and the character of the professional work, the manner and bearing and general adaptability of the nurses have been most favorable, and the influence has been good. The interests and efficiency of the nurses assigned to the Philippine Islands, Guam, Samoa and Haiti in the developing training schools in their own work, and also the development of training schools for native women, is most praiseworthy.

Many hospital men served independently of medical officers on transport service ships, destroyers and other vessels, and acquitted themselves most creditably. For the training of hospital corps men the medical department maintains one training school at Newport, R. I., one at Great Lakes, Ill., and one at San Francisco, with a capacity of 300 each, and an advanced hospital corps school also with a capacity of 300 at the United States Naval Operating Base, Hampton Roads, Va. The difficulty of maintaining a sufficient proportion of hospital corps men is emphasized. If the Navy is recruited to its allotted strength of 191,000 men, or 218,400 including the Marine Corps and Hospital Corps, at least 7,500 men will be required. Since January, 1919, there have been only 493 reenlistments, and of these 400 are eligible for release; and during the same period more than 8,000 men have been discharged.

Casualties in the Medical Department on duty with the Marine Corps include one commissioned officer and twelve enlisted men killed, eight commissioned officers and 101 enlisted men wounded or gassed, and one enlisted man taken prisoner.

The medical personnel of the Naval Aviation Forces in Europe consisted of seventy-two medical officers, fifteen dental officers, four pharmacists and 264 enlisted men, and their commander reports most favorably on the professional ability and devotion to duty of these men.

The most general complaint of officers and men on duty on submarines was with reference to the ear, with the syndrome of middle-ear catarrh. A number of cases of eye strain prevailed toward the end of the series of patrols. These were believed to have resulted chiefly from excessive use of the eye, defective lighting, refractive errors, and glare. The majority of the personnel were constipated during the patrol; it was not practicable during the patrol to provide facilities for men to get into open air on deck. Gradual deterioration of officers and men developed as patrols proceeded. This, in general, was not of a serious nature, and in the great majority of cases complete recovery followed.

June 30, 1919, there remained a total of 14,891 available beds under Navy control in hospitals on this continent. During the year the hospitals abroad at Leith, Queenstown, Strathpeffer, London, Gibraltar, Genoa, Lorient, Cardeth, Pauillac, Plymouth and Corfu, and one hospital at Brest, were discontinued.

During the year there were twelve commissioned officers and forty-five enlisted men cited for the Distinguished Service Cross, seven commissioned officers and sixteen enlisted men cited for the Croix de Guerre; sixteen commissioned officers and sixty-three enlisted men were awarded the Croix de Guerre, thirteen commissioned officers and twenty-nine enlisted men were awarded the Distinguished Service Cross, eleven commissioned officers and twenty-two enlisted men were recommended for the Distinguished Service Cross, ten commissioned officers and thirty-three enlisted men were recommended for the Croix de Guerre, one commissioned officer was cited for the Medaille Militaire, and eleven commissioned officers and twenty-four enlisted men were mentioned in general orders.

There were 9,507 deaths in the Navy during 1918. Of these, 5,388 were due to disease, 1,158 to accident and injuries, and 2,961 to casualties in action. The death rate for all causes was 18.47 per thousand, and for disease only 11.78 per thousand. Of the 5,938 deaths from disease, 5,027 were due to pneumonia in one form or another. Influenza and pneumonia were responsible for 1,158 of these deaths. Could pneumonia have been eliminated this year, the death rate of the Navy from disease would have been only 1.80 per thousand. The value of the report is much enhanced by numerous illustrative plans and graphic charts.

The problems of demobilization are considered at length. It is believed that this is the time to make a careful study and tabulation of findings in regard to demobilization, so that the essential facts may be on record for use should the contingency of war again confront the country. Plans for demobilization should be incorporated with the legislation enacted at the time of expansion to a war footing, and should be deliberately calculated in advance so as fully to serve the best interests of the nation. The medical and hospital corps must be the last to demobilize after the war.

The Surgeon-General pays an eloquent tribute to the patriotism of the men who left their civilian employment and professions to enter the Naval Medical Reserve Forces.

## Foreign Correspondence

MADRID

Nov. 22, 1919.

### The Medical Strike of Jerez de la Frontera

The town of Jerez de la Frontera, which has just witnessed the first general strike of physicians. This strike originated because the municipal authorities, disregarding all statutory provisions and trusting to political influence, failed to keep their pledges, and the salaries due the employees finally amounted to 1,000,000 pesetas (about \$200,000). When the physicians became tired of seeing that, in this period of extraordinary compensation for labor, they were the only ones who could not bring home the wages they had earned, they unanimously decided to go out on strike. The mayor and the members of the town council were very indignant at this time, their arguments running somewhat as follows: "It is very strange that the physicians should be so rebellious, and especially now, when the town council has just spent several thousand dollars for celebrations and bull fights, thus doing our desire to please the people and attract foreigners. The physicians do not bear in mind the fact that we cannot pay their salaries, since to do so would be to show partiality in their favor; in a place where no one is paid, it is an indignity to ask for money. If we have spent so much for celebrations, it has been only because the bull fighters and the mayor would not have come otherwise; but every one understands that if we could have got out of paying them, we would not have paid them either." These reasons did not convince the physicians who suspended all official relations with the municipal authorities, and who, while continuing to do their share of the work, refused to submit any reports, would not accept of any certificates, or attend the municipal dispensary, and let public opinion and the government decide the matter. At first the local authorities threatened the physicians, but when this failed was Dr. Aranda, one of the most prominent surgeons of Andalusia. The physicians proved themselves equal to all this, and the pressure that was brought to bear on them for over a month. At last the government decided to force the law, it dismissed the municipal council and appointed new members to assist in solving the situation. The result was that the physician will immediately receive the balance of the amount due them, and the balance of the strike. This is the first medical strike that ever occurred in Spain. It has received support not only in the town of Jerez, but also at the hands of the government.

### Medical Syndication

The subject of medical syndication has come to be one of the most important subjects to be discussed at the medical congresses of the world. This subject has been the object of much discussion in all parts of Spain, and especially in Madrid. Many articles and speeches have been delivered both for and against the creation of a syndicate of physicians. The syndicate would naturally have for its model the working

men's syndicates, which are responsible for the social revolution which is stirring in Barcelona at present.

In the Colegio Médico (medical guild) several meetings have been held to discuss the subject of syndication, and a program has been prepared. When a syndicate of physicians was first proposed, 500 Madrid physicians endorsed the idea; but after seeing the program, up to November 18, only sixty-seven had signed. It seems that Section 6 of the first article is the part to which many physicians object. It is here provided that the physicians can join the workmen to achieve some of their ends.

Dr. Medinaveitia, the gastro-enterologist, and considered one of the most advanced leaders of Spanish anarchism, delivered a lecture a few days ago. After making many radical statements, he attacked medical syndicalism and medical strikes. It is his opinion that physicians should not shirk their duties. In the same place, another physician, the laryngologist, Dr. Hinojar, attacked Dr. Medinaveitia's statements, and advised medical syndicalism.

Dr. Lafora, a neurologist, has published in one of the newspapers an article in favor of medical syndicalism, saying that the time had come for the physician to consider himself just a laborer.

Professor Pittaluga and Dr. Juarros have also delivered speeches favoring syndicalism. The journal *La Medicina Libre* is advocating it, while the dean of the medical press, *El Siglo Médico*, is against it.

### The Medical Meeting at Malaga

A meeting of Andalusian physicians was recently held at Malaga. Physicians from other provinces, including Madrid, also attended. The most characteristic note of the meeting was the protest against politicians and the government. This is explained by the fact that the physicians are losing all hope of improvement, seeing that cabinets succeed each other, and still the municipal physicians are left at the mercy of local authorities without receiving the protection to which they believe themselves entitled. The medical classes now think they have found a remedy for this condition, i. e., in the payment of their salaries by the national government. Lately, however, a new political element in favor of political autonomy is attacking this measure. It is a fact that Spanish physicians have not taken part in politics as physicians but as individuals belonging to different parties. Although they have tried to improve national sanitation so far as they had the power to do so, they have always been handicapped by the indifference and ignorance which the politicians display toward sanitary matters.

### Death of Dr. Rodriguez Méndez

Dr. Rodriguez Méndez, former president of the University of Barcelona, and professor of hygiene of the Barcelona School of Medicine, died shortly after receiving news of his retirement because of having reached the retirement age. He was in perfect health before his death, and it is asserted that his death was due to grief over his enforced withdrawal from public life. Dr. Rodriguez Méndez was a scientist whose career was marked by enthusiasm for medical teaching, love for humanity, and healthy patriotism. The bitter struggles that have convulsed Barcelona could not alter his devotion to Spain, or his love for the city of Barcelona, where he fought epidemics and assisted all sanitary improvements with such eagerness and tireless activity that he had no enemies and was admired by all for his achievements.

PARIS

Nov. 20, 1919.

### The Parliamentary Elections and Social Hygiene

In the numerous political platforms that have seen the light of day in connection with the election campaign preceding the parliamentary elections, questions pertaining to social hygiene have not occupied, it must be confessed, a very conspicuous place. However, I wish to call attention to a manifesto which emphasized the necessity of improving French birth records both quantitatively and qualitatively and of protecting large-sized families. At the head of the list of candidates who signed this manifesto stood the name of Dr. Pinard, former professor of clinical obstetrics on the Paris Faculty of Medicine. Pinard has been one of the well known promoters of the child welfare movement in France.

The Ligue nationale contre l'alcoolisme, of which Protes or Deloche, former dean of the Paris Faculty of Medicine, is president, has sent to the various political parties the following declaration:

## TO THE FRENCH PEOPLE

France, though victorious, is almost exhausted. There rests, therefore, on us the paramount necessity of recuperating our strength. Our industries that have been destroyed by the invader must be built up again. Our domestic and foreign commercial relations, which are the source of our normal economic life, must be reestablished. By means of industry and thrift our exhausted stocks of merchandise must be replenished. And, what is still more important, we must regain our vital equilibrium after the terrible bleeding to which we have been subjected.

But there can be no industry; there can be no commerce; there can be no toil; there can be no thrift; there can be no health, so long as alcohol shall remain the master of France, ruming production, paralyzing trade, diverting labor from its proper channels, devouring the savings of the people, and generating disease, folly and crime. We are now facing a different kind of a struggle—an enemy so implacable that the British prime minister has publicly announced that a world crisis has been reached which is even more threatening than that imposed by the Germans.

Vote! The nations round about us, neutrals as well as allies, though not so deeply affected as ourselves, have comprehended the danger. Norway, Sweden and Belgium have imposed on themselves severe restrictions. The United States has prohibited all intoxicating beverages.

Is France alone incapable of renouncing its appetizers and its liquors?

Demand of your candidates that they shall take a definite stand as advocates of the immediate prohibition of beverage alcohol or at least declare themselves disposed to prepare the way for such prohibition by voting for: (1) the radical suppression of the privilege of private stills; (2) a marked reduction in the number of places licensed to dispense intoxicating beverages; (3) an increase of the tax on beverage alcohol with a corresponding reduction of the duties on alcohol used in the industries; and (4) denial of wine merchants of a license to conduct a tobacco store in connection with a wine shop.

Refuse to vote for those who give you a negative or evasive answer. Voters: remember that if France does not suppress alcohol, alcohol will suppress France.

## Antituberculosis Propaganda

The various representatives of the societies in the United States, Great Britain and France that are concerned with the world-wide antituberculosis campaign held a meeting here recently under the chairmanship of M. Léon Bourgeois, president of the Comité national de défense contre la tuberculose. It was decided that a conference should be held in Paris next year in October for the purpose of drawing up the constitution of an association to be composed of the delegates of the national antituberculosis societies of the different countries that constitute the league of nations.

## A Resolution of the Surgical Congress

The Congrès de chirurgie, at the instance of its president, Dr. Walther, has unanimously adopted the following resolution:

WHEREAS, The Congrès français de chirurgie is fully aware that: (1) the indigent sick in hospitals (formations hospitalières) are entitled to receive such care as will secure to them all the physical guarantees of safety that compare with present medical standards; and (2) a large number of surgical services are still inadequately equipped and lack the indispensable equipment for the examination and treatment of the sick—often even the necessary apparatus for the sterilization of instruments, etc.; therefore, be it

Resolved, That in all these hospitals (formations hospitalières) the surgical services shall be provided with: (1) such equipment as will absolutely guarantee the sterilization of instruments, water and all forms of dressings; (2) a complete roentgenographic outfit, including the instruments of fluoroscopy; and (3) a laboratory suitably equipped to perform histologic and chemical examinations and to carry out bacteriologic researches such as become constantly necessary in the course of the examination and treatment of patients.

## A Move to Protect Pedestrians Against Mud-Splashing Autos

M. Georges Lemarchand, in a letter to the chief of police, has pointed out the advantages that would accrue if an order could be issued requiring all automobiles, and especially motor trucks, to be fitted with fenders similar to those used on the autobuses of the Compagnie générale des omnibus. On account of the bad condition of the streets owing to their being neglected during the war, M. Lemarchand thinks that pedestrians ought to be protected against mud splashes, which not only damage clothing, so expensive at this time, but also constitute a menace from the hygienic standpoint.

## The Attendance at Swiss Universities During the War

According to the Economiste français, in the school year 1913-1914 there were 8,110 students matriculated at the Swiss universities, 6,775 of whom were men and 1,335 women. In 1918-1919 the total had fallen to 7,307, a reduction of 10 per cent., but there has been a still greater change in the relative representation of the sexes; 6,430 men against 877 women. The number of men was reduced only

5 per cent., while the number of women had decreased 34 per cent.

A study of the proportion of different nationalities develops some interesting facts. In 1913-1914 there were 3,925 Swiss in attendance as compared with 4,185 foreigners. In 1918-1919 the figures had become 5,328 and 1,979, respectively, which was an increase of 36 per cent. in the Swiss representation and a decrease of 56 per cent. in the number of foreigners. The great decrease in the foreign representation was brought about chiefly by the Russians, the number of whom (Poles are included) fell from over 2,000 to 480. The Hungarians decreased from 527 to 78, and the Germans from 528 to 320.

Swiss universities, in recent years, have been unusually well attended. Before the war they had 21.3 students (including those who had merely visiting privileges) per 10,000 inhabitants; France had only 11.6; Austria, 9.4; Germany, 9.2, and Italy, 6.8.

## Personal

At one of its recent meetings the Academy of Medicine elected three foreign correspondents: Professor Banti of Florence, Dr. Van Ermengem of Ghent, and Dr. Pawinski of War-saw.

## LONDON

Nov. 26, 1919.

## Refutation of Lombroso's Theories in Official Work on Criminology

The most important work on criminology that has appeared in this country, or indeed in any country, has just been issued by the government. In 1901 Dr. Griffiths, deputy medical officer of Parkhurst prison, formed the idea of subjecting a large number of prisoners convicted of certain similar offense to measurements to ascertain whether they showed any deviation from what might be regarded as the normal, or noncriminal type. The suggestion commended itself to his superiors, who recommended that the observations should be extended to the general body of convicts, so that the existing theories of criminology, particularly those of Lombroso, might be tested. In conjunction with the medical officers of the chief convict prisons, a scheme was drawn up and the data were tabulated by the late Dr. Charles Goring, deputy medical officer of the prison service. In order that they might be subjected to study by modern statistical methods, the aid of Prof. Karl Pearson, director of the biometric laboratory at University College, was obtained, and Dr. Goring was detached from duty to work under him. The main conclusions are as follows:

The criminal type marked by physical and mental stigmata as described by Lombroso, does not exist. As individuals criminals possess no characteristics, physical or mental, which are not shared by all people. Criminality is not a morbid state akin to physical disease which can be diagnosed and established by pure observation. On the other hand, the "criminal" man is to a large extent a "defective" man, physically and mentally, and this "defectiveness," like many other human qualities, is determined more by nature than by nurture. A "criminal diathesis," a composite of mental and physical defectiveness, is recognized. Like other constitutional characters, it is subject to heredity. The influence of parental "contagion" is inconsiderable in comparison with the influence of heredity and mental defectiveness, which are the most important factors in the production of crime.

Dr. Goring's work illustrates the unreliability of conclusions drawn from rough observations. Three hundred criminals classified into three grades of intelligence were observed to discover if there were any appreciable association between height of forehead and intellectual capacity. Their foreheads were classified as low, medium or high. Of the intelligent group, 20.5 per cent. had low foreheads and 20.5 per cent. high foreheads, of the unintelligent group, 35.7 per cent. had low and 8.3 per cent. high foreheads, and the weak-minded group the corresponding figures were 50 and 8 per cent. The conclusion seemed to be that brain development was associated with intelligence. Two years later, however, the same 300 criminals were included in a group of 800 criminals whose head contours were measured, and a series of precise measurements of the head and heights were thus obtained. The verdict of the new method was different. There was little, if any, appreciable relationship between height of forehead and intelligence.

No evidence was obtained of the existence of a particular criminal type such as described by Lombroso and his followers. But English criminals are markedly below the general population in stature and body weight. They contribute of violence to the population about equal to an average

of strength and of constitutional soundness considerably above the average of the other criminals and of the law-abiding class. Thieves, burglars and incendiaries, who constitute 90 per cent. of all criminals, are inferior in stature and weight, and are puny in their general bodily habit in comparison with other criminals and with the law-abiding population. These are the sole facts on which the theories of criminal anthropology rest.

First convictions show a predilection for the age period from 15 to 25, which Dr. Goring concludes to be significant. Comparing this fact with the age incidences of liability to various diseases, he is inclined to interpret the facts as evidence that a mental constitutional proclivity is the primal source of the habitual criminal's career. "Alcoholism, epilepsy, sexual proclivity, and insanity in their relation to crime are accidental associations depending on a high degree of relation between defective intelligence and crime. It cannot be assumed from the evidence that defective intelligence is correlated with the defective physique. English criminals appear to be selected from the noncriminal population by two independent factors: a mental constitution and a physical constitution, each, however, differing from that of the general population in degree and not in kind. Moreover, elaborate examination of the data shows that crime, at least in this country, is due only in a trifling extent (if in any) to social inequality, adverse environment, or other man-festations of what may be comprehensively termed the "forces of circumstances."

#### The Prevention of Venereal Disease

The prevention of venereal disease continues to be the burning question in the lay press. The National Council for the Eradication of Venereal Disease has published a letter in the *Limes* stating that it is as firmly opposed as ever to any general distribution of prophylactic packets to the civil community. The council holds that the prevention of venereal diseases is a large sociomedical problem. In the first line of attack, ample facilities for treatment and instruction of the public occupy the first place. Concerning personal disinfection after risk is taken, the council has always acknowledged the value of cleansing and disinfecting material applied early and thoroughly in diminishing the risk of disease. Abstention from exposure to infection is the only certain safeguard against the ordinary risk of the diseases. Continence is to be encouraged by every means. No person who has indulged in promiscuous sexual intercourse can be certain that he is not infected. He or she should therefore seek means of cleansing at the earliest possible moment. For this purpose a thorough application of soap and water is of great value, followed, if possible, by the use of mild disinfectants as may be recommended by a physician. While such applications sensibly reduce the risk of infection within four hours of exposure, they afford no absolute security. In the case of women, satisfactory self-disinfection is practically impossible; medical attention at the earliest possible moment is necessary.

#### Drunkenness as a Defense in Trial for Murder

A trial for murder has been quashed under peculiar circumstances in the west of appeal. A man was convicted of manslaughter for strangling a girl of 13 while violating her. The defense was that the man was so drunk when he committed the crime that the jury should find a verdict of manslaughter. During a discussion of the law, the judge said that it was as if a man was striking a woman and he defends himself and then you see something which kills her, to say that he was drunk, or that he was struggling, he commits manslaughter. The defense of drunkenness could prevail only if it was proved that the accused did not know what he was doing and that he knew that what he was doing was fatal violence done in furtherance of a crime which was a culpable murder. As to manslaughter, the judge said that the crime of murder to manslaughter, the crime of manslaughter, for this to succeed the accused must be proved to be affected by drink that he was incapable of knowing that what he was doing was fatal violence. In the direction of the judge in the present case was less favorable to the accused. He had applied the law applicable to cases in which the defense was insanity. Had he applied the proper test it was impossible for the court to say what the verdict would have been. The court therefore concluded that the verdict must be reduced to manslaughter. The crime was of the gravest character, and the sentence would be of the severest kind—penal servitude for twenty years.

## Marriages

FRANCIS EDWARD THIBAUEN, Marshfield, Wis., to Miss Gertrude Breitlow of Winona, Minn., November 28.

EDWARD NEWMAN PACKARD, Saranac Lake, N. Y., to Miss Mary Bissell Letts of New York City, November 27.

ARTHUR GIBBON KELLEY, Greenville, S. C., to Miss Louise Dolbs of Hunan Park, Atlanta, Ga., November 18.

CLARENCE HENRY BOREN to Miss Gertrude Elizabeth Mueller, both of Marinette, Wis., November 22.

FREDERICK WALTER MASON, Great Neck, L. I., N. Y., to Miss Edith Bowron of Flushing, L. I., recently.

JOHN HUGHES DUNNINGTON to Miss Genevieve R. Parker, both of New York City, November 26.

ALBERT E. CAMPBELL, Springfield, Ill., to Miss Carrie Roberts of Decatur, Ill., November 26.

ROY J. HOLMES, Wadley, Ga., to Miss Esther Smith of Bartow, Ga., at Wadley, November 12.

BENJAMIN APPELEGATE FURMAN to Miss Helen Pryor, both of Newark, N. J., September 27.

WALTER JAMES SULLIVAN to Miss Katherine Agnes Keith, both of Chicago, November 29.

LUMIR ROBERT SAFARIK to Miss Madge Dunnell, both of New York City, October 18.

JOHN DANNA THOMSON to Miss Ruth Arnold, both of Atlanta, Ga., November 15.

JAMES LEONIDAS KING, Macon, Ga., to Miss Grace O. Ide of Baltimore, November 26.

RAYMOND FRANCIS WIVELL to Miss Anna Conley, both of Pittsburgh, November 27.

ROBERT ELLIS WEAVER to Miss Ruby Scott, both of Hope, Ark., November 22.

WILLIAM JOHN SCHOLDS to Miss Myrtle Bonnet, both of Chicago, recently.

## Deaths

Robert B. Wilson, Montreal; McGill University, Montreal, 1893; aged 53; for many years superintendent of the Western Hospital, Montreal; a pioneer in roentgenology and electrotherapy; lieutenant-colonel, C. A. M. C.; who went overseas with the first Canadian contingent and was attached to Canadian General Hospital No. 1 in France, later to Granville Canadian Special Hospital, Ramsgate, England, from there was called to London and given charge of roentgen-ray work, and equipment of all Canadian hospitals overseas; consultant in electric and hydrotherapeutic treatment in Canada, and responsible for this equipment in all Canadian hospitals in the Dominion, with headquarters in Toronto; died in St. Andrew's Military Hospital, Toronto, November 1.

Robert Lee Randolph \* Baltimore; University of Maryland, Baltimore, 1894; aged 59; attending surgeon to the Presbyterian Eye and Ear Hospital; ophthalmic and aural surgeon in chief to the Baltimore and Ohio Railroad; chief surgeon to the Chesapeake Steamship Company; associate professor of clinical ophthalmology and otology in Johns Hopkins Medical School, Baltimore; winner of the Alverenga prize of the College of Physicians of Philadelphia in 1901; and the Boylston prize of Harvard University in 1902; died, December 9.

Robert John Sloan, Shanghai, China; University of Michigan, Ann Arbor, 1863; aged 81; assistant surgeon of the Thirtieth Missouri Volunteer Infantry, and later promoted to major and surgeon, during the Civil War; who went to Japan in 1869, and since 1877 had been located in Shanghai, China; died, June 5, from dyspey.

John Milton Tate, Fulton, Mo.; Bellevue Hospital Medical College, 1865; aged 77; representative from Calloway County in the legislature in 1893 and 1895; a director of the Calloway Bank, Fulton, and later of the Williamsburg Bank; died at his farm home, December 2, from cerebral hemorrhage.

Louis J. Goux \* Detroit; Detroit College of Medicine and Surgery, 1894; aged 48; a member of the American

\* Indicate "Fellow" of the American Medical Association.

Academy of Ophthalmology and Oto-Laryngology; ophthalmologist and otologist to the Eastern Michigan State Hospital, Pontiac and Grace Hospital, Detroit; died, December 1.

**Charles Arthur Vanderveer**, Phoenix, Ariz.; College of Physicians and Surgeons in the City of New York, 1840; aged 72; formerly a practitioner of Long Branch, N. J.; and then a member of the staff of the Baltimore *Star*; secretary of the Phoenix Board of Trade; died, December 8.

**William Thomas Williams** \* Mount Carmel, Pa.; University of the City of New York, 1875; aged 65; local surgeon of the Pennsylvania and Lehigh Valley systems; for twelve years head of the state department of health clinic at Mount Carmel; died, December 4, from pleuropneumonia.

**Dwight Birdsill Hunt**, Otego, N. Y.; New York Homeopathic Medical College, New York City, 1873; aged 73; for many years a member and dean of the faculty of his alma mater; a member of the staff of the Homeopathic Hospital, New York City; died, December 6.

**Colon Junius Spence** \* Milford, Ohio; Miami Medical College, Cincinnati, 1883; aged 61; president of the Claremont County board of education for ten years; for several years a member of the surgical staff of the Jewish Hospital, Cincinnati; died, December 3.

**William Pinkney McKee**, Washington, D. C.; George Washington University, Washington, D. C., 1903; aged 43; a member of the Medical Society of the District of Columbia, and a specialist in ophthalmology; died, November 30, from multiple sclerosis.

**George Edwin Adams**, Worcester, Mass.; Harvard University Medical School, 1880; aged 62; a member of the Massachusetts Medical Society; died suddenly from heart disease, November 29, while making a professional call.

**William Wymond Walkem**, Vancouver, B. C.; Queens University, Kingston, Ont., 1873; aged 69; in 1894 a member of the provincial legislature from the district of South Nanaimo; died, September 29.

**Charles Franklin Updike, Capt., M. R. C., U. S. Army**, Browntown, Va.; University of Maryland, Baltimore, 1889; aged 55; a member of the Medical Society of Virginia; died, October 14, from diabetes.

**Albert Carlton Baxter** \* Oswego, N. Y.; Albany (N. Y.) Medical College, 1896; aged 45; health officer of Oswego County; consulting physician to the Oswego Hospital; died, about December 1.

**John Ellis Rodley**, Chico, Calif.; Missouri Medical College, St. Louis, 1881; aged 67; for four years local surgeon of the Missouri Pacific System at St. Louis; died in Napa, Calif., December 2.

**Joseph John Cronin**, Boston; Jefferson Medical College, 1885; died in the Peter Bent Brigham Hospital, Boston, November 30, from septicemia, due to an infected wound of the hand.

**James Casey**, Chicago; Northwestern University Medical School, Chicago, 1902; aged 68; a member of the Illinois State Medical Society; died, December 10, from chronic nephritis.

**Thomas B. Hayward**, Baltimore (license, Maryland State Board of Medical Examiners); aged 83; a practitioner for nearly half a century; died, December 9, from senile debility.

**Thomas McFadden**, Syracuse, N. Y. (license, N. Y., 1878); aged 81; for many years a practitioner of Appleton, N. Y.; died at the home of his daughter in Syracuse, December 4.

**Vernon Clayton Goodrich** \* Barre, Vt.; University of Vermont, Burlington, 1873; aged 73; postmaster of Brookfield, Vt., for four years; died, November 29, from pneumonia.

**Christopher A. Frame**, Roxboro, Philadelphia; Penn Medical University, Philadelphia, 1876; aged 73; a veteran of the Civil War; died, December 12, from heart disease.

**John D. Muters**, Ashland, Ky.; Starling Medical College, Columbus, Ohio, 1892; aged 66; a member of the Kentucky State Medical Association; died, about December 1.

**Thomas G. G. Ritchie**, Cochran, Alta.; E.R.C.S. (Edin.); 1872; who was seriously injured in a motor accident near Banff, Alta.; died in a hospital at Calgary, October 5.

**Harry Cook**, Urbana, Ohio; Chicago Homeopathic Medical College, 1894; aged 49; died in Grant Hospital, Columbus, Ohio, December 1, from organic heart disease.

**Edmund G. Shower**, Baltimore; Hahnemann Medical College, Philadelphia, 1878; aged 73; died suddenly, December 10, from neuritis, complicated by heart disease.

**Millard F. Pritchard**, Cherokee, Iowa (license, years of practice, Iowa, 1886); aged 67; a practitioner since 1874; died, November 22, from pernicious anemia.

**William R. Smith**, Pinckard, Ala.; Memphis (Tenn.) Hospital Medical College, 1886; aged 50; died in a hospital in Dothan, Ala., November 24, from dropsy.

**J. Bruce Hess**, Benton, Pa.; Jefferson Medical College, 1892; aged 58; died in the George F. Geisinger Memorial Hospital, Danville, Pa., November 28.

**Edward S. Navaun**, Detroit (license, Michigan, seven years of practice, 1900); aged 60; a practitioner since 1872 also a druggist; died, November 27.

**August A. Guglieri**, Madrona, Calif.; California Eclectic Medical College, Los Angeles, 1901; aged 60; formerly of San Francisco; died, November 30.

**Charles Schomburg Elliott**, Toronto; Harvard University Medical School, 1860; aged 80; a specialist on nervous and mental diseases; died, October 24.

**Jessie M. Green Estes**, Chicago; Saginaw Valley Medical College, Saginaw, Mich., 1902; aged 50; died, November 28, from an overdose of chloroform.

**William Charles Rutledge**, Denison, Texas; Hospital College of Medicine, Louisville, Ky., 1898; aged 58; died, November 8, from tuberculosis.

**Henry John Charles Sprehn**, Reno, Nev.; California Eclectic Medical College, Los Angeles, 1913; aged 42; died in Oroville, Calif., November 13.

**Albert Riley Cain** \* Cambridge, Ohio; Columbus (Ohio) Medical College, 1892; aged 69; died, November 30, from cerebral hemorrhage.

**William R. Eareckson** \* Elkridge, Md.; University of Maryland, Baltimore, 1890; aged 52; died, December 10, from cerebral hemorrhage.

**Alfred Raymond** \* Seattle; McGill University, Montreal, 1886; aged 59; died in Rochester, Minn., December 3, after a surgical operation.

**May E. Traece Callender**, Middletown, Conn.; New York Medical College and Hospital for Women, 1865; aged 83; died, November 1.

**Romanus M. Smith**, Manzanola, Colo.; University of Louisville, Ky., 1885; aged 65; died in Long Beach, Calif., November 24.

**James T. Sweetman**, Ballston Spar, N. Y.; University of Georgetown, Washington, D. C., 1872; aged 85; died, October 21.

**Anthony I. Hoon** \* Mercer, Pa.; University of the City of New York, 1881; aged 63; died, December 6, from heart disease.

**Charles Wesley Pillsbury** \* Saco, Me.; Dartmouth Medical School, Hanover, N. H., 1881; aged 68; died, December 3.

**Edwin H. Sims**, Columbus Ga.; Atlanta (Ga.) Medical College, 1883; aged 57; died, November 28, from heart disease.

**John W. Seatt**, Jamestown, N. Y.; Cleveland University of Medicine and Surgery, 1866; aged 80; died, November 5.

**Elbridge Simpson Pixley**, Pittsfield, Mass.; Eclectic Medical College, Philadelphia, 1878; aged 87; died, October 12.

**William Henry Mays**, Newman, Calif.; University of California, San Francisco, 1873; aged 73; died, November 30.

**George M. Overstreet**, Sylvania, Ga.; University of Virginia, Charlottesville, 1892; aged 81; died, December 1.

**William Caswell Maples** \* Sealsboro, Ala.; University of Nashville, Tenn., 1881; aged 61; died, November 24.

**Alois F. Juetner**, Cincinnati; Cincinnati College of Medicine and Surgery, 1910; aged 67; died, November 27.

**Martha Hays Pollock**, Huntington, Pa.; Boston University School of Medicine, 1833; aged 74; died, December 2.

**William A. Marner**, Miles, Iowa; State University of Iowa, Iowa City, 1885; aged 61; died, December 10.

**George H. Miller**, McDonald, Pa.; Miami Medical College, Cincinnati, 1873; aged 73; died, November 30.

**Charles S. Wight**, Marlboro, Mass.; University of Nashville, Tenn., 1880; aged 63; died, December 3.

**Bennett G. Willis**, Omaha; John A. Croston College, Omaha, 1906; aged 38; died, November 26.

**Milo Leonard Kensington**, Chicago; University of Illinois, Chicago, 1891; aged 72; died, December 4.

**William J. Humphrey** \* Union City, Pa.; University of Buffalo, 1890; aged 59; died, October 19.

## Correspondence

### "DEFECTS IN THE TEACHING OF PATHOLOGY, AND THE LAY PROFESSOR"

To the Editor—I have been both interested and instructed by the communications of Dr. Douglas Symmers (THE JOURNAL, Sept. 20, 1919) and of Dr. Francis Carter Wood (Dec. 6, 1919) relative to the regrettable falling off in the percentage of necropsies performed in our representative hospitals. As the resident medical officer of the Philadelphia General Hospital (Blockley), this fact has caused me considerable concern.

There were in our wards 3,235 deaths in 1918, 535 of this number occurring from September 23 to November 1, during the epidemic of influenza. Of this number, 6.83 per cent. were post-mortem. During the height of the epidemic, the work in the postmortem room was at a standstill, for more pressing work demanded the attention of all. From Jan. 1, 1919, to June 30, 1919, 1,324 deaths occurred in our wards, of which 188 necropsies were performed in our hospital morgue.

Early in June, before the new class of interns reported for duty, I endeavored to discover some plan for increasing our necropsy service. It was decided that each month a post-mortem efficiency sheet should be published, in which the percentage of postmortems and deaths in each service should be set forth in order of rank.

Each visiting physician was also to be notified on a printed form, drawn up for that purpose, of his percentage for the current month. Talks were given the intern staff on the unquestioned teaching value of comparing clinical and pathologic diagnoses. The result was indeed gratifying, as will be shown by the accompanying table for the months of July, August, September, October and November.

PERCENTAGES OF NECROPSIES

Month	Deaths	Necropsies	Average Per Cent.
July	176	41	23.06
August	162	40	24.69
September	151	44	29.58
October	117	45	38.46
November	150	36	24.00

A low post-mortem percentage can often be traced to failure on the part of the visiting physician to make known satisfactorily the fact that he expects each case studied in his ward to be post-mortem, if death occurs. But this is not enough, for there it will soon languish unless a resident hospital officer not only does all in his power to simplify the method of securing post-mortem permissions, but also continually impresses on the resident staff that a high percentage is expected of each intern, and that his efficiency record shall reflect an accurate information as to the practical results of his endeavor to secure such permissions. It is not felt at the Philadelphia General Hospital that an intern is interested in his profession, and worthy of the highest commendation, unless his post-mortem percentage remains consistently high.

The difficulties encountered at the Bellevue, Boston, and Philadelphia City hospitals, are similar.

In Philadelphia, by special concession of the state anatomic board we are allowed to perform necropsies on 35 per cent. of our unattended dead from October to June, and 25 per cent. during the summer months.

The former's office does not materially increase the number of examinations held at the Philadelphia General Hospital, as permissions are required from the relatives on all coroner's cases, except those in which violence is suspected.

It has been found that the most fruitful procedure to adopt is to secure the written permission before death takes place. The verbal permission, legal in Minnesota and possibly a few other states, removes one of the great stumbling blocks

to solving this problem, and probably explains the high percentage of examinations reported from hospitals in these localities.

Finally, as is suggested by Dr. Wood, there exists a direct ratio between the perseverance and interest that the visiting and resident staffs display and the number of examinations performed. Postmortem examinations can be secured in a large percentage of cases if intelligent and wideawake effort is persistently made.

JOSEPH C. DOANE, M.D., Philadelphia,  
Chief Resident Physician, Philadelphia  
General Hospital.

To the Editor—I have read Dr. Hammett's reply to my article on this subject (THE JOURNAL, Dec. 13, 1919, page 1852) in which he refers to my "stigmatization" of the so-called lay professor in the medical school as untimely and as showing lack of appreciation of the contributions of such men to medical progress.

I regret that my statements should have been interpreted as an effort to stigmatize gentlemen for whom and for whose accomplishments I entertain respect and admiration. I made no reference to the scientific achievements of nonmedical men which, from Pasteur onward, have been universally acclaimed, but confined myself to criticism of the value of nonmedical men as teachers in the medical school. Doubtless the nonmedical professor is a necessary factor in that stage of evolution through which the schools are now passing, since modern medicine has failed, among other things, to provide its own teachers in the more strictly scientific branches; but I venture to predict that, as time goes on, he will be replaced by an educator whose knowledge of medicine will have been developed by a broader experience than that of the laboratory alone. As it stands now, the medical curriculum is overloaded, not only in the fundamental branches, but elsewhere. In the grave responsibility of proportioning the teaching of physiology, biologic chemistry and anatomy, and in the choice and emphasis of facts to be presented to the student, I believe that we shall ultimately receive more valuable assistance from the properly trained physician than from the highly specialized products of the schools of science.

DOUGLAS SYMMERS, M.D., New York.

### "TEST FIGHT ON SOCIAL INSURANCE IN NEW YORK"

To the Editor:—There is cold comfort for the medical profession of New York in the editorial announcement in THE JOURNAL, December 6, p. 1774, of the coming effort of the governor of this state, backed by the New York State Federation of Labor, to put through the scheme for compulsory health insurance at the coming session of the state legislature.

After wrestling with this matter for four years, the Medical Society of the State of New York has definitely gone on record against it. This step was taken at a special meeting of the House of Delegates called to discuss the subject. The New York County Medical Society has long been on record as opposed to the "principles" of compulsory health insurance. Nevertheless, much of the vitality of this measure has been due to the pleas for "constructive" work and for "study" of it by the influential not to say the ruling portion of this body.

The present attitude of the county society on this question is one of unanimous disapproval. This was brought about by the exigencies of an election contest, just closed, in which both sides were compelled to declare their opposition to compulsory health insurance as a matter of safety.

In the same way, it may be stated, the state society was compelled to take a definite stand by the growth of associations, leagues and guilds of medical men organized to oppose this measure more effectually than had been done in their opinion by their local and state organizations.

For four years the medical men of New York state have been compelled to fight this battle at each session of the legislature, at a loss of time and at an expense of money which many of them could ill afford against paid public servants and others who were not losing anything by advocating a system of compulsory health insurance. At my suggestion last year, the late president of the Medical Society of the State of New York, Dr. Thomas H. Halsted, called the attention of all the county societies of the state to this matter early in the session of the legislature instead of waiting for the perfunctory hearing toward the close of the session to take action on it. Again this year I advised an active discussion of the subject by medical men with their candidates for the assembly well in advance of the date of election, instead of waiting till after this event, as was the case in its discussion by the state society.

In your article you say that New York "is an ideal state in which to discuss and test out this important subject." Judging by the facts given above, it has been tested out by medical men in this state, not only to their hearts' content, but to their hearts' sorrow. For them the discussion is closed. An official presentment of this fact by the Medical Society of the State of New York duly attested to the governor and the legislature should be the only action on their part at the coming session of the legislature in regard to compulsory health insurance. If this measure is to be enacted into law, let it be definitely understood that the great body of the medical profession of New York will have to be impressed into carrying out its medical provisions by the hand of the state, a form of compulsory medical service which the people will not be slow to recognize as one in every way inimical to their interests and unworthy of the traditions of the great medical profession.

JOHN P. DAVIN, M.D., New York.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### GRADUATE COURSES IN PUBLIC HEALTH

To the Editor:—Please let me know if any medical school in Chicago grants a degree in public health, and if any of this work can be done during the summer.

ETTA SELSAM, M.D., Indianapolis.

ANSWER.—No medical school in Chicago gives public health courses leading to a degree. A list of the schools giving such courses and a description appeared in THE JOURNAL, Aug. 16, 1919, page 516.

**The New Netherlands Law on Narcotics.**—Although the three international conferences on regulation of the consumption of opium, etc., were held in the Netherlands (1911, 1913 and 1914), and France, England and the United States have long since passed laws, the Netherlands completed its legislation on the subject only in October, 1919. The law of Oct. 4, 1919, is said to be a model of conciseness and allows fewer loopholes for infringement of the spirit of the law than the more extensive and sometimes galling laws of the other countries. A full summary of the law is given in the *Nederlandsch Tijdschrift voor Geneeskunde*: 2:1577 (Nov. 15), 1919, with comment by Professor Muntendam. He says that the abuse of narcotics is almost negligible in the Netherlands in comparison with other countries. But the new law will prevent importation of the vice of drug addiction just as the legislation against absinthe has prevented the development of absinthe abuse. He adds that the benefit from a law depends on the way in which it is enforced and in this case much depends on the decisions of the committee who are to pass judgment on the narcotic content, etc., of "patent medicines" and other proprietaries and nostrums.

## Medical Education, Registration and Hospital Service

### COMING EXAMINATIONS

- ALABAMA: Montgomery, Jan. 13. Chairman, Dr. Samuel W. Welch, Montgomery.
- ARIZONA: Phoenix, Jan. 6-7. Sec., Dr. Ansel Martin, 207 Goodrich Bldg., Phoenix.
- COLORADO: Denver, Jan. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
- DISTRICT OF COLUMBIA: Washington, Jan. 13. Sec., Dr. Edgar P. Copeland, The Ruckingham, Washington.
- HAWAII: Honolulu, Jan. 5-8. Sec., Dr. J. R. Judd, Honolulu.
- INDIANA: Indianapolis, Feb. 10-15. Sec., Dr. W. I. Gott, 84 State House, Indianapolis.
- KANSAS: Topeka, Feb. 10. Sec., Dr. H. A. Dykes, Lebanon.
- MINNESOTA: Minneapolis, Jan. 6-9. Sec., Dr. Thos. McDevitt, Looky Bldg., St. Paul.
- MISSOURI: St. Louis, Jan. 12-14. Sec., Dr. George H. Jones, State House, Jefferson City.
- NATIONAL BOARD OF MEDICAL EXAMINERS: St. Louis and Chicago, Feb. 18-25. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia, Pa.
- NEW MEXICO: Santa Fe, Jan. 12-13. Sec., Dr. R. E. M. Bridg, Las Cruces.
- NEW YORK: New York City, Albany, Buffalo, Syracuse, Jan. 27-31. Asst. Professional Examinations, Mr. H. J. Hamilton, Albany.
- NORTH DAKOTA: Grand Forks, Jan. 6. Sec., Dr. George M. Williamson, Grand Forks.
- OKLAHOMA: Oklahoma City, Jan. 13-14. Sec., Dr. J. M. Byrum, Shawnee.
- OREGON: Portland, Jan. 6. Sec., Dr. Frank W. Wood, 559 Morgan Bldg., Portland.
- PENNSYLVANIA: Philadelphia, Jan. 13-17. Pres., Dr. John M. Baldy, Harrisburg.
- RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
- SOUTH DAKOTA: Pierre, Jan. 13. Sec., Dr. Park B. Jenkins, Wanbury.
- VERMONT: Burlington, Feb. 10-12. Sec., Dr. W. Scott Nay, Underhill.
- WASHINGTON: Spokane, Jan. 6-8. Sec., Dr. C. N. Suttner, 415 Old National Bank Bldg., Spokane.
- WEST VIRGINIA: Charleston, Jan. 13. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
- WISCONSIN: Madison, Jan. 13-15. Sec. Dr. John M. Doid, 220 E. Second St., Ashland.

### GRADUATE MEDICAL EDUCATION IN GREAT BRITAIN AND FRANCE

LOUIS B. WILSON, M.D.  
ROCHESTER, MINN.

At the meeting of the Executive Committee of the Council on Medical Education of the American Medical Association, Feb. 3, 1918, the Committee on Graduate Medical Degree appointed the previous year was continued, and its duties enlarged to include a study of the entire problem of graduate medical instruction in this country and in the countries of our allies. The personnel of the committee is as follows: Louis B. Wilson, chairman; N. P. Colwell, secretary; and Isadore Dyer, John M. Dodson, A. C. Eycleshymer, William Pepper, Jr., Victor C. Vaughan, J. M. T. Finney, Edward Jackson, and James Fwing.

The chairman of the committee was intrusted, should he be ordered to military duty in Europe, to make such observations and collect such information concerning graduate medical education there as time and opportunity would permit. It so happened that he was stationed in London during April, 1918, and in France from April, 1918, to June, 1919, except for a brief visit again to England in April, 1919. During this time he had conferences with Sir William Osler, chairman of a committee representing the London medical schools, with Sir George Makin, Prof. Arthur Keith, and Sir Arbuthnot Lane of London; Sir Berkeley Moyle, and Leech, Sir Robert Jones of Liverpool, Sir Harold Stiles, and Sir William McCormack of Edinburgh; Col. I. G. Adams of the Canadian Medical Service, and with Sir Walter Morley of the Medical Research Committee of the Franco-British Conference, where held with Prof. Henry Roger, and of the Faculty of Medicine of the University of Paris. In Georges Dumas, secretary of the faculty of

Calmette, one of the directors of the Pasteur Institute; Dr. A. Bécélère, president of the Association médicale de Hôpitaux de Paris; Prof. A. Polcarol of the Lyons Medical School, and numerous other French medical officers met incidentally. Conferences were also held with Mr. George H. Nettleton, director of the American University Union in Europe, and Dr. George F. Maclean, acting director of the British branch of the American University Union. No opportunity was afforded for the study of the graduate medical situation in Italy, although incidental information would indicate that in certain of the schools there are opportunities for Americans to work to advantage, particularly in laboratory subjects. The results of the observations in Great Britain and France are herewith presented as an interim report in the hope that the information may be of use to some of the many Americans now seeking opportunity for graduate medical study.

#### GREAT BRITAIN

The numerous three months' courses in medicine which were attended by about 300 medical officers of the American Expeditionary Forces after the armistice furnished many suggestions to the instructors, particularly in the London and Edinburgh medical schools, concerning the kind of work desired by American graduate medical students. They also demonstrated to American medical students the high quality of work to be had even under the adverse conditions then existing. On the basis of this experience, Sir William Osler's committee has formulated, with the cooperation of the twelve London undergraduate medical schools, the four existing postgraduate institutions and many hospitals, a plan for lectures in the fundamental medical subjects, clinical teaching in cases in wards and outpatient departments, and practical instruction in roentgen-ray diagnosis, pathology, chemistry, bacteriology, clinical microscopy, post-mortems, etc. The cooperation of the British medical schools of London will probably soon be secured. Special research work and clinical assistantships are also available to selected men. Many of these courses will be most excellent and American graduates in medicine will greatly appreciate them.

The central organization consists of a council made up of representatives of all the participating teaching institutions, and representatives of the board of education, the Medical Research Committee, the donations, and American universities. This governing body assists in the organization of courses, establishes a uniformity of fees in the various schools, and furnishes detailed information concerning courses. Ultimately the association will have a building in central London not only containing offices of the organization, but also serving a meeting place for medical graduates of the entire and the allied nations. American students desiring detailed information concerning the courses available should correspond with the director of the American University Union, 10 Pall Mall East, S.W. 1, London, or with Sir William Osler, 13 Norfolk Gardens, Oxford.

Recently a loan has been accomplished between the Osler group for graduate study and the American Hospital of London. The latter institution, which was developed largely through the activities of Sir Arthur Lane, has the financial support of a number of industrial Americans and Englishmen in London. It is proposed to build a large hospital and general practice for the care of patients but also for clinical teaching and laboratory research work. The patients may be derived from any available source. The attending medical officers will be recruited from among the most members of the London members of the medical profession, while the house officers, interns and graduate students will be made up of Americans. Any one desiring information concerning the opportunities offered in the hospital should

inquire of Mr. Phillip Granklin, No. 1 Wimpole Street, S. 1, London.

Information at present is not at hand concerning the graduate courses in medicine actually open to American medical students in the British medical schools outside of London. It is known, however, that there are such opportunities, particularly at Edinburgh and Liverpool. Information concerning these may be obtained direct from the secretaries of the faculties.

American medical students, of course, will find great variation in the kind and quality of the teaching by the individual instructors in Great Britain. In general, however, they may expect to find the British medical man a thoroughly trained clinician, a sturdy advocate of the unvarnished truth, not taking kindly to unsupported hypotheses, without much reverence for supposedly established medical "authorities," and in criticism likely to hit to the line, let the chips fly where they may. His personal atmosphere contains no "London fog," and is delightfully "bracing."

#### FRANCE

In France, though all medical education is under the general control of the minister of education, each medical school has its own peculiarly individual plan of work. During the war the French medical schools were almost completely disorganized, but they have made rapid progress at reorganization since the armistice. Perhaps the graduate work most readily available to American medical students in France at present is that offered by the Association des Hôpitaux de Paris, of which Dr. A. Bécélère, 122 Rue la Boétie, is president. This organization, which was formed in 1907, contains a large number of the most prominent physicians, surgeons and specialists in Paris, who have associated themselves together for the better utilization for teaching purposes of the clinical material which they control in the various hospitals. The courses offered by the different members of the association are announced annually in a bulletin which may be obtained from the president of the association. Whatever divergence of interests may have previously existed between the teachers of this association and the School of Medicine of the University of Paris has now been corrected, and the two are working together in harmony for the development of graduate medical education.

In cooperation with these French organizations is the American University Union in Paris and the "College of the United States of America." Mr. George H. Nettleton, director of the American University Union, Paris, during the war interested himself not only in the purpose for which the American University Union was primarily formed, that is, "to meet the need of American university and college men and their friends who are in Europe for military or other service in the cause of the Allies," but also in the promotion of a broad basis of better relationships between the educational interests of the United States and France. Through M. André Tardieu, Commissaire Général des Affaires de Guerre Franco-Américaine, and M. Coville, director of higher education, he did much to bring about an understanding of the need of American university students and of what the United States has to offer to French university students. The American University Union has been given a grant of land in Paris on which to place a building for its general headquarters. Funds for the erection of such a building are now being obtained. This building will no doubt become a general meeting point and source of information for university students in France. Graduate medical students desiring information concerning the courses available should correspond directly with the American University Union at 8 Rue de Richelieu, Paris.

"The College of the United States of America," which is incorporated under the laws of the State of West Virginia,

with its principal office at 24 Boulevard des Capuchines, is supported by a number of wealthy Americans resident in Paris. It announces that "the object of this organization is to create in Paris an institution of learning to promote intellectual rapprochement between France and the United States, to constitute a clearing house for the exchange, discussion and dissemination of ideas in all the various branches of education, science and learning, and finally to constitute a sort of administrative home for students in France. It proposes by way of beginning to establish immediately in Paris an office or bureau as the headquarters of the new institution where may be found a complete list of the teaching facilities of France with the names of all the well known savants willing to accept graduate students in their classes, clinics and laboratories."

Outside of Paris, probably the best opportunities for graduate study of medicine in France will be found at the medical schools of Lyons, Lille and Strasbourg. All of these are in the process of reorganization and will soon be able to offer good opportunities for graduate study.

An American graduate medical student who has command of the French language will find study in France most inspiring. The Frenchman has none of the wearying, plodding methods of the Teuton, but he arrives at his conclusions across lots, apparently by intuition, actually by the subconscious guidance of wide clinical experience and a wonderfully clear mental vision, which is a racial characteristic.

French university undergraduate medical teaching in some places has not materially advanced since the days of Louis, Oliver Wendell Holmes' great instructor; but the Frenchman is an intense individualist, and the American medical student who seeks inspiration in almost any clinical specialty or in research by search can find some great teacher in France who is sure to give him a new and original point of view. Mention may be made of the special excellence of French work in the roentgen ray, diseases of the nervous system, skin and venereal diseases, and ophthalmology.

EXPENSES

The expenses of American graduate medical students in England and France, except for the ocean travel, should not be materially greater than in the United States. It is to be hoped that endowed traveling fellowships for study in these countries, paying at least as high a stipend as those provided for graduate medical study in the United States, may soon be greatly increased in number.

THE INSTITUTE OF INTERNATIONAL EDUCATION

This article would be incomplete without mention of the Institute of International Education, 421 117th Street, New York City, under the patronage of the Carnegie Foundation, which is now promoting an extensive plan of exchange of instructors between the United States and allied countries, and which later, I believe, expects to develop a similar plan for the exchange of students.

New Mexico April Examination

Dr. R. E. McBride, secretary of the New Mexico Board of Medical Examiners, reports that eight candidates were licensed by endorsement of their diplomas, and one candidate was licensed by reciprocity at the meeting held April 14-15, 1919. The following colleges were represented:

College	ENDORSEMENT OF DIPLOMA	Year Grad	
Copper Medical College	.....	(1912)	
Atlanta College of Physicians and Surgeons	.....	(1891)	
Chicago Medical College	.....	(1891)	
University of Maryland	.....	(1914)	
Harvard University	.....	(1886)	
University of Michigan Medical School	.....	(1910)	
Marion Sims College of Medicine	.....	(1891)	
Jefferson Medical College	.....	(1908)	
College	LICENSED THROUGH RECIPROcity	Year Grad	Reciprocity with
University Medical College of Kansas City	.....	(1906)	Missouri

Book Notices

THE HEALTH OF THE TEACHER. By William Estabrook Chancellor. Cloth. Price, \$1.25. Pp. 302. Chicago: Forbes & Company, 1919.

According to the notice on the cover, this book discusses every question of hygiene associated with the teaching life "in a clear, practical way by a recognized authority." One of the four reasons given in his preface for the preparation of the book is that "such books as have appeared for adult teachers have not been written by men with medical training and experience, but by teachers of hygiene who have considered the subject pedagogically rather than medically." The author also states that the book is the outgrowth of early studies in physiology and hygiene and medical training followed by thirty years of educational experience.

While not a graduate of a medical school, the author has apparently read widely along medical lines. The book is a queer mixture of practical advice and common sense with sweeping generalizations and unwarranted statements on pathologic and hygienic questions. Evidently the author has been deeply impressed with the present day discussion of the ductless glands and their functions, and is unable to separate the working hypotheses of physiologic research workers from accepted scientific fact. His physiologic views may be gazed by a few extracts. "Meats seem to stimulate all the ductless glands. Conversation, public speech, social relations, serious reading, hard exercise such as horseback riding, tea, coffee, chocolate, the alcoholic stimulants . . . and sugar, one and all stir up these glands, especially the suprarenals." A deficiency of pituitary gland secretion "causes one to develop thin, blue flesh and fat and to be nervously weak, while an excess of its secretion causes thick, red flesh and fat and high passions." The human race is divided into five different "temperaments," namely, ideomotor, sinewy-motor, muscular-motor, vital corpulent and anemic sedentary, and the various mental, moral and physical peculiarities of each class are laid down with a definiteness and minuteness that reminds the reader of a "patent medicine" almanac or a popular handbook of astrology. Dementia is "loss of mind from fret and misunderstanding and brooding." There is no mystery about cancer. It is simply "a natural growth gone to mad excess." Tight collars are "very bad for the thyroid gland." Diabetes is due to a "liver distorted and almost separated into two parts from tight dressing in early youth." The "cases" that are reported as proof of the various theories advanced are most interesting. Patient 3 was "twice turned over as dead, once at 25 years of age and the second time at 40 years." The second collapse was due to the wearing out of the organs of secretion. It was not, however, "due wholly to errors of diet, but in part to a concussion of the spine at the point of exit and entry of the kidney nerves. Massage, pediatrics, and physiological rest have cured the spine at this point." Evidently there are brilliant results to be secured by the use of "pediatrics" in the treatment of a 40 year old patient, even in one whose "kidney nerves" are concussed. Patient 10 "drank enormous amounts of seltzer, so enormous that his skin was bleached and his kidneys bloated by excessive water." The reader is advised to purchase a blood pressure machine which "an teacher can learn to operate." A case of severe and prolonged typhoid fever could not be accounted for until an unaltered soil pipe joint was found "directly below the clothes closet" of the victim.

The fact that this book has been published by a well known firm which is evidently under the impression that it is reliable and authoritative on medical questions only makes it the more dangerous. If all of the advice contained in it were bad, it would defeat its own purpose. As it is, the good and the bad are so thoroughly mixed that it is impossible for the lay reader to separate them. Professor Chantrelle should leave the preparation of books on hygiene to those qualified by training and experience to write them and should at least have his manuscript revised by a competent authority before publication.

## Medicolegal

### Loss of Time Partly Under Influenza Regulation

(Newman v. Garofalo et al. (N. Y.), 176 N. Y. Supp. 573)

The Supreme Court of New York, Appellate Term, First Department, in reversing a judgment that was rendered in favor of the plaintiff says that he was employed under a written agreement to work for the defendants a period of twenty weeks at the rate of \$27 a week. The hours of labor were from 8 in the morning until 6 at night, with time out for lunch and a half holiday on Saturday. In other words, the week consisted of forty-nine hours of labor. Loss of time was deducted on a pro rata basis at so much an hour. In the course of the contract period the city was visited by the epidemic of influenza, and the board of health passed a resolution fixing the hours of employment in the defendants' factory from 9:30 a. m. to 5:30 p. m. One of the defendants testified that he called the workmen together, and that they agreed to change the hours from 9:30 a. m. to 7:30 p. m. He also testified that thereafter they flatly refused to continue work at night, and that the plaintiff regularly went home at 6 o'clock. This continued over a period of four weeks, and the plaintiff's time was deducted accordingly. In this action he sued to recover the amount of payment thus withheld, and was awarded a verdict for the full amount, on the theory that he was ready, willing and able to do the work at the rate of forty-nine hours a week. Yet by his own testimony he voluntarily left the factory an hour and a half before quitting time because, as he said, "there was not enough work for us to do." This evidence demonstrated that he took the hour of departure into his own hands, and that the breach of contract, if any, was of his own part. The judgment in his favor is therefore reversed, with \$30 costs, and the complaint dismissed on the merits.

### Physician Not Liable for Burning of Patient

(Mason v. Graham, 117, 172 N. W. 2, R. 785)

The Supreme Court of Wisconsin, in affirming a judgment of the circuit court, which reversed one for \$300 and costs that was rendered in favor of the plaintiff, says that the main question was whether the evidence was sufficient to support a verdict finding the defendant guilty of negligence. The defendant was called to perform an operation on the plaintiff's child. At the time of the operation a Mrs. Lengua was in the company of the plaintiff, or of his wife, to take care of the patient's children, and at the request of the defendant placed the stove lid in the bed to warm it, which it was assumed would warm Mrs. Malkowki's feet. Mrs. Lengua was a married woman, 25 years of age, had two children, was married to the plaintiff, and was an intelligent, competent person, but had had no experience as a nurse. There was no testimony in the record that the defendant told Mrs. Lengua to place the stove lid on the feet of the patient. Giving the defendant the most favorable construction for the plaintiff, it was held that the defendant told Mrs. Lengua to place the stove lid on or around the patient's feet, not on her feet. Moreover, Mrs. Lengua was as competent to judge whether the stove lid would be enough to burn as was the defendant, and was not considered to be a child. It was held that the defendant was not negligent on Mrs. Lengua's knowledge and belief that the stove lid would be enough to burn the patient. Moreover, the stove was not enough to burn was within the common knowledge of any person of the intelligence and competence of Mrs. Lengua. The negligence, if any, on the part of the defendant was the negligence of Mrs. Lengua, not the negligence of the defendant. It was insisted that Mrs. Lengua was not the defendant, and that the relation of mother and nurse existed, but the evidence did not support that theory. Mrs. Lengua was in the employ of the plaintiff or of his wife. It was further claimed that the defendant was negligent in ordering Mrs. Lengua to place the hot iron in the bed. But the most that could be said in favor of the plaintiff, through the evidence was that the

defendant told the person in charge of the patient and her children to keep her warm by placing warm or hot stove lids in bed with her, and, construing this evidence in the most favorable light for the plaintiff, it could not mean that the iron was to be placed so as to burn the patient. Clearly the defendant could not anticipate that anything of the sort would be done; hence one of the essential elements of proximate cause, namely, reasonable anticipation, was wanting in the proof. The defendant could not have anticipated that an ordinarily prudent and intelligent person would so place the iron as to cause the injury complained of; and, when there is no evidence to support the essential element of reasonable anticipation, proof is not sufficient to make a case. In order to charge the defendant with damages in this case, it must appear from the evidence that the defendant ought to have anticipated that the persons in charge of the patient would place the iron in the bed at such a heat and temperature and in such a position against the body of the patient as to burn her. On this point this court is of the opinion that there was no evidence sufficient to support a verdict for the plaintiff, and hence that the defendant was not guilty of negligence.

### Information as to Attendance and from Necropsy Not Privileged

(Chadock v. Beneficial Life Insurance Co. (Utah), 181 Pac. R. 448)

The Supreme Court of Utah says that in this action on a policy of life insurance, where the defendant alleged that the insured had in his application for insurance falsely answered certain questions asked him by the medical examiner, a physician called as a witness was asked as to whether he had been consulted by the insured prior to his application for insurance, and he answered, "Yes." He was then asked if he had been consulted on more than one occasion and, over the objection of the plaintiff, was permitted to answer that he had. The ground of the objection was that the witness was prohibited by statute from answering. The Utah statute prohibits physicians, without the consent of their patients, from testifying in a civil action as to any information acquired in attending a patient which was necessary to enable the physician to prescribe or act for the patient. The question asked did not call for the disclosure of such information, but was limited entirely to the fact as to whether the witness had been consulted by the insured. It was not within the statute, and under the issues the testimony was properly admitted.

The same witness later in his examination, against the objection of the plaintiff, was permitted to testify that he performed a necropsy on the body of the insured a day or two after his death, and found that he had died of tuberculosis of the spine. He testified also as an expert, in substance, that the disease and conditions were such that the insured would know he was not in good health for two and a half months before his death. As the policy was applied for about the last of May and the insured died on the 13th of August next following, this testimony was elicited manifestly for the purpose of showing that the insured must have known that he was afflicted with disease when he applied for insurance. The statute above referred to was invoked and relied on in support of this objection. The grounds of the objection were untenable from every point of view. The privilege claimed does not exist at common law. It was conferred by statute. In order to be available the claim of privilege must be brought within the clear meaning and spirit of the statute. Just how information acquired by means of a necropsy can be said to have been acquired to enable the physician to prescribe or act for the patient presents to the mind of the court an insoluble question. When the patient is dead he is no longer a patient. The only functionaries that can thereafter be said to act for him are the undertaker and the gravedigger, and as to them the statute is silent. If it had been necessary for the witness to supplement the information acquired at the necropsy by information he acquired during his attendance on the patient, in order to determine the cause of his death, a different question would be presented.

## Current Medical Literature

### AMERICAN

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Anatomy, Philadelphia

Nov. 15, 1919, 26, No. 2

- Hypophysis Cerebri of California Ground Squirrel, *Citellus Beecheyi* (Richardson). H. J. Cooper, Palo Alto, Calif., p. 185.  
Early Histogenesis of Blood in *Bufo Halophilophilus* Baird and Girard. R. D. Lillie, San Francisco, p. 209.  
Quantitative Studies on Growth of Skeleton of Albino Rat. H. W. Donaldson, Philadelphia, p. 237.

#### American Review of Tuberculosis, Baltimore

November, 1919, 3, No. 9

- Larger Field in Tuberculosis. A. K. Krause, p. 513.  
Influenza and Tuberculosis. M. Fishberg, New York, p. 532.  
Classification of Laryngeal Tuberculosis. J. Dworzetzky, Liberty, N. Y., p. 544.  
Continuous Injection Method in the Treatment of Experimental Tuberculosis. J. H. Lewis and L. M. Dewitt, Chicago, p. 548.  
Rate of Bacteria Introduced into the Upper Air Passages. A. L. Bloomfield, Baltimore, p. 553.

**Influenza and Tuberculosis.**—Fishberg believes that influenza has no etiologic relation to tuberculosis and cannot be considered as a reactivator of a dormant lesion. Tuberculosis patients are not unusually susceptible to influenza, nor is the latter disease more severe in them. The pulmonary sequelae of influenza are quite generally nontuberculous and do not require tuberculosis treatment.

**Treating Experimental Tuberculosis by Continuous Injection Method.**—Lewis and Dewitt applied the Woodyatt continuous injection method to the treatment of experimental tuberculosis. Various concentrations of methylene blue, 1 between 1:500 and 1:3,000, were used. On rabbits the local toxic action of the drug was disastrous, while dogs treated for six hours with 0.2 c.c. per kg. body weight per minute of a 1:500 solution usually died in twenty-four hours. The blood of these dogs drawn immediately after the injection inhibited on glycerin agar the growth of the same strain of bovine tubercle bacilli used in the experiments. The authors believe that the continuous injection method is deserving of further consideration and experimentation.

#### Archives of Internal Medicine, Chicago

Nov. 15, 1919, 21, No. 5

- \*Factors Determining Relative Intensity of Heart Sounds in Different Auscultation Areas. C. J. Wiggers, Cleveland, p. 471.  
Prolongation of "ST" Interval of Ventricular Complex as Shown by Electrocardiograph. J. Meakins, Montreal, Canada, p. 483.  
\*Progressive Lenticular Degeneration Associated with Cirrhosis of Liver (Wilson's Disease). C. P. Howard and C. E. Royce, Iowa City, p. 497.  
\*Energy Index (S. D. R. Index) of Circulatory System. J. H. Barach, Pittsburgh, p. 509.  
\*Meningococcus Meningitis at Camp Lee. R. L. Haden, Detroit, p. 514.  
\*Cholesterol Content of Blood in Various Hepatic Conditions. M. A. Rothschild and J. Felen, New York, p. 520.  
\*Three Cases of "Renal Glycosuria." E. M. Allen, M. B. Wasserman and I. M. Smith, Lakewood, N. J., p. 523.  
\*Type I Pneumonia at Camp Upton, S. Ram Therapy. C. F. Tenney, Toledo, and W. T. Riverburgh, Highland, N. Y., p. 535.  
\*Determination of Hemoglobin by Acrid Hematin Method. L. B. Roman, New York, p. 534.  
\*Reserve Concentration Power for Circ Acid in Early Chronic Intoxication (Nephritis). R. Upham and H. A. Hingley, Brooklyn, p. 537.  
\*Renographic Studies in Gout. C. W. McClure and F. D. M. Carty, Boston, p. 631.

**Intensity of Heart Sounds.** In this study the heart sounds over the apex region, aortic and pulmonary areas were recorded simultaneously or in pairs by the direct sound recording capsules described by Dean and Wiggers. It was found that the intensity of the first sound is not related to the volume of blood discharged by the ventricles, e.g., during slowing of the heart, when the systolic discharge is increased, the first sound is reduced in intensity. The intensity of the first sound over all regions varied directly as the systolic tension developed within the ventricles and with the tension developed during the isometric period of systole. The intensity of the second sound increases or decreases

the pressure (aortic or pulmonary) at the beginning of diastole. When the pressures at the beginning and end of systole increase, particularly in one circuit and relatively little in the other, an accentuation occurs, predominantly in the sounds referred to the circuit in which the changes predominate. In circulatory conditions where the pressures at the beginning and end of systole vary in opposite directions in the greater and lesser circuits, the intensity of the pulmonary and aortic sounds changes in opposite directions. Direct experimental evidence supplements the anatomic basis for believing that sounds heard over the second left intercostal space are transmitted from the right heart and lesser circuit, while those heard over the right second intercostal space and apex have their origin in the left heart and greater circulation. When reserve and caution are exercised, a change in the intensity of the first sound over any area is good evidence of a change in tension developed during systole of the ventricles, while a change in the intensity of the second sound over the aortic and pulmonary areas may safely be used as an index of a change of pressure at the beginning of diastole in the greater and lesser circuits, respectively.

**Wilson's Disease.** The anatomic diagnosis in the case cited by Howard and Royce was: cystic degeneration of the basal ganglia; cirrhosis of the liver, colloid cystic degeneration of the parathyroid glands; bacteremia; uniform congestion of the lungs. The histologic diagnosis was: progressive degeneration of the neuron and glial elements of the basal ganglia, most extensive in the lenticular nucleus but involving the optic thalamus, caudate nucleus, internal capsule and red nucleus and, to a slight extent, the white matter just beneath the gray matter of the cortex; chronic interstitial hepatitis; lymphoid hyperplasia manifest in spleen and retroperitoneal lymph nodes; acute congestion of spleen and kidneys; colloid cystic degeneration of the parathyroid glands. A later more careful examination of the brain, after it had been hardened in liquor formaldehydi, disclosed the changes in the lenticular nuclei characteristic of Wilson's disease, a bilateral symmetrical cavitation and atrophy. The cavitation is not sharply confined to the lenticular nucleus itself, but involves, although to a lesser degree, the internal capsule and optic thalamus on both sides. There is a slight grayish discoloration of the globus pallidus.

**Energy Index.**—The S. D. R. index as a guide to abnormalities in function of the cardiovascular system in a series of 26,396 cases examined by Barach was correct in 99.95 per cent. In cases referred for special cardiovascular examination, i. e., in the clinically doubtful case, the S. D. R. index proved a correct guide in 78 per cent. Of the 22 per cent, in which the index failed, more than three fourths of the cases were tachycardias. The index does not indicate "heart disease" or "decompensation" or "physical fitness." It designates the amount of effort which the circulatory system is putting forth at the time. A high index means increased cardiovascular effort, either the action of the heart and blood vessels is accelerated because of inability to accomplish their work at a normal rate of activity, or they are fully capable of doing their work, but the resistance to their functioning is great. Either condition is pathologic, and the variation of the index from the normal calls attention to this. A low index means either that the circulation is accomplished with little effort or an inability to expend the necessary effort. Minor changes in the circulation, such as are produced by the slightest alteration in the bodily functions, the effect of drugs, etc., may be detected by the S. D. R. index.

**Meningococcus Meningitis.** Of thirty one cases of meningococcus meningitis studied by Haden, twenty-one, or 67.7 per cent, showed unmistakable evidence of a general infection before there was a localization in the meninges. The mortality of the entire series was 22.6 per cent. During the period of intrathecal treatment alone and combined intrathecal and intravenous treatment the mortality was 37.5 per cent., during the period in which intrathecal and intravenous therapy was employed, the mortality was 6.6 per cent. One case is reported in which an acute localized infection in the meninges recovered only after intravenous therapy alone.

**Cholesterol in Blood in Jaundice.**—In cases of obstructive icterus due to cholelithiasis, the authors have almost invariably encountered a hypercholesterinemia of a rather severe grade. The degree of jaundice bore a definite relation to the amount of cholesterol in the blood, indicating that this hypercholesterinemia is due to the obstruction of the bile duct. However, an occasional exception was encountered. In other conditions associated with icterus, such as cirrhosis of the liver, acute yellow atrophy, pernicious vomiting of pregnancy, etc., the cholesterol bears no relation to the intensity of the icterus. These facts suggest that in severe disturbances of hepatic function, there is a selective retention of the pigments, while the cholesterol is not retained. In one case the bile was obtained at necropsy, and showed a rather low amount of cholesterol, 0.12 per cent., against a normal content of 0.8 per cent. In other conditions associated with icterus, such as primary or secondary carcinoma of the liver, or biliary abscesses, as seen in polyplebitis, the cholesterol content of the blood is not proportionate to the intensity of the jaundice.

**Renal Glycosuria.**—The observation of three cases of renal glycosuria as compared with thirty seven cases of true diabetes, and the increasing number of reports in the literature as blood sugar analyses are more employed, the authors believe indicates that "renal" glycosuria is not as rare as was once supposed, and probably is much commoner than other glycosurias, such as pentosuria or levulosuria. The etiology was unknown in two cases. In one case severe trauma was either the primary or, at least, the exciting cause. There was no indication of nephritis or renal abnormality in any one of the three cases, except a slightly subnormal phenol-tolerance (bilateral) excretion. The excreted substance in one of the three cases seemed to be an unknown sugar, distinguished from glucose by the absence or incompleteness of fermentation. This may be the most important observation in the present study and suggests the desirability of closer examination of the fresh urine in such cases for accurate identification of the sugar.

**Serotherapy of Pneumonia.**—In sixty-one cases Tenney and Schenck injected 100 c.c. of autogenous serum intravenously at eight-hour intervals, day and night, until the normal temperature registered 100 F. or lower, or evidence of consolidation or impending death made it advisable to stop the treatment. Thirty patients recovered by crisis, twenty-two by lysis and nine died, a mortality of 14.7 per cent.

**Hemoglobin Determination.**—A rapid, accurate determination of hemoglobin is made by Berman with the acid hematin method. The blood is obtained with a carefully calibrated pipette, preferably when the patient has not yet had the first meal of the day. It is diluted with tenth normal hydrochloric acid and a reading is made at the end of one minute. The dilution to be calibrated tube is carefully boiled for one minute for one minute. After permitting it to cool for one minute it is again diluted with tenth normal hydrochloric acid and a final reading is made. A standard solution, standardized with a known normal blood should be used, and be made freshly daily to avoid error due to oxidation.

**Roentgenograms of Gout.**—A detailed report of the roentgenograms in twenty cases of gout is made by McClure and McGee. All the patients had tophi from which sodium urate could be extracted. One case which was clinically thought to be another type of arthritis may or may not be gout. The roentgenograms of the tophi are in the roentgenogram. In the tophi, roentgenographic findings in even the most characteristic form of gouty arthritis may be regarded as merely an unusual variety that these urates cannot be considered as more than a by-product of the disease of gout. The focal areas of decreased density in the roentgenogram which demonstrate urate crystals to be due to tophi, according to the authors, are probably very often merely focal areas of absorption of bone mass. These focal areas are found in from 10 to 12 per cent. of the monoarticular arthritides and are therefore not diagnostic of gout. Their absence is of more

diagnostic value than their presence, since they are almost invariably found in some of the bones of the wrists, hands, ankles or feet in true gout.

## Boston Medical and Surgical Journal

Dec. 4, 1919, 184, No. 23

**Adequate Reduction and Care in Colles' Fracture.**—New Methods. F. J. Cotton, Boston, p. 671.

**Pathology of Lousiance.**—A. Myerson. Boston—p. 659.

**Low Arterial Tension.**—G. A. Dearborn, Cambridge, Mass.—p. 659.

**Scarlet Fever Wave in 1919.**—S. H. Osborn, Boston, p. 663.

**Clinical Picture of Pneumonia in a Boy Aged Two Years Who Subsequently Passed Three Hundred and Seventy Round Worms.**—W. W. McKibben, Worcester—p. 665.

**Adequate Reduction and Care in Colles' Fracture.**—Cotton's method consists in, first, traction and rocking, with the hand a little extended (backward) so as to free the displaced radial fragment and the dislocated ulna; then, with the thumb under the ulna, making it a fixed fulcrum, drag the hand down into flexion and pronation, keeping up traction combined with this flexion and rotation. Flexion is best held in plaster, preferably applied as strip-splints of eight to ten layers of plaster of Paris, bandage, one on the back, from elbow to finger knuckles, one in front, from upper forearm to palm. These are caught with a few turns of plaster-of-Paris bandage. Splinting of three weeks' duration is enough and, from the time of reduction, splints should never immobilize the fingers.

**Scarlet Fever Wave in 1919.**—Osborn urges that quarantine of the scarlet fever patient should be carried out for twenty-eight days from the onset of the disease and thereafter until infective discharges from the nose, throat, ear and abscesses have ceased.

## Florida Medical Association Journal, St. Augustine and Jacksonville

November, 1919, 6, No. 5

**Experiences of an Orthopedic Surgeon at a Port of Embarcation.**—J. W. Alsbrook, Plant City—p. 94.

## Medical Record, New York

Oct. 18, 1919, 96, No. 16

**Influenza, with Special Reference to the Pandemic of 1918.**—J. R. Hurley, U. S. P. H. Service—p. 631.

**Treatment of Peripheral Nerve Injuries.**—W. W. Babcock and I. J. Spear, U. S. Army—p. 664.

**Repudiation of Materia Medica and Therapeutics in Modern Medical Teaching.**—S. L. Dawes, New York—p. 667.

**Influenza.**—A review of the literature on influenza leads Hurler to the belief that mixed bacterial vaccines, including streptococci and pneumococci isolated from fresh cases, are useful and worthy of trial in the prophylaxis of the disease, and that the results derived from wearing gauze face masks, particularly those made of three-ply buttercloth, are such as to justify their use as a preventive measure not only by those in direct contact with the sick, but by all persons, mandatorily, during the presence of an influenza epidemic. However, the gauze face mask should not be depended on as a sole protection, but as an adjuvant to all other measures of prophylaxis.

**Repudiation of Materia Medica and Therapeutics in Modern Medical Teaching.**—The practical abandonment of the teaching of materia medica and therapeutics in the medical schools is regarded by Dawes as being a grave and serious defect in modern medical educational methods. He says that the pendulum has swung far, indeed, from the day when a knowledge of drugs and the treatment of symptoms occupied first place in the curriculum, from the period of polypharmacy and "shotgun prescriptions," so far that it may soon commence a backward movement to stop ultimately in a middle zone.

## New York Medical Journal

Oct. 25, 1919, 110, No. 17

**Some Theories of Syphilis.**—J. Wittenberg, Brooklyn—p. 669.

**Health Classes for Children.**—I. S. Wile, New York—p. 675.

**Surgical Shock, Its Relation to Anesthesia.**—A. H. Miller, Providence—p. 681.

\*A Home for Aged and Infirm Physicians. W. Freudenthal, New York.—p. 683.  
Rupture of Membranes Fifty Days Before Labor. H. R. Coston, Birmingham, Ala.—p. 683.

**Home for Destitute Physicians.**—Freudenthal is convinced that destitution among physicians is rather common, and he would have a home for all such unfortunates. A society with that end in view has already been formed, and will soon be incorporated under the laws of New York state. It is Freudenthal's idea to raise a fund of \$100,000 and purchase a big tract of land somewhere. The physicians' home should be opened to three classes of physicians (and their wives): (1) those who are able and willing to pay all that is necessary in exchange for congenial surroundings; (2) those who have only a limited amount of money; (3) those who have no means whatsoever.

Nov. 8, 1919, 110, No. 19

Potential and Acquired Static Flat Foot. E. H. Ochsner, Chicago.—p. 745.  
Primary Causes and Hygienic Treatment of Constipation. D. H. Murray, Syracuse, N. Y.—p. 751.  
Elastic Closure and Systematic Paraffin Gravity Drainage for Clean and Infected Wounds. A. L. Sorens, New York.—p. 753.  
Spectroscopic Alterations in Hemoglobin from Inhalation of Poison Gas. A. Dare, Philadelphia.—p. 755.  
Some Phases of Autocriticism. C. P. Oberndorf, New York.—p. 756.  
Drug Addiction and Crime. J. A. Hamilton, New York.—p. 760.  
Impacted Lower Third Molars. A. M. Nodine, New York.—p. 762.  
Cases of Brain Tumor. E. D. Friedman, New York.—p. 765.  
Early Syphilitic Phlebitis. C. G. Cumston, Geneva, Switzerland.—p. 766.

**Cases of Brain Tumor.** In one of Friedman's cases the necropsy disclosed miliary tuberculosis and a large solitary tubercle in the pons. In the second case a perithecoma was found in the left parietal region. The hypophysis was enlarged to twice its normal size, due to diffuse adenomatous hypertrophy.

Nov. 15, 1919, 110, No. 20

Significance of Vascular Changes in So-called Pandemic Influenza. D. Symmers, New York.—p. 789.  
Studies in Paraphimosis. A. A. Brill, New York.—p. 792.  
Large Spinoid Cell Sarcoma of Rectum. J. F. Saphir, New York.—p. 798.  
Group Practice of Medicine. M. Schulman, New York.—p. 800.  
Pathology and Bacteriology of Bronchopneumonia in France. M. L. Morris, New York.—p. 802.  
Orbital Stricture. C. O. Files, Portland, Me.—p. 804.  
Study of Degeneracy as Seen Among Morphine Addicts. C. B. Pearson, Catonsville, Md.—p. 805.  
Study of Necropsy Records. C. B. S. Gibbs, Syracuse.—p. 808.  
Splenohectic Theory of Paroxysmal Hemoglobinuria. C. G. Cumston, Geneva, Switzerland.—p. 812.

**Pathology and Bacteriology of Bronchopneumonia.**—The observations reported on by Morris were made in 175 cases of bronchopneumonia coming to necropsy. The right upper lobe was involved 150 times, the right middle lobe, 130 times; the right lower lobe, 105 times; the left upper lobe, 157 times; the left lower lobe, 166 times. Jaundice was present in 49 cases; acute splenic tumor, in 25 cases; empyema in 9 cases; pericarditis, in 7 cases; acute toxic gastritis, in 93 cases; acute endocarditis, in 3 cases. The most striking features were: involvement in a majority of the cases of 4 of the lobes, with the lower lobes involved most frequently, and the right middle lobe the least frequently; absence of splenic tumor; presence of acute toxic gastritis; during life the absence of hyperleucocytosis and the presence of a high polymorphonuclear differential count. The blood culture was negative during life.

### Oklahoma State Medical Ass'n Journal, Muskogee

November, 1919, 12, No. 11

\*Pneumonia. W. W. Rucks, Oklahoma City.—p. 91.  
Surgical Complications of Pyococcus with Special Reference to Empyema. A. T. Bersh, Oklahoma City.—p. 97.  
\*Etiology and Pathology of Spanish Influenza. L. A. Turley, Norman.—p. 311.  
Some Sequels of Epidemic Influenza. A. B. Leeds, Muskogee.—p. 318.  
Prevention of Influenza and Allied Diseases. W. F. Dugas, Tulsa.—p. 321.  
Two Cases of Traumatic Asphyxia. F. S. Clinton, Tulsa.—p. 323.

**Glucose in Pneumonia.**—Rucks says that at Fort Sam Houston Base Hospital they gave 250 c.c. of a 10 per cent solution of glucose intravenously in the pneumonia case

with good results. The acidosis suggested its use and the results were that, after its administration, several hours of quiet rest ensued, the cyanosis was diminished, the evidence of edema lessened, the heart strengthened and elimination increased. To avoid the chill that sometimes followed they almost habitually added one-eighth grain morphin to the solution; also if digitalis was indicated it was added.

**Etiology and Pathology of Spanish Influenza.**—On the basis of his postmortem observations Turley feels justified in holding the belief that there is a separate disease entity commonly called the Spanish influenza, but which is more properly a hemorrhagic pulmonitis or a pulmonary phlebitis. He thinks the infective etiologic factor is most probably a very minute ultramicroscopic organism, possibly *Streptococcus pandemicus* or the filtrable micrococcus of the English investigators. The characteristic lesions are in the vascular system of the lungs rather than in the parenchyma of those organs, and the picture seen at necropsy can best be explained on this basis.

### South Carolina Medical Ass'n Journal, Greenville

November, 1919, 45, No. 11

Examination of Heart in Health and Disease. J. B. Townsend, Anderson.—p. 614.  
Treatment of Hypertrophy of Prostate in Three Stages for Borderline Case. C. A. Mobley, Orangeburg.—p. 617.  
Diarrhea Originating in Faulty Gastric Functioning. G. M. N. Jr., Atlanta.—p. 620.

### Southern Medical Journal, Birmingham, Ala.

November, 1919, 12, No. 11

An Alphabet of Abdominal Diagnosis. S. R. Roberts, Atlanta.—p. 655.  
\*Relation of Endothelium to Purpuras, Angioneurotic Edemas and Allied Disturbances. E. C. Thrash, Atlanta.—p. 660.  
History Taking. G. Wilson, Baltimore.—p. 662.  
Present Status of Wassermann Reaction. L. C. Todd, Charlotte, N. C.—p. 667.  
Gastric Intestinal Disturbances Seen in Western Front. F. R. Gordon, McComb, Miss.—p. 670.  
Administrative and Educational Phases of Control of Venereal Diseases. C. A. Aleck, Jackson, Miss.—p. 674.  
Diagnosis of Tuberculosis of Kidney. D. N. Eskinatch, Chicago.—p. 679.  
Treatment of Ureteral and Renal Stone. O. S. McGee, Memphis.—p. 686.  
Anomaly of Kidney. B. N. Dunavant, Memphis.—p. 689.  
Case of Uterus Duplex with Hematocystus in an Arteric Lateral Vagina. R. A. Bartholomew, Atlanta.—p. 691.  
Early Diagnosis of Biliary Tract Infection. E. Schisler, St. Louis.—p. 694.  
Changes in Surgical Treatment of Pleural Empyema Following Recent Epidemic of Pneumonia. A. W. Rallo, Gadsden, Ala.—p. 697.  
Treatment of Gunshot Fractures of Extremities. R. F. Mason, Memphis.—p. 700.  
Pre-Operative and Postoperative Treatment. R. M. Harbin, Ross, Ga.—p. 702.  
Suprapubic Prostatectomy. J. A. Graham, Chicago.—p. 707.

**Vessel Endothelium and Hemorrhage.**—Thrash believes that so-called idiopathic capillary hemorrhages, purpura, angioneurotic edemas, petechial hemorrhages, all result from the changing from flattened tube-forming structures to mitotic globular cells for the purpose of defending the economy against an invading enemy in the form of chemical, bacterial, animal or endogenous poisons, and (b) this way disintegrating the capillaries, arterioles and venules, leaving them in such a state that through their walls serum may transude to produce edema, red cells may pass out by diaporesis to produce purpura and from their ends blood may flow to produce frank hemorrhage.

**Anomaly of Kidney.**—Dunavant reports a case of complete fusion of the right and left kidney, found in a patient operated on for fibroids of the uterus. On a level with, and to the right of the promontory of the sacrum, was a rounded mass about 3 inches in diameter, retroperitoneal and below the bifurcation of the aorta, which was displaced upward. Examination of the right and left kidney less a revealed an abnormality of the kidney from its normal bed on each side. The peritoneum was incised over the kidney mass revealing a triangular renal fatty capsule and characteristic color and appearance of kidney substance. No further investigation of the kidney was made as there was nothing in the history or appearance to indicate the presence of a pathological condition in it.

Texas State Journal of Medicine, Fort Worth

November, 1919, 15, No. 1

- Annual Cases of Pharyngeal Venereal Diseases. I. S. P. H. S. R. Blue, Wash. D. C., p. 147.
- The Ft. Worth Venereal Clinic. B. W. Wright, Ft. Worth, p. 152.
- Venereal Disease: What Have We Accomplished? S. J. Wilson, Fort Worth, p. 161.
- Venereal Diseases and the Public Health. C. H. Safford, Fort Worth, p. 166.
- Venereal Disease Control. H. C. Ford, Waco, Texas, p. 169.
- Treatment of Gonorrhoea in Women. E. W. Turner, Houston, p. 173.

**Treatment of Gonorrhoea in Women.**—Turner prescribes the same treatment and office treatment in these cases. The former consists of douching and tamponing. At first he prescribes potassium bichromate, two daily (teaspoonful of powder dissolved in 2 quarts of hot water, to be used only in the recumbent position and with care). This is 5 per cent. protargol vaginal cone is so inserted as to rest against a tampon previously inserted. A 5 to 10 per cent. argyrol ointment is applied to the vulva, covering the urethra, labia and parts. A well fitting soft pad is applied and worn constantly. The office treatment is applied three times daily. The vulva is carefully washed with mercuric chlorid solution, the patient is cauterized, the cauterizer heated and at least 4 drams of solution (a 25 per cent. argyrol or 1 per cent. protargol) is instilled into the bladder. A vaginal speculum is inserted and if the cervix is not covered a large woolen tampon, dipped in glycerin and saturated with argyrol crystals, is applied directly to the cervix. If the cervix is involved, a large cotton applicator is applied to the cervix to remove the mucous sheets about the part. If the sheets do not readily come away a soda solution is used to remove it. Tincture of iodo is applied cautiously to the external os and a small amount inserted in the orifice with a small applicator. The glycerin and argyrol tampon is inserted directly to the cervix. Argyrol crystals are applied to the external wall external to the tampon, the parts are dressed with prepared ointment and the vulva pad is applied.

The writer of this report, gonorrhoea Turner orders the following:

	Gr.	or	Cc.
1. Potassium bichromate	16		3 iv
2. Potassium permanganate	16		3 iv
3. Glycerin	16		3 iv
4. Mercuric chlorid	16		3 iv

Use 2 teaspoonful to each quart of water as a douche. This is repeated every day, with increasing strength of solution, as a stimulating douche (from 1:1,000 to 1:200). Tincture of Iod. 1 dram to the quart of water, is used externally with a tampon to relieve soreness is required. The external os is cauterized in strength until they reach 10 per cent. strength.

Virginia Medical Monthly, Richmond

December, 1919, 16, No. 1

- Prevalence of Pharyngeal Venereal Disease. R. O. Wilson, Richmond, p. 147.
- The Ft. Worth Venereal Clinic. B. W. Wright, Ft. Worth, p. 152.
- Venereal Disease: What Have We Accomplished? S. J. Wilson, Fort Worth, p. 161.
- Venereal Diseases and the Public Health. C. H. Safford, Fort Worth, p. 166.
- Venereal Disease Control. H. C. Ford, Waco, Texas, p. 169.
- Treatment of Gonorrhoea in Women. E. W. Turner, Houston, p. 173.

Wisconsin Medical Journal, Milwaukee

December, 1919, 18, No. 6

- Prevalence of Pharyngeal Venereal Disease. R. O. Wilson, Richmond, p. 147.
- The Ft. Worth Venereal Clinic. B. W. Wright, Ft. Worth, p. 152.
- Venereal Disease: What Have We Accomplished? S. J. Wilson, Fort Worth, p. 161.
- Venereal Diseases and the Public Health. C. H. Safford, Fort Worth, p. 166.
- Venereal Disease Control. H. C. Ford, Waco, Texas, p. 169.
- Treatment of Gonorrhoea in Women. E. W. Turner, Houston, p. 173.

**Experimental Treatment of Fractures.** The subject of this experimental work was to study the operative treatment of fractures by the use of steel plates. There were three types of experiments done on dogs, using the late plates and their experiments in which small pieces of ivory, cow's bone and walrus ivory were used. Briefly, the results have

shown that if operative treatment for malunion of a fracture is required, bone grafting, though more difficult, usually gives better end results than the use of a steel plate.

FOREIGN

Titles marked with an asterisk (\*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

July-September, 1919, 16, Nos. 187-189

- A Visit to Germany. J. Addams and A. Hamilton, p. 129.
- \*Etiology, Prevention and Nonoperative Treatment of Adenoids. H. Campbell, p. 140.
- \*Alveolar Sarcoma with Metastases in Skull. E. Cautley, p. 144.
- Case of Chorea Complicated by Gangrene of Fingers. H. H. Cholak, p. 148.
- \*Case of Multiple Epulides. W. W. James, p. 151.

**Dietetic Treatment of Adenoids.**—Campbell claims that faulty intestinal digestion causes adenoids. The chief fault lies with cereal foods, which are consumed in a spongy, pappy, and pulraceous form. We eat too much spongy (non-crusty) bread and pulraceous pudding, and too little raw vegetable food in the shape of salads and fruit. As a result of this kind of diet the maxillary apparatus (including the nasal passages, nasopharynx and salivary glands) does not develop properly; the local flow of blood and lymph is not adequately stimulated; starchy foods do not undergo adequate salivary digestion; and an excess of wholly non-digested starch (as well as of sugar) passes into the bowel, there to give rise to indigestion and putrefaction (as shown by the malodorous motions). Then follow toxemia, malnutrition, diminished resistance to infection catarrh, and adenoids.

**Abdominal Sarcoma with Metastases in Skull.**—In Cautley's case the primary tumor was situated in the lumbar region. Between the two kidneys and in the middle line there was a bilateral growth as big as a small orange, firmly adherent to the periosteum of the spine, and compressing the kidneys, more especially the left one. The growth extended along the spinal column downward and branched off into each iliac fossa, where large nodules were formed in connection with the periosteum. The inguinal glands were enlarged. In color the growth was dirty blue, and in consistency spongy in parts. Microscopically it proved an alveolar sarcoma.

**Case of Multiple Epulides.**—James' patient, a girl, aged 11 years, suffered from the growth of a fibrous epulis associated with each tooth of the temporary and permanent series which had erupted. Removal of the growth alone was followed by recurrence, which does not take place when the teeth are also removed. Up to the present all the temporary and eight of the permanent teeth have been extracted.

British Medical Journal, London

Nov. 22, 1919, 2, No. 3073

- \*Normal and Morbid Conditions of Testes from Birth to Old Age in One Hundred Asylum and Hospital Cases. F. W. Mott, p. 655. To be cont'd.
- Cancer. J. R. Morrison, p. 659.
- \*Enlargement of Thyroid in Malaria. J. B. Hume, p. 661.
- Studies on Acute Nephritis. K. Peiren, p. 663.
- Treatment of Tuberculous Cripple at Hospital for Children, Leasow. J. H. Morrison, p. 664.
- Superinjection of a Retir grade on a Direct Intussusception in the Aged Two Years. J. P. Buckley, p. 665.
- Kala-Azar in Mesopotamia and Its Incubation Period. C. A. Srawson, p. 667.

**Pathologic Changes in Testes in Mental Diseases.**—Macroscopically, sections of fresh or hardened testes revealed pathologic changes in a majority of the asylum cases studied by Mott; the converse was noticeable in the adult hospital cases. In the asylum cases the most marked deviation from the normal condition was found in two groups of cases, namely, (1) general paralysis, (2) dementia praecox. There was no correlation between the macroscopic cortical changes in the brain in general paralysis and the morbid changes in the testes. As a general rule the degree of morbid macro-

scopic change of the testes in dementia praecox conformed to the duration of the mental disease and the clinical signs and symptoms of the mental decadence rather than to any obvious macroscopic changes or defects in the brain. In general paralysis, the dementia corresponds in great measure to the degree of cortical destruction; nevertheless, there is no correlation in this disease between the brain atrophy and the testicular atrophy. With the exception of cases of senile dementia and congenital imbecility with epilepsy, the testes in other fatal asylum cases did not, as a rule, show any marked departure from the normal, for example, cases of epileptic insanity, Korsakoff psychosis, paranoia and manic depressive insanity.

**Enlargement of Thyroid in Malaria.**—Although the frequency of occurrence of marked thyroid enlargement noted by Hume is probably not greater than from 5 to 10 per cent.—the cases with some very slight temporary enlargement immediately after an attack of malaria might probably represent an additional 10 per cent.—he is inclined to believe that the changes in the ductless glands in malaria may be far more marked than present knowledge shows. These changes may be due to sporulation of the parasites in the capillaries of the gland, analogous to the condition in cerebral malaria. This would cut off the supply of iodothyronin from the blood stream, and upset "thyroid equilibrium." To regain this, compensatory hypertrophy takes place, and equilibrium is regained in the course of time. The remaining thyroid swelling becomes purely a hyperplasia; or there is a compensatory hypertrophy of the other ductless glands. On the other hand, enlargement of the thyroid may be compensatory for the exhaustion of other parts of the endocrine system. Degenerative changes have been described in the suprarenals in malaria; and disturbance of these glands may be the cause of the "algid type" of malaria, which, clinically, injections of epinephrin are most valuable in combating. The low blood pressure, and the subnormal temperature, which often lasts for days after an attack, both indicate a condition of hypo-adrenia. The loss of sexual power frequently observed after attacks of both treated and untreated malaria is likely also to be due to the effect of the disease on the testes.

**Lancet, London**

Nov. 22, 1919, 2, No. 5021

- Voluntary Muscular Movements in Cases of Nerve Injuries. F. W. Jones.—p. 907.
- Methods of Choice in Immunity. A. G. Shera.—p. 909.
- Epileptiform Convulsions. R. G. Gordon.—p. 914.
- Treatment of Lupus Vulgaris. R. W. MacKenna.—p. 917.
- Causes of Disease and Death in the Antenatal Period. G. Davis.—p. 919.
- Case of Wernig-Hoffmann Type of Progressive Spinal Muscular Atrophy. E. A. Barton, and H. Ingley.—p. 923.
- Case of Extreme Esophagectasia. H. B. Shaw.—p. 923.

**Methods of Choice in Immunity.** In this paper Shera discusses this axiom: Against an exotoxin a serum should be employed; against an endotoxin a vaccine should be used. Against a combination of both exotoxin and endotoxin both a serum and a vaccine should be used, as bearing on the treatment of streptococcus infections.

**Treatment of Lupus Vulgaris.**—In McKenna's opinion the method *par excellence* for the treatment of lupus affecting the mucous membranes, either of the nose or mouth, is cauterization with the electrocautery. To use this method effectively, it is advisable to make a series of punctures all over the affected mucous membrane at short distances from one another.

**Wernig-Hoffmann Paralysis.**—The case cited by Barton and Ingley differs from those previously recorded in that nystagmus was a pronounced symptom and was probably due to the morbid condition of the oculomotor nucleus; also there was profuse sweating almost from the first. A complete postmortem report is given.

**Case of Extreme Esophagectasia.**—Shaw claims that on the basis of five symptoms a diagnosis can be made in this condition without the aid of the roentgen ray: (1) The taking of solid food causes pain at the epigastrium; (2) this pain is accompanied by what the patient calls vomiting, but is

really regurgitation of food; (3) the act of taking the solid food soon provokes a cough; (4) it sometimes happens that the patient becomes breathless, and this is particularly so after attempting to take more solid food than usual; (5) liquid food causes none of these symptoms.

**Archives Médicales Belges, Liège**

June, 1919, 72, No. 6

- \*Research on Cyclopan Microphthalmos. G. Van Duyse.—p. 675. (Cont'n in No. 7, p. 1.)
- Malaria in Belgium. J. Pirquet.—p. 660.
- \*Stuttering of Endocrine Origin. A. A. da Costa Ferreira.—p. 680.
- \*Spontaneous Rupture of Varicocele. F. Van den Branden.—p. 683.
- The Transmissible Diseases in 1918. M. Stassen.—p. 723.
- Diagnosis and Treatment of Pithiatric Paralysis. R. Marchal.—p. 730.

**Cyclopan Eye.**—Van Duyse's study of a cyclopan single eye throws light, he says, on the pathologic anatomy and pathogenesis of such malformations and on the embryology of the eye in general.

**Stuttering an Endocrine Disturbance.**—Da Costa's clinical experience at Lisbon has revealed morphologic, physiologic and psychologic evidence that stuttering is only one manifestation of a general endocrine disturbance, which the physician is often able to modify and thus cure the stuttering. He here reports the pulse findings in two stutterers which reveal that there is a tendency to a neurosis of the sympathetic system. This is presumably of endocrine origin, and, most probably, the thyroid is primarily responsible.

**Spontaneous Rupture of a Varicocele.**—Van den Branden relates that the young man was shaving when he suddenly experienced such pain in the scrotum that he swooned, and the operation two days later showed a hematocele. There were no traces of venereal disease, but treatment had been given eight years before for acute varicocele. Palet's compilation lists only five cases of spontaneous rupture, and these were all in elderly men.

**Archives de Médecine des Enfants, Paris**

November, 1919, 22, No. 11

- \*Tardy Scurvy in Children. E. Weill and A. Dufourt.—p. 561.
- \*Diabetes Mellitus in Children. P. Nobécourt.—p. 573.
- \*Organized Surveillance of the Health of Children. P. F. Armand-Delille.—p. 587.
- \*Multiple Relapsing Phlebitis. A. Roux.—p. 593.
- \*Mongolian Blue Spot in Brazil. C. Ferreira. (S. Paulo).—p. 597.

**Deficiency Diseases in Children.**—Weill and Dufourt relate that nine cases of scurvy developed in a group of children from 2½ to 6 years old recently repatriated from the regions occupied by the Germans. Enteritis and dysentery had been diagnosed, and although the gingivitis was extreme and painful, and the children cried day and night, the true diagnosis was not suspected. The enteritis had lasted from three to ten months in some of the children, and fruit and green vegetables had been dropped completely, as tending to aggravate the bowel disturbances. Weill changed all this at once, and had the gums painted with lemon juice. The prompt improvement when the antiscurvy diet was given soon convinced the most skeptical. All the children were completely cured within a month.

**Diabetes Mellitus in Children.**—Nobécourt reports a case in which diabetes mellitus developed in a girl of 11½. Although the glycosuria was pronounced and it proved impossible to reduce it, the general health had kept comparatively good during the seven months, except that the child was backward in her growth. On an antidiabetic diet, signs of acidosis became apparent, and she was then allowed to eat the ordinary hospital food, with 50 gm. of sugar in addition, and under this the diacetic acid content of the urine grew less. When sugar was suppressed, the signs of acidosis returned, but they subsided anew when the sugar was resumed. It had thus a distinctly favorable action in this case. The dietic restrictions cannot be as severe for children as for adults. The outlook is always grave with this form of diabetes in children; he describes two cases in which the girl of 15 and boy of 9 died in coma two months and thirteen months after the first symptoms, the coma coming on after a brief period of remission. The onset of



tremor and other symptoms. In the majority of cases, a few weeks of thyroid treatment abolish temporarily or permanently these minor signs of thyroid insufficiency. It may tone up the thyroid so that a tendency to myxedema may be thrown off. With actual myxedema, the thyroid treatment, he says, should be given twenty days each month throughout life. Treatment of pluriglandular insufficiency does not require strictly specific organ extracts. On account of the synergy of the endocrine glands, one extract may prove effectual when others fail, even when the new organ extract does not seem to have anything to do with the symptoms observed, continuing the treatment possibly for months, and alternating or combining the organ extracts according to the results obtained. If there is any tendency to a positive Wassermann reaction, mercurial or arsenical treatment should supplement the organotherapy. In any event, organotherapy of any kind requires medical surveillance.

### Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 24, 1919, 42, No. 29

- \*Pleuropulmonary Vasomotor Reactions. D'Oelsnitz and L. Cornil. —p. 861.
- \*Mixed Meningitis. H. Claude, H. Schaeffer and S. Bernard. —p. 863.
- \*Shock from Small Transfusion of Blood. L. Boidin and others. —p. 864.
- \*Syphilitic Meningomyelitis. P. Nicaud. —p. 875.
- Case of Typhoid Meningitis. Idem. —p. 877.
- \*Tardy Jaundice after Arspheamin. Sicard, Haznau and Kudelski. —p. 880.
- \*Different Forms of Nephritis. Hélouin. —p. 889.
- \*Chloro-Azotemic Nephritis. Hélouin. —p. 893.

**Vasomotor Reactions with Lesions in Pleura and Lungs.**—D'Oelsnitz and Cornil state that in different pathologic conditions in one side of the chest, the arm on that side shows various vasomotor disturbances. The latter differ with different forms of pleuropulmonary disease. They can be detected best with the oscillogram, and they are evidently due to irritation of the cervical sympathetic. They have been studying these phenomena with epinephrin, amyl nitrite, mechanical, heat and other tests, elastic constriction of the arm, and compression of the eyeball. The findings suggest that oscillogram tests of the corresponding arm may prove a useful diagnostic measure to supplement the routine measures with latent intrathoracic foci.

**Mixed Meningitis.**—The man of 54 presented the clinical picture of meningococcus meningitis following meningococemia, with joint lesions. Slight improvement followed serotherapy but it was transient, and tubercle bacilli were cultivated along with the meningococcus from the spinal fluid and from the sylvian region of the brain after death.

**Shock After Transfusion of Blood.**—Only 40 c.c. of citrated blood had been transfused in treatment of post typhoid septicemia in the young woman, but an extremely violent shock followed at once, and with convulsions, the sixth day and then coma for four days, with final recovery. The transfusion had been made very cautiously, but the hemoglobinuria testified to the hemolytic action of the transfused blood although no incompatibility between the blood of donor and recipient had been detected in the test tube. This extremely grave reaction to such a small amount of blood transfused with the utmost precision of technique was a painful surprise, but it is possible that this excessively violent albuminoid shock may have turned the scale in favor of recovery in the otherwise fatal septicemia. In conclusion the writers cite Lewisohn's warning against transfusion in very acute septicemia, on account of the alarming reaction which may follow. But they are convinced that the septicemia would have proved fatal without it. The father was the donor.

**Syphilitic Meningomyelitis.**—Nicaud reports a case of sudden complete flaccid paraplegia, with pronounced sensory disturbances, the tenth year of syphilis. Under neo-arsphenamin recovery was practically complete in three months.

**Jaundice and Neo-Arsphenamin.**—Sicard and his co-workers present evidence to prove that the drug is responsible for the jaundice that develops during arspheamin treatment. They have had five instances of it among their 100 cases of chronic

syphilitic disease of the nervous system treated by their method of small frequent (every day or every second or third day) intravenous injection of 0.15 gm. of (French) neo-arsphenamin to a total of 30 or 50 injections. The drug was suspended when the jaundice developed in all but one case, and this case was the only one that proved fatal. In two of the five cases the drug was being given for some pathologic condition other than syphilis, there being nothing to suggest either inherited or acquired syphilis. Among the other arguments presented is that the azotemia slowly and progressively increases under the neo-arsphenamin and for some time after its suspension. A further argument is offered by Mbatucci's recent cases in which fatal hemorrhages followed a course of neo-arsphenamin, accompanied in one case with jaundice. These symptoms developed six weeks after the course (total dose 8.50 gm. in six weeks at five day intervals). Necropsy revealed acute yellow atrophy of the liver. They denounce Milian's assertion that the syphilis is responsible for the jaundice, and they point to their success with frequent small doses with never any signs of anaphylaxis, as the most reliable and harmless means for administering a given amount of the drug in a given period, far safer than by weekly injections. Milian replied to this by asking them to transfer to his service the next case of what they consider toxic jaundice. He reiterated that with the present technique there is no arsenical toxic jaundice; 95 per cent. of the cases are the work of syphilitic hepatitis roused from slumber by inadequate treatment. The other 5 per cent. are exceptional coincidences, catarrhal jaundice, gallstones, etc.

**Different Forms of Nephritis.**—Hélouin expatiates on the importance for treatment of an exact diagnosis of the form of the nephritis, and lists nine different types aside from the tuberculous, syphilitic and pylonephritis forms. He outlines the treatment for each according as the kidney is or is not permeable for chlorids, urea or water.

**Chloro-Azotemic Nephritis.**—Hélouin applies this term to nephritis in which there is retention of chlorids and urea but not of water. The symptoms are slowly progressive lassitude, lack of appetite, headache, dyspnea on exertion and gastro-intestinal derangement, but no fever or chills. The dyspnea gradually grows permanent, and edema appears. The urine is scanty and contains much albumin but little chlorids or urea, and the blood pressure and the Ambard constant are high. If the patient is allowed nothing but water for a time, all these symptoms subside in the mild cases. In the graver cases, acute pulmonary edema is liable to develop at any moment. It might be brought on by administering salt for the classic test of alimentary chloriduria. Treatment of this type includes venesection and drastic purgatives, restriction to water, and abstinence from milk, albuminoids and chlorids. As this form of nephritis improves, the azotemia subsides, but not until the urea content of the blood approximates normal does the chlorid content fall. The chloridemia seems to persist to defend the tissues against the azotemia. The edema persists as long as the retention of chlorids lasts. First the azotemia has to be got out of the way, then the chloridemia subsides, and along with this the edema. If the kidney is damaged too much for complete restitution the Ambard constant and the azotemia figure keep high, and a new wave of azotemia is liable to entail fatal pulmonary edema.

### Paris Medical

NOV. 15, 1919, D. No. 16

- \*Lectures on Otorhinolaryngology Course. P. Sebléan.—p. 185.
- \*Laryngeal Meningitis. G. Rosenthal.—p. 197.

**The Otorhinolaryngology Course.** This is the first lecture of the newly founded *Cercle oto-rhino-laryngologique* which has had a long period of gestation since its conception in 1907. A large pavilion at the Lariboisière hospital is devoted to the clinic, and Sebléan expressed his hope that it might attract students from at home and afar and prove not only a center for lively scientific activity but a *foyer d'unité confraternelle*.

**Influenzal Meningitis.** Rosenthal reports two cases in which recovery followed lumbar puncture with two cases



phlebitis. The man was in the hospital for three months. When he left he was in good condition except for the total blindness in that eye. Vision in the other was good.

**Bone Complications After Typhoid.**—Tassone comments on the predominance of young persons, between 11 and 20, among those that develop bone complications after typhoid. He suggests that the greater liability to bumps and knocks in the young may explain this. The bone complications may be merely pains suggesting rheumatism but terminating in spontaneous resolution, or there may be actual acute or chronic osteomyelitis, with suppuration, or a chronic form without suppuration, with a tendency to exostosis production. Months and years may pass before the complication develops, and any rise in the temperature after typhoid, especially during convalescence, should suggest the possibility of complicating bone disease. In a case described the young man had lively pains all over his body during convalescence from typhoid. The pains subsided in a few days except in the left ankle where a suppurative process developed. It spread to the knee, and the fistula in the ankle kept suppurating for a month. There was also pain in one ear and discharge for a month. The lids also swelled but returned to normal after two weeks or more, and the left eye was left totally blind. The crippling of the left leg entailed by the long suppurative process was corrected by an operation when the inflammation had entirely subsided. The multiple suppurating foci, the extensive and profound destruction of bone and the hyperplastic tendency thereafter were notable features of this case.

**Archivos Españoles de Enf. del Ap. Digestivo, Madrid**

October, 1919, 2, No. 10

- \*Frequency of Cancerous Degeneration of Gastric Ulcer in Spain. L. Urrutia.—p. 579.
- \*Determination of Diastase or Amylase in Body Fluids. J. Luis Yagüe y Espinosa.—p. 586.

**Malignant Degeneration of Gastric Ulcer.**—Urrutia relates that in 17.7 per cent. of 158 cases of gastric cancer of which he has full records there was a history of stomach disturbances from three to fifty years before the cancer. In 20 per cent. the cancers had the aspect of an ulcer—cancer and 12.5 per cent. of the hard, boring ulcers showed signs of malignant degeneration. His personal experience, therefore, has been that from 15 to 20 per cent. of chronic callous ulcers develop cancer. He cites similar statistics from other countries; they range from Fenwick's 3 per cent. in England, to 80 per cent. at the Mayo Clinic, and 100 per cent. in Zenker's service in Germany.

**Determination of Diastase and Amylase in Body Fluids.**

Luis-Yagüe gives some tables for ready computation of the amount of amylase in the fluid being examined, and gives directions with which any physician can estimate the approximate content of diastase and amylase in the saliva, urine, blood and feces. He adds to 1 c.c. of the saliva or other fluid being examined from 0.1 to 0.5 c.c. water, using a set of test tubes and then pours in each tube 1 c.c. of a 5 per cent. solution of starch, cooked slowly until transparent. He interprets the findings with the different body fluids as a little iodine is added.

**Archivos Españoles de Pediatría, Madrid**

September 1919, 3, No. 9

- Pathologic Anatomy and Clinic of M. Tuberculosis. F. Prado.—p. 111.
- \*Tuberculosis in Children. A. Muñoz y del Bravo Fria.—p. 115.

**Tuberculosis in Children.**—Muñoz y del Bravo Fria found tuberculosis in 195 of 3,000 children from 1 to 3 years old at a Madrid asylum and they examined 105 tubercular child cadavers. The tuberculin tests showed 6.3 per cent tubercular at this early age, and the tubercular cadavers formed 9.3 per cent. of the total. The thorax was primarily affected in the overwhelming majority. They encountered one case of unmistakable congenital tuberculosis. In only one of all the cadavers was the primary lesion in the intestine. They describe the clinical picture, and remark on the rarity of hemiptyosis in children. They observed it in only two cases.

**Gaceta Médica de Cartagena**

October, 1919, 2, No. 23

- Latent Appendicitis Flares up during Influenza. N. M. Paz.—p. 5.
- Marriage of Lepers. J. A. Caballero L.—p. 10.

**Medicina Ibera, Madrid**

Oct. 18, 1919, 9, No. 102

- Spastic Organic Paraplegia with Contracture. Manuel de los Rios.—p. 37.
- Conc'n.
- Pathogenesis of Adenoids. Pralla.—p. 42.
- Oct. 25, 1919, 9, No. 113
- Ceratitis of Genital Origin. M. Barja y Bonet.—p. 57.
- Necessity for Inoculation of Animals in Diagnosis of Tuberculous Processes. Angel López.—p. 61.

**Plus-Ultra, Madrid**

July, 1919, 3, No. 13

- \*Topography of Liver and Right Kidney Tumors. Seres.—p. 5.
- \*Abdominal Carcinomatosis. F. Salgado Benavides.—p. 10.
- Recent Progress in Ophthalmology.—p. 14; in Obstetrics and Gynecology.—p. 23; in Bacteriology.—p. 32; in Otorhinolaryngology.—p. 37; in Heart Disease.—p. 43; in Instruments, etc.—p. 61.
- \*Kidney Anomalies and Surgery. Ara Sarria.—p. 16.
- \*Stovain and the Blood Pressure and Heart. F. Alonso, T. Rodríguez and M. Bahuquero.—p. 19.
- \*Pneumococcus Peritonitis. Veterinario Juaristi.—p. 33.
- The Diet After Gastro-Enterostomy. J. L. Aague y Espinosa.—p. 5.
- Syphilitic Liver Colic. Pedro Escudero.—p. 40.
- The Opsonin-Inducing Power of Serums. Juan Peset.—p. 47.
- \*Acute Mercurial Polyneuritis. W. Lopez Alba.—p. 57.
- Roentgen Study of the Circulation in the Brain. A. Herrera Calmona.—p. 57.

**Topography of Liver and Right Kidney Tumors.**—Serres comments on the difficulty in certain cases in distinguishing between a tumor in the liver and in the right kidney. The liver may sag so that it may present in the lumbar region, or be in contact with the abdominal wall, and the kidney may likewise be in either of these positions. He gives a number of illustrations showing the conditions aiding to distinguish a kidney tumor from an extrarenal tumor, and explain the displacement of the liver liable with either.

**Abdominal Carcinomatosis.**—In Salgado's case the man of 45 died in four months from the first symptoms. The viscera and especially the liver presented cancerous degeneration to an unprecedented extent. The article is illustrated.

**Kidney Anomalies.**—Three large views are given of some kidney anomalies which might puzzle the surgeon. One kidney shows three large arteries. A specimen from another case shows egg-shaped kidneys with multiple arteries.

**Action of Stovain on Heart and Blood Pressure.**—The experiments on dogs reported confirm the action of stovain on the sympathetic nervous system. Nothing was observed comparable to the fall of the blood pressure in man under stovain. The blood pressure was not modified in the dogs, but small doses by the vein induced a negative chronotropic action in the heart, along with a positive inotropic action. Larger doses reversed this, accelerating the rate of cardiac contraction while weakening the force of the beat.

**Pneumococcus Peritonitis.**—Juaristi discusses some of the problems presented by pneumococcus peritonitis, especially the best way to drain. In four of his own ten cases the disease had been mistaken for typhoid, and the surgeon had not been called in till the third week. In some of the other cases puncture during the second week averted the operation, in others the pus spread to the wall outward to a growth. One girl had three of these spontaneous fistulae. This girl died, as also two of the adults, although ample laparotomy had apparently improved conditions the tenth day and the third week. He warns of the transference of this to community on the ninth and the twelfth days. Then the symptoms flare up again unless the abdominal cavity is thoroughly drained. He experimented on his salaver and found that a hole 1/8 inch to the sacrum, through the greater sacrotuberous ligament, effectively drains the abdomen without injuring any of the viscera. He suggests the utility of draining in this way introducing a trocar from without or from within, working down from the sacrum at the lower inner margin of the greater sacrotuberous ligament in the right direction is preferred. With proper drainage thus effected the laparotomy incision might be almost unnecessary.

the various ways and the feasibility of this pararectal method of draining. Another feature of pneumococcus peritonitis is the pronounced tendency to formation of pseudomembranes. To combat this he advises injection of 30 or 40 cc. of laeser serum at once after the operation. In his cases he could see the rapid melting away of the pseudomembranes under its action.

**Acute Mercurial Polyneuritis.**—Lopez reports in detail what he thinks is the third case of the kind on record. The acute polyneuritis followed ingestion of 2 gm. of calomel in three doses. The extreme constipation prevented the elimination by the bowel. The patient was a woman of 30, and the three doses were taken with three and eight days' intervals. Chronic polyneuritis from mercurial poisoning is comparatively common; he cites a long list of cases of this chronic kind.

**Prensa Medica Argentina, Buenos Aires**

Sept. 10, 1919, 6, No. 10

General Path for Processes of Tuberculosis. G. Arango Alfaro. p. 93  
Tuberculosis in Children. J. Guglielmini and G. Pacella. p. 102  
Tuberculosis in the Lung. p. 98

Sept. 10, 1919, 6, No. 11

General Path for Syphilis. M. R. Castex and J. Palacio. p. 105  
Chronic Subacute Epiphysema after Fracture of Ribs. N. Jakschack. p. 111

**Tardy Inherited Syphilis.**—Castex and Palacio here continue their long study of tardy syphilitic disease of glands, spleen and blood, based on extensive personal experience and on the literature. They credit Resio with the first clinical and anatomical demonstration of the considerable share of "tardy inherited syphilis" in the pathogenesis of Banti's disease, and the possibility of a complete cure under mercurial treatment of long duration. Enlargement of the spleen at 29, progressive pernicious anemia in the thirties, aleukemic lymphadenitis in children, paroxysmal hemoglobinuria, chronic hereditary families with enlarged spleen, and glandular disease of the neck in adults—instances of all these are referred to which the prompt retrogression under mercury definitely confirmed their syphilitic nature. When the lesions are long established, not much benefit from any treatment can be anticipated.

**Siglo Medico, Madrid**

Oct. 3, 1919, 66, No. 3436

Microorganisms. F. Fajardo Saiz. p. 381  
Hysteria. J. Capura. F. Ibañeta. F. Bouilla. p. 383

**Hysteria Major.**—Pérez reports two extreme cases of hysteria in young women. One had been having for seven years convulsions in various regions, including the eyelids and throat, being often hemorrhagic, especially from the stomach; attacks of retention of urine for several days, compelling use of the catheter, and of occasional periods of delirium preceding conversations with imaginary persons. In the second woman the hysteria caused convulsions, the tongue had some contractions keeping up for several hours and ending in a full lethargic condition during the convulsion. There was nothing in the patient or the family history to suggest any predisposing factors in this case, and a general hyperaemia in the scalp, lids and precoracium. The treatment had been stopped first after an attack of convulsion, which a reoperation was done twice. The convulsions returned at once after the cessation, and have persisted ever since and distressing to date.

**The Renal Factor in Glycosuria.**—Bomilla warns that while glycosuria is produced by many disturbances in the metabolism of carbohydrates, the disturbance may be of various causes. The authors are advised to overlook this, and label every case of glycosuria as diabetes.

Oct. 20, 1919, 66, No. 3437

Microorganisms. S. H. Hirsch. p. 373  
Tuberculosis in Children. J. Guglielmini and G. Pacella. p. 102  
Tuberculosis in the Lung. p. 98

**Vertebral Tuberculosis.**—Decree dismisses tuberculin as of no use whatever in external tuberculosis, according to the universal opinion. But heliotherapy had proved a powerful adjuvant for cure. The excoriations at Kerlins, he says,

near Tunis, have shown inscriptions dating from 42 B. C. recording the efficacy of sun baths and saline baths in the treatment of vertebral caries. Families are apt to carry to extremes the directions given them, and allow the children to take sun baths even up to four hours in an August noon, but the children in Spain seem to thrive under them and the focus improves in a few months to equal what is realized elsewhere only in a year or two.

He gauges the length of the sun baths mainly by the temperature after the exposure. Simple and harmless heliotherapy, which costs absolutely nothing, has been applied by physicians over two thirds of Spain to an extent and with an efficacy beyond the highest dreams of many foreign physicians elsewhere. He pleads for heliotherapy as a routine measure in treatment of even the most neglected and desperate cases. Good results cannot be expected when only a small area is exposed through an opening in the plaster cast. The patients begin to improve at once when the opening in the cast is closed and a full sun bath taken. This is the case also with hip disease, even when the pelvis is in a cast.

The hemoglobin may play in human beings the same rôle as chlorophyll in plants. The fluorescent pigments, chlorophyll in plants and urobilin and bilirubin in animals, may destroy toxins and microbes to a certain extent under the action of sunlight. The action of the sunlight seems to take place mainly in the superficial circulation.

Decree extols the Lorenz and Redard frames for vertebral caries as offering the best conditions for immobilization while permitting heliotherapy. He decries the Albee and Libbs operative measures as illogical, and contraindicated during the early phases. Time will show whether they should not be discarded completely as complicated, useless or harmful in all other stages of the disease. They should be reserved for cases with a progressive course in spite of systematic other treatment.

**Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam**

Sept. 27, 1919, 2, No. 13

Typhus. P. H. Kramer. p. 894.  
Position of the Yellow Spot in Relation to the Optic Nerve. G. Ten Doesschate. p. 906.  
Organization of Public Health Service. H. H. Van Eyk. p. 913.  
Hysteria in Children. H. Bolten. p. 915.  
Abnormally Short Umbilical Cord. J. A. H. van den Berg. p. 922.

**Typhus.**—Kramer applied the agglutination test with the proteus X in 119 cases of typhus at Rotterdam, and found it decisive at a dilution of 1:500 or higher, but it threw no light on the prognosis. The Widal agglutination test was positive late in typhus in 10 per cent. of the cases.

**The Yellow Spot in Relation to the Optic Nerve.**—Ten Doesschate reports two cases in which the relative location of the yellow spot and the optic nerve differed widely from the classic descriptions. He refers to some other recently published cases showing similar anomalies, and theorizes to explain them.

**Hysteria in Children.**—Bolten reports eight cases which illustrate the manifold forms that hysteria may assume in children. He calls attention to the hypotony in the sympathetic nervous system which he has found constantly in children and adults with hysteria. He thinks research on the vegetative nervous system in hysteria may throw new light on it. Erlenmeyer saw ameboid movements in the pupils of one patient during attacks of a hysterical nature. No stigmata of hysteria were evident in Bolten's eight cases, and all improved under psychotherapy, instructing and training the children to exert their will power not only to arrest an attack but to overcome the tendency to hysteria. By thus making the child realize that he himself has aided in throwing off the pathologic condition, much more is gained than can be obtained by hypnosis, rapidly acting suggestion, etc., which leave the causal hysteria unmodified. All the persons with hysteria that he has examined had various trophic disturbances, especially in the nails and teeth, and there were often vasomotor disturbances, spastic constipation and other signs of a substandard sympathetic nervous system. This was confirmed by the subsidence of these disturbances under thyroid treatment.









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